# FACT SHEET FOR THE

# CONCENTRATED ANIMAL FEEDING OPERATION NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND STATE WASTE DISCHARGE GENERAL PERMIT

# AND

# CONCENTRATED ANIMAL FEEDING OPERATION STATE WASTE DISCHARGE GENERAL PERMIT

**JUNE 15, 2016**

**THE WASHINGTON STATE DEPARTMENT OF ECOLOGY**

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**NOTE:** The text of this fact sheet contains words and phrases in ***bold and italics***. These words and phrases are the first usage in the permit and are defined in Appendix D.

# INTRODUCTION

This fact sheet is a companion document to the draft revised ***Concentrated Animal Feeding Operation General (CAFO)*** National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General ***Permit*** (combined permit) and the draft CAFO State Waste General Permit (state permit). It provides the legal and technical basis for permit issuance or reissuance required in Washington Administrative Code (WAC) 173-226-110.

This fact sheet explains the nature of the proposed ***discharges*** allowed by the combined permit and state permit, the Washington State Department of Ecology's (Ecology) decisions on limiting the ***pollutants*** in the receiving water, and the regulatory and technical basis for these decisions. WAC 173-226-130 specifies required public notice of draft permits, public hearings, comment periods, and public notice of issuance before Ecology can issue or reissue a ***general permit***. For both the combined permit and state permit this fact sheet, the ***application for coverage (Notice of Intent or NOI)***, small business economic impact statement (SBEIS) and draft permit are available for review (see Appendix B - Public Involvement - for more detail on public notice procedures). Other than the factsheet, separate documents are available for each permit.

After the public comment period closes, Ecology will summarize and respond to substantive comments. Public comments may cause Ecology to revise permit language and requirements. The summary and response to comments will become part of the file for this permit and parties submitting comments will receive a copy of Ecology's responses.

Ecology will not revise the original fact sheet after it publishes the public notice. Appendix C, the Response to Comments for the combined permit and state permit respectively, will summarize comments and any resultant changes to each permit based on the received comments.

## BRIEF REVIEW OF REGULATORY AUTHORITY

This review is not intended to be exhaustive. It provides a broad overview of the laws and rules under which Ecology has authority to regulate discharges to ***waters of the state***.

### The Federal Clean Water Act (CWA) 33 U.S.C. §1251 et seq.

The federal CWA, as amended, establishes water quality goals for navigable surface waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the NPDES system of permits, which the United States Environmental Protection Agency (EPA) administers. The EPA has delegated responsibility and authority to administer the NPDES permit program to the State of Washington. In addition to this delegation under the CWA, the state legislature in Revised Code of Washington 90.48 defines Ecology's authority and obligations in administering the NPDES permit program. Ecology directly implements the Code of Federal Regulations (CFRs) when developing state NPDES permits. Ecology does not have the authority to issue NPDES permits to CAFOs that are federal or tribal facilities (with the exception of some limited areas on Puyallup Tribe property).

### Chapter 90.48 RCW - The State Water Pollution Control Act

Chapter 90.48 RCW declares that maintaining the highest possible standards to insure purity of all waters of the state is the policy of the State. Healthy water quality must be maintained for public health, public enjoyment, protection of terrestrial and aquatic life, and the industrial development of the state. All known, available, and reasonable methods must be used by industries and others prevent and control pollution.

In addition, it is unlawful for any person to discharge pollutants to waters of the state (RCW 90.48.080). The only time a discharge is lawful is when a permit to discharge is obtained from Ecology prior to the discharge occurring (RCW 90.48.160).

### Chapter 173-226 WAC - Waste Discharge General Permit Program

The purpose of chapter 173-226 WAC is to establish a state general permit program for the discharge of pollutants to waters of the state under the authority granted to Ecology in RCW 90.48. Permits issued under chapter 173-226 WAC may be state waste discharge general permits or combined NPDES and state waste discharge general permits.

### Chapter 173-200 WAC - Water Quality Standards for Groundwaters of the State of Washington, and Chapter 173-201A WAC, Water Quality Standards for Surface Waters of the State of Washington

The ***water quality standards*** for the state of Washington determine ***beneficial uses*** of waters of the state. Any permits issued must include ***effluent limitations*** so that allowed discharges meet the water quality standards, including antidegradation.

## SUMMARY OF MAJOR CASE LAW

(Precedent setting or directly applicable to Ecology permits)

**Concerned Area Residents for The Environment v. Southview Farm,** ***35 F.3d 114 (2nd Cir. 1994)***

Concerned Area Residents for The Environment brought a citizen suit under the CWA against Southview Farm for the discharge of manure without a permit from a CAFO to surface water on five occasions. The Court held:

1. Manure spreading vehicles are ***point sources***.

2. A facility is a CAFO, and a point source, if it confines animals for 45 days or more in any 12-month period, and crops, vegetation forage growth, or post-harvest residues are not sustained over the normal growing season on any portion of the area where the animals are confined. Growing crops or forage on another portion of a facility that does not contain confined animals does not change the facilities status from being a CAFO.

3. ***Agricultural stormwater*** exemption only applies to the discharge of pollutants caused by precipitation, not discharges that occur during precipitation due to other activities.

**CARE v. Henry Bosma Dairy,** ***305 F.3d 943 (9th Cir. 2002)***

The Community Association for Restoration of the Environment (CARE) brought a CWA citizen suit against the Henry Bosma Dairy for discharges in violation of its NPDES permit. The Court held:

1. "Navigable waters" and "waters of the US" includes tributaries (even intermittent ones) that contribute to the flow of a larger water body (referencing *Headwaters v. Talent Irrigation District)*. **NOTE**: this holding has been called into question by the subsequent Supreme Court ruling in *Rapanos v. U.S.*, 547 U.S. 715 (2006).
2. Fields where manure is stored and ditches that store or transfer manure, and manure spreading vehicles are part of the CAFO, and therefore part of the point source that makes up a CAFO.
3. The CWA allows citizen suits to enforce not only federal standards, but also more stringent state established effluent standards if both are contained in a combined permit.

**Waterkeeper Alliance, Inc v. EPA,** ***399F.3d 486 (2nd Cir. 2005)***

EPA revised and updated the CAFO regulations in 2001 and issued the final rule in 2003. Several aspects of the 2003 CAFO rule were challenged by the Waterkeeper Alliance. The court vacated three portions of the 2003 CAFO rule. Permitting authorities may no longer:

1. Issue permits without reviewing the terms of the nutrient management plans (NMP),

2. Issue permits that do not include the terms of the NMP as permit terms and provide for public participation (public comment) on the NMP,

3. Require CAFOs to apply for an NPDES permit based on the potential to discharge or otherwise demonstrate that they have no potential to discharge.

**CARE v. Ecology, Pollution Control Hearings Board No. 06-057**

CARE appealed the CAFO General Permit issued by Ecology in 2006 to the Pollution Control Hearings Board (Board). The Board affirmed the CAFO permit with the clarification that when environmental monitoring shows that water quality may be at risk, no further ***land application*** (of manure) may be made until after the NMP is updated and approved by Ecology.

The Board also determined:

1. Ecology did not err when it required NMPs to be updated and approved when a ***Permittee*** changes the field acres in the NMP.
2. Ecology did not err when it required Permittees to report discharges as soon as possible instead of within 24 hours.
3. It is not unlawful or unreasonable to require an existing Permittee to demonstrate that their previously generated wastes have no remaining potential to discharge before being allowed to terminate permit coverage.
4. General Condition G3 does not [*referring to special and general conditions in the 2006 CAFO General Permit*]:
    a. Eliminate the upset defense incorporated by reference in General Condition G7 and/or provided pursuant Special Condition S1.A.3[*of the 2006 CAFO permit*] (in accordance with applicable requirements in 40 CFR 122.41); or
    b. Prevent agricultural stormwater discharges authorized pursuant to Special Condition S1.A3 [*of the 2006 CAFO permit*].
5. The Permit prohibits a CAFO from modifying operations in a manner not contemplated in its NMP until it has submitted an updated NMP and received approval of that updated plan from Ecology.

**CARE v. Ecology, 149 Wn. App. 830 (2009)**

CARE appealed the Board's decision in PCHB No. 06-057 to the Washington Court of Appeals. The specific determinations appealed were: (1) whether Ecology was required to include ***groundwater*** monitoring as part of the permit and (2) did the permit violate the federal Clean Water Act's requirement for public participation in the continuing protection of groundwater. The Court of Appeals affirmed the PCHB's decision approving the CAFO permit.

**National Pork Producers Council, v. EPA: *635 F.3d 738 (5th Cir. 2011)***

The NPPC appealed provisions of the 2008 federal CAFO rule (which applies only to surface water). The court held that EPA cannot impose a duty for a CAFO to apply for a permit unless the CAFO is actually discharging (or has discharged), vacating any duty to apply for a CAFO that only "proposes to discharge." That portion of the 2008 CAFO rule was vacated. CAFOs are only required to apply for a permit if a discharge occurs.

## DESCRIPTION OF ANIMAL AGRICULTURE INDUSTRY

In general, the commercial and/or industrial operations that comprise the animal agriculture industry intensively confine and feed livestock and poultry for the production of animals and animal based products. Confined livestock and poultry are generally comprised of milk cows, beef, veal, heifers, calves, pigs/hogs, poultry (chickens, turkeys, and ducks), sheep, goats, and horses. Other animals types may also be confined (e.g. mink). Depending on the type of livestock or poultry, animals are usually confined to barns, sheds, pens, cages, or other type of confinement. At times, a livestock or poultry may be moved to pasture or supplied with access to outside spaces. Feed is supplied to the animals and waste materials (manure, bedding, spilled food, etc) are removed from confinement areas through various means.

The removed manure, waste materials, and other process wastes (e.g. milk parlor wash water, egg washing water) generated by these facilities is collected and stored, then applied to crop land to provide nutrients in place of or in addition to chemical fertilizers. The fields that the waste is land applied to may provide a source of feed for the confined animals or it may be another cash crop.

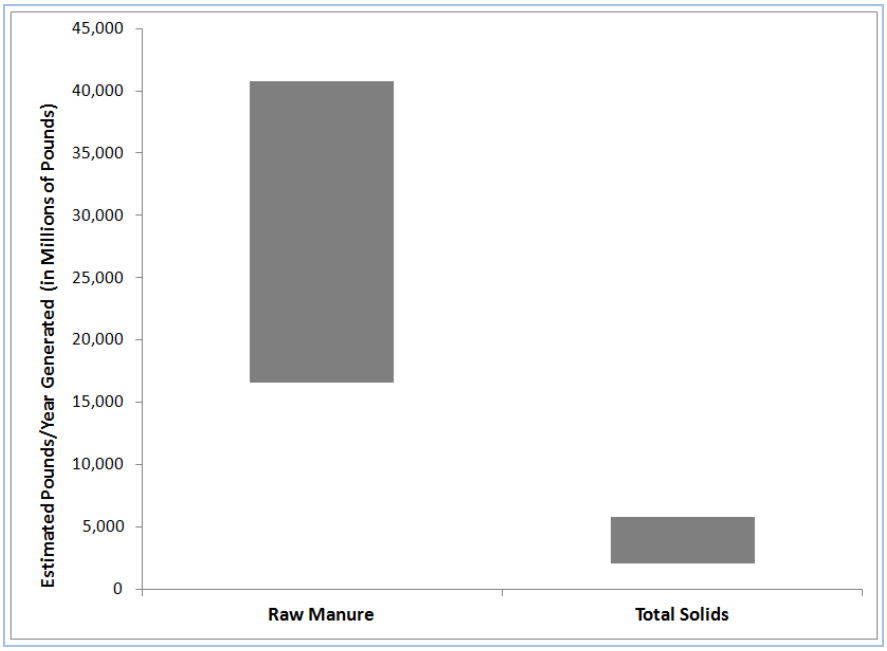
## EFFLUENT CHARACTERIZATION

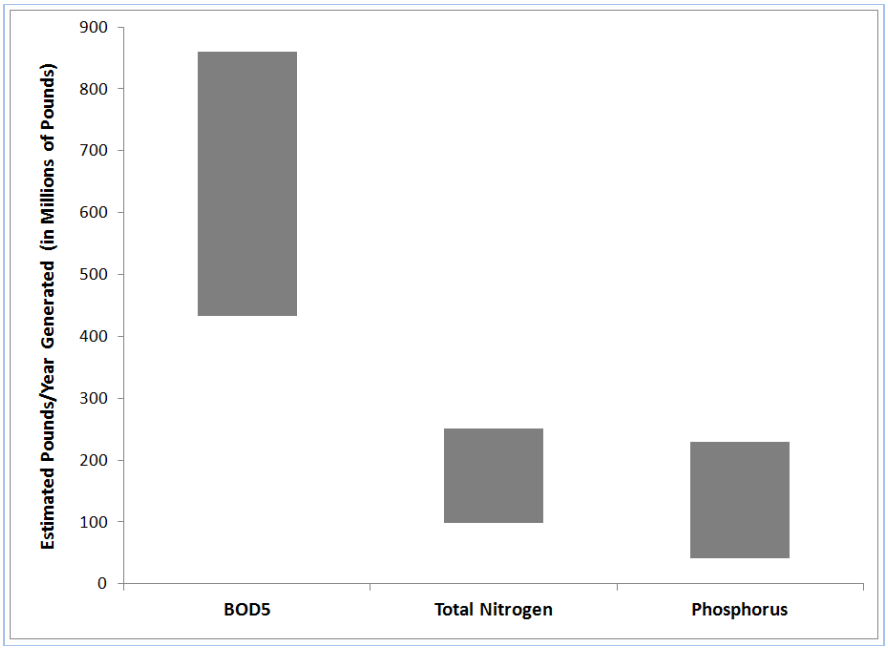
Potential sources of pollution from CAFOs include manure and litter generated by livestock as well as any process wastewater generated from animal product production by the CAFO. Based on USDA 2007 Agriculture Census data, livestock in Washington generate estimated 16 to 40 billion pounds of raw manure (as excreted solids and liquids) per year. Other pollutant sources include, but are not limited to, chemicals (e.g. pesticides, veterinary medications, hormones, cleaning agents, equipment fuel) used by the CAFO, silage leachate, and raw materials such as feed or bedding.

Manure, litter, and process wastewater contain nitrogen and phosphorus compounds as well as potassium, bacteria, TDS, and chlorides. The amount of each parameter is variable depending on animal type, feeding regime and other facility practices. The figures below show estimated ranges of total (raw) manure generated in one year by the livestock in Washington as enumerated in the 2007 USDA Agricultural Census. The values are based on average manure values from American Society of Agricultural Engineers ASAE D384.1 and Midwest
Plan Service MWPS-18.

**Estimated Range of Manure Generated Per Year In Washington**

| | Lower (Million Lbs/Year) | Upper (Million Lbs/Year) |
|---|---|---|
| **Raw Manure** | 16,530 | 40,750 |
| **Total Solids** | 2,022 | 5,800 |
| **$BOD_5$** | 433 | 860 |
| **Total Nitrogen** | 98 | 250 |
| **Phosphorus** | 41 | 229 |




**Manure, Litter, and Process Wastewater**

***Manure*** is a by-product generated by CAFOs. Fresh manure (as excreted) is approximately 83-92% liquid for non-poultry species and 73-75% liquid for poultry. Manure generated by horse, sheep, goat, beef, and other animals with a similar low liquid content in excreted manure is usually handled as a solid. Poultry manure is usually considered ***litter*** because it has a very low moisture content and a high solids (bedding) content with no additional water added and is also handled as a solid.

Dairy and hog manure is usually handled as liquid or slurry (mixture of solids and liquid) to do high liquid content in excreted manure and the additional water added as part of the management process. Some dairy operations will use mechanical methods to separate the liquid and solid portions of the manure and then handle each portion separately.

Solid manure is stored in various ways such piles on fields for later land application, bunkers, pads, or in place (e.g. in the poultry house at a chicken facility). Depending on the animal type of a CAFO solid manure may also be recycled as animal bedding or partially dried and sold as a soil amendment product. The dried manure solids

Liquid manure is stored in ***lagoons***, pits, or other structures like above ground steel or concrete storage tanks. Generally, liquid manure is stored until land applied to crop or pasture fields, used in anaerobic digesters, or ***exported*** to other parties that use the manure for the same purpose.

A CAFO may have other by-product streams in addition to manure depending on how the facility is operated. Some CAFO operations may have facilities on site to produce animal based products (e.g. creamery, cheese making, egg washing, slaughtering, etc). By-products from production (e.g. ***process wastewater***) are mixed with manure and/or litter and stored for later use as fertilizer.

Manure, litter, and process wastewater (may be comingled) are used by many CAFOs as crop fertilizer. This may be in place of, or in addition too, commercial chemical based fertilizers (e.g. anhydrous ammonia, ammonium nitrate). Various techniques are used to ***land apply*** manure, litter, and process wastewater such as irrigation, big gun, injection, slurry truck, box spreader or honey wagon. Other options are available.

**Nitrogen**

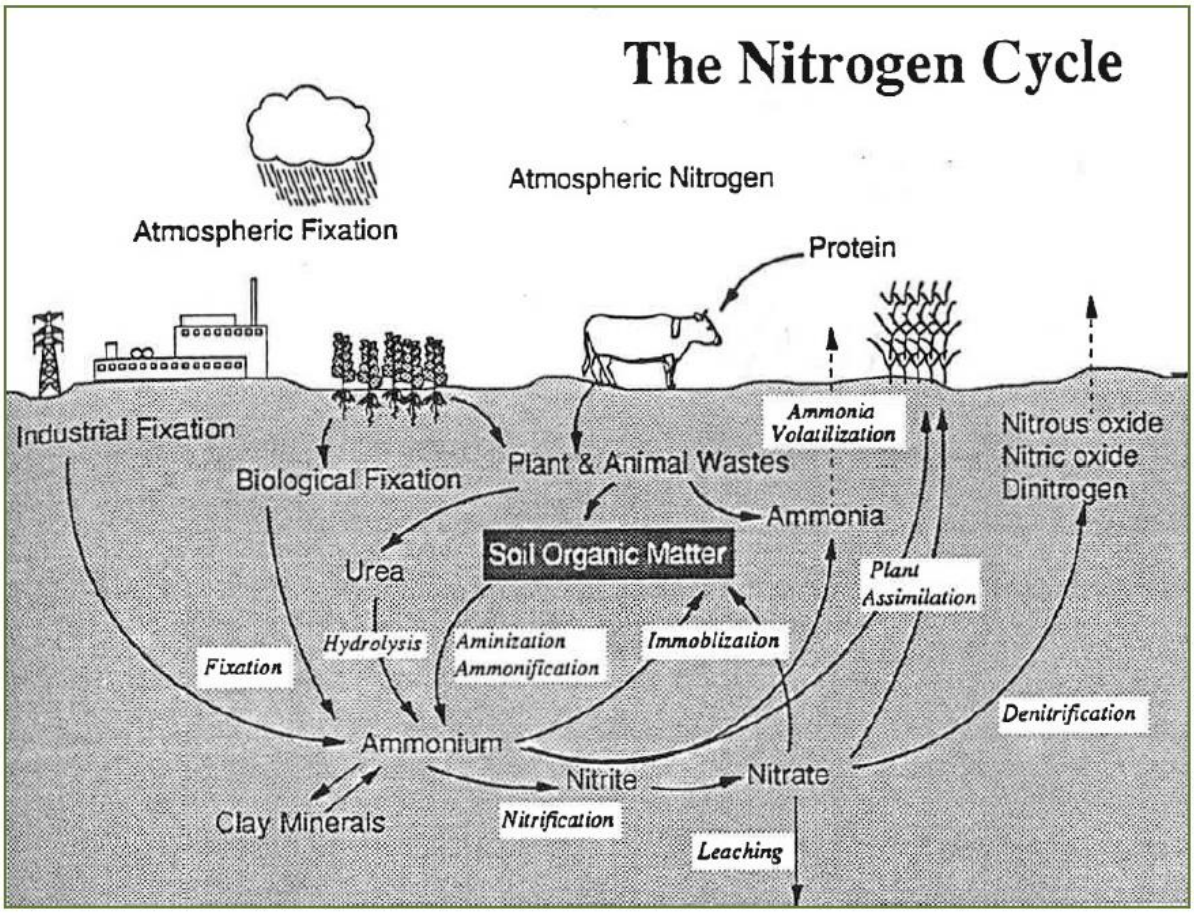



**image comes from NRCS (NRCS, Unknown)*

Various forms of nitrogen exist in manure, litter, process wastewater and soil. The most prevalent forms include organic nitrogen, ammonia/ammonium ($NH_3/NH_4^+$), nitrate ($NO_3^-$) and nitrite ($NO_2^-$).

Organic nitrogen is nitrogen trapped in organic matter such as plant and animal tissues. Soil organisms (e.g. bacteria and fungi) must break down the organic matter to make the nitrogen available to plants. This is the mineralization (ammonification and nitrification) process where organic forms of nitrogen are transformed into inorganic forms (nitrite, nitrate, ammonium), which are available for plants to use. Inorganic forms of nitrogen can also be transformed to organic forms of nitrogen or nitrogen gasses through immobilization and denitrification by bacteria and fungi or uptake by plants.

Ammonium is the largest fraction of crop available nitrogen contained in manure applied to crop fields. The other main source is soil bacteria fixing organic nitrogen into the ammonium form through the ammonification process. Ammonium is fairly immobile in soil due to its positive charge being attracted to the soils negative charge. Plants take up ammonium as a nitrogen source although it is less available to plants than nitrate.

Ammonium is converted to nitrite and then nitrate though the nitrification process. This process will also reverse, with nitrite and nitrate converting to ammonium. Ammonium also converts to ammonia ($NH_3$), a compound that volatilizes.

Ammonium in manure converts quickly to ammonia when exposed to air. That makes the conversion especially important in land application. The ammonium component of manure, when land applied and not incorporated into the soil will quickly convert to ammonia, which volatilizes. The speed of conversion is dependent upon various atmospheric conditions (e.g. temperature, wind, humidity). The ammonia that volatizes is lost to the atmosphere and no longer available as crop nutrients.

Nitrate and nitrite are plant available components of the total nitrogen in manure, but most nitrate comes from bacterial conversion (nitrification) of ammonium after manure is land applied. The nitrification rate generally increases with temperature and moisture. Ammonium converts first to nitrite (usually negligible amount in soil) then quickly to nitrate. Nitrate is negatively charged like soil, and therefore highly mobile with water because it is not attracted to soil particles. These characteristics allow easy leaching to surface and groundwaters as nitrate is transported with water from various sources. In addition to plant uptake and leaching, some loss of nitrate occurs through denitrification to nitrous oxide ($N_2O$) or elemental nitrogen ($N_2$). Nitrous oxide and nitrogen gasses are lost to the atmosphere.

When consumed by humans, nitrate is converted to nitrites within the body. Nitrites bind with blood hemoglobin and prevent it from carrying oxygen. Nitrates themselves are not directly toxic to most people and are consumed daily, mostly in vegetables. Nitrates do pose health risks to vulnerable populations. Noted vulnerable populations include pregnant or nursing women and infants under six months old. High nitrate intake in these populations is more likely to cause methemoglobinemia, or “blue-baby syndrome.”

Excess nitrates also contribute to the eutrophication of waterbodies. Nitrates are an essential nutrient for plant grown, however too much can lead to excess algae or macrophyte (plant) growth. An overabundance of algae can lead to reductions in dissolved oxygen, which causes stress or death to aquatic organisms, including fish. The smell from decomposing algae blooms can also be quite strong. Nitrogen in the form of ammonia/ammonium discharged to waterbodies can also be directly toxic to aquatic life and cause fish kills.

**Phosphorus**

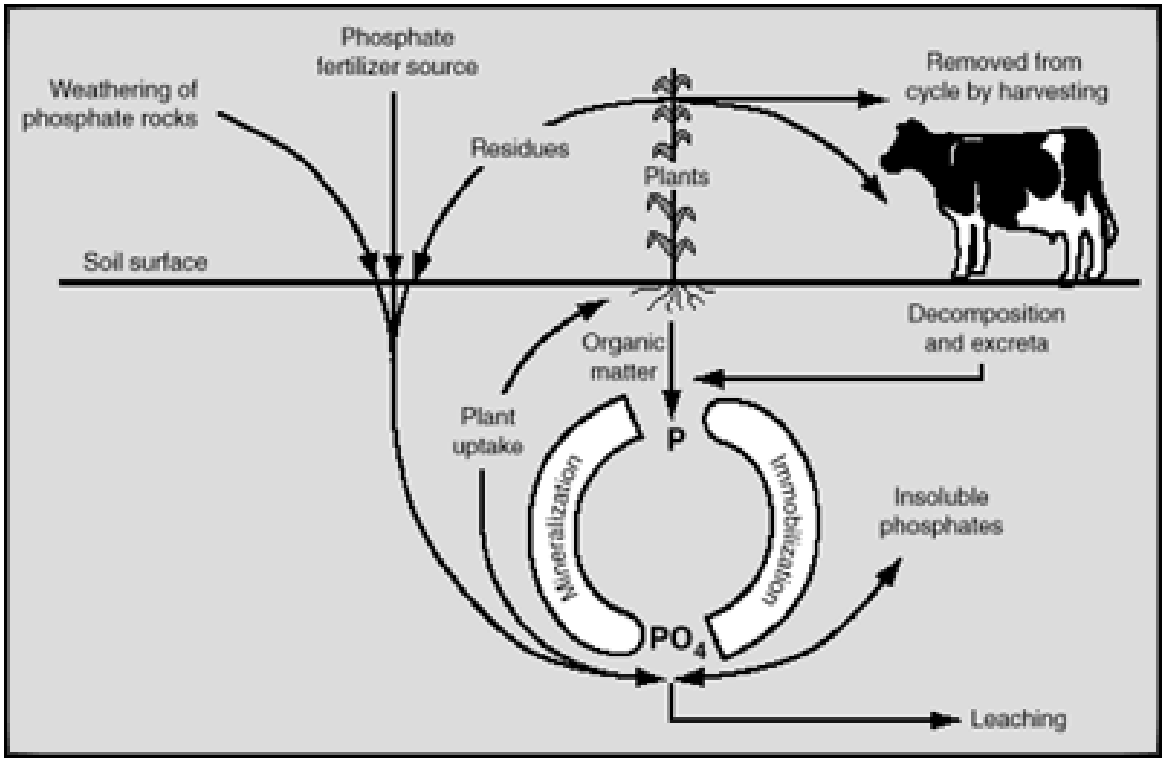



**image comes from the College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa (*CTAHR, Unkown)

Phosphorus is a major nutrient supplied by manure. In soil and manure nutrient testing the term phosphorous is conventionally used when talking about the soil component but only measure plant available phosphorus. One pound of plant available phosphorus is roughly equivalent to 2.3 lbs. of $P_2O_5$ in the soil. Like nitrate, phosphorus must be mineralized from the organic form to the inorganic form to become available to plants. Plants use mostly the inorganic phosphate ($PO_4^-$) form of phosphorus.

Phosphorus usually binds tightly with soil particles making it less prone to movement off-site. Movement usually occurs via erosion or run-off of soil particles with phosphorus bound to them.

Little phosphorus is usually present in soil pore-water (plant available) within the soil because of its strong binding affinity. However, as phosphorus content increases in a field, plant available phosphorus increased. As the amount of plant available (free) phosphorus increases, more movement of phosphorus with water can occur.

Another source of phosphorus movement is if all the soil-binding sites (where the phosphorus would attach) have been used. Soil binding site saturation is most likely to occur in areas where manure or chemical fertilizers have been applied for many years. Manure is an imbalanced fertilizer, i.e. it does not provide nutrients to a crop at the same ratio of nutrients that the crop uses. This results in the less used nutrient (phosphorus) building up in field soil. In extreme

cases, all the soil binding site are used up, causing the unbound phosphorus to move with soil-pore water in addition to soil bound phosphorus running off via erosion.

Phosphorus is often the limiting nutrient for plant growth for a crop or for a waterbody. Having enough plant available phosphorus on crop fields ensures that crops develop and mature quickly. In water bodies, excess phosphorus often contributes problems such as algae blooms. Water bodies that look like pea soup, or that have a green scum are experiencing an algae bloom. Algae blooms decrease the dissolved oxygen in a waterbody, leading to the possibility of killing fish and loss of recreational opportunities.

Eutrophication is the slow, natural process where sediments build up in a waterbody like a lake. Over time, sediments completely fill in the waterbody changing it to a wetland and eventually dry ground. The sediments are made up of decomposing plant and other organic matter. When algae blooms and aquatic macrophytes die off, they settle to the bottom of water bodies and become part of the sediment. This increases the rate of eutrophication and loss of water bodies that provide recreational opportunities.

With excess phosphorus in a waterbody, it is no longer the limiting nutrient. These situations are ideal for cyanobacteria (blue-green algae) to take advantage of. Cyanobacteria are different from other algae because they can use nitrogen dissolved in the water or from the atmosphere (like legumes such as peas or alfalfa, cyanobacteria fix nitrogen). This allows them to out-compete other algae and cause blooms when enough phosphorus is present. Cyanobacteria blooms are different from algae blooms because cyanobacteria can produce toxins. Depending on the species of cyanobacteria, the toxins produced are liver, nerve or skin toxins. However, the toxins do not appear to be produced all the time. A bloom can be non-toxic one day and toxic the next, presenting a significant public health threat. The toxins can sicken humans and animals. Animal deaths (dogs and cats) have been reported. Where monitoring is conducted, if a toxic cyanobacteria bloom is detected, local health departments will monitor it and may close the waterbody to recreational use until the toxins are gone. Length of blooms is variable, from days to years.

**Fecal Coliform/Bacteria/Pathogens**

High fecal coliform levels, which are an indicator for other bacteria and pathogens, come from many sources in a watershed including agriculture, septic systems, and wild animals and pets. During rain events, the fecal coliform are picked up by run-off and transported to water bodies and other water conveyances (e.g. stormwater drains) that eventually end up in lakes, rivers or marine waters.

Manure contains many different types of bacteria, viruses and parasites (some of which are pathogenic to humans) in addition to the fecal coliform. They are naturally present in the intestines and excreta from animals. Determining if pathogens are present is challenging due to the wide variety that may be present. Fecal coliform are always present in animal wastes, and ease of testing make fecal coliform an indicator for determining the presence of pathogens from animals. Pathogens that may be present in manure, litter, and process wastewater (others may

exist that are not included): Campylobacter, Cryptosporidium, Escherichia coli (E. coli), E. coli O157:H7, Giardia, Leptospira, Listeria, and Salmonella.

Fecal coliform are used to monitor the health of shellfish beds by the Washington State Department of Health Shellfish Program. High levels of fecal coliform in shellfish indicate the presence of other pathogens that are harmful to humans if eaten. This is especially important to the commercial shellfish industry. If their shellfish beds are closed due to high fecal coliform counts, shellfish growers cannot sell those shellfish until the fecal coliform levels drop to acceptable levels. Shellfish may be harvested, but before sale they must be transported to an area that meets health requirements for pathogens. Then the shellfish must naturally flush their systems until pathogen levels are reduced to acceptable levels. Only after the shellfish pathogen levels are acceptable is sale allowed. Large amounts of pathogens coming from a watershed, as indicated by the presence of high fecal coliform counts, can cause significant economic damage to shellfish growers.

## REGULATORY LIMITATIONS

This section describes the legal basis for setting effluent limitations under both the state permit and combined permit.

### Introduction to Legal Requirements for Effluent Limitations to Control Pollutants in Discharges

The CWA defines "effluent limitation" as *any restriction on the quantity, rate, and concentration of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance* (33 USC § 1362(11)). Effluent limitations are among the permit conditions and limitations prescribed in NPDES permits issued under Section 402(a) of the CWA (33 USC §1342(a)). Delegated states (such as Washington) must meet, at a minimum, the requirements for effluent limits set by EPA, however they have the option of adopting more stringent requirements.

### Types of Effluent Limitations: Technology-Based, Water-Quality Based, and Non-Numeric

Between the two types of limits, technology or water quality-based, the most stringent must be chosen for each of the parameters of concern, and implemented through NPDES permits. (CWA sections 301(a) and (b)).

1. Technology-Based Limitations

   The CWA requires that discharges from existing facilities, at a minimum, meet technology-based effluent limitations reflecting, among other things, the technological capability of Permittees to control pollutants in their discharges that are economically achievable.

Technology-based effluent limitations are in many cases established by EPA in regulations known as effluent limitations guidelines, or "ELGs." EPA establishes these regulations for specific industry categories or subcategories after conducting an in-depth analysis of that industry.[1] The CWA sets forth different standards for the effluent limitations based upon the type of pollutant or the type of Permittee involved.

The CWA establishes two levels of pollution control for existing sources. In the first stage, existing sources that discharge pollutants directly to receiving waters were initially subject to effluent limitations based on the "best practicable control technology currently available" or "BPT." 33 U.S.C. § 1314(b)(1)(B). BPT applies to all pollutants. In the second stage, existing sources that discharge conventional pollutants are subject to effluent limitations based on the "best conventional pollutant control technology," or "BCT." 33 U.S.C. §1314(b)(4)(A); see also 40 C.F.R. §401.16 (list of conventional pollutants) while existing sources that discharge toxic pollutants or "nonconventional" pollutants (*i.e.,* pollutants that are neither "toxic" nor "conventional") are subject to effluent limitations based on "best available technology economically achievable," or "BAT." 33 U.S.C. §1311(b)(2)(A); see also 40 C.F.R. §401.15 (list of toxic pollutants).

The factors considered in establishing the levels of these control technologies are specified in section 304(b) of the CWA and EPA's regulations at 40 CFR §125.3.

All NPDES permits are required to consider technology-based limitations (water quality-based effluent limitations may be more stringent). 40 CFR §§122.44(a)(1) and 125.3. CWA sections 301(b)(1)(A) for (BPT); 301(b)(2)(A) for (BAT); and 301(b)(2)(E) for (BCT).

2. Water-Quality Based Limitations

Water quality-based effluent limitations (WQBELs) are required by CWA Section 301(b)(1)(C). In Washington State, WQBELS are based upon compliance with state Surface Water Quality Standards (WAC 173-201A), Groundwater Quality Standards (WAC 173-200), Sediment Quality Standards (WAC 173-204), and the National Toxics Rule (40 CFR 131.36).

**Non-Numeric Technology-Based Limits in NPDES Permits**

Under EPA's regulations, non-numeric effluent limits are authorized in lieu of numeric limits, where "[n]umeric effluent limitations are infeasible" 40 CFR 122.44(k)(3). As far back as 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., Best Management Practices or "BMPs") designed to reduce the level of effluent discharges to acceptable levels ( Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C. Cir.1977)).

[1] Where EPA has not issued effluent guidelines for an industry, EPA and State permitting authorities establish effluent limitations for NPDES permits on a case-by-case basis based on their best professional judgment. See 33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(c)(2).

Through the Agency's NPDES permit regulations, EPA interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 C.F.R. §122.44(k), entitled "Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs)," provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) "[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges"; or (2) "[n]umeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k).

The U.S. Court of Appeals for the Sixth Circuit has held that the CWA does not require the EPA to set numeric limits where such limits are infeasible in Citizens Coal Council v. United States Environmental Protection Agency, 447 F3d 879, 895-96 (6th Cir. 2006). The Citizens Coal court cited to Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486, 502 (2d Cir. 2005), stating "*site-specific BMPs are effluent limitations under the CWA.*" "*In sum, the EPA's inclusion of numeric and non-numeric limitations in the guideline for the coal remining subcategory was a reasonable exercise of its authority under the CWA.*"

**Washington State Water Pollution Control Act**

Chapter 90.48 RCW is the authorizing statute for Ecology to control waste discharges and water pollution. It requires that any commercial or industrial operation that discharges waste materials to a water of the state (surface or groundwater) have coverage under a permit (individual or general) issued by Ecology (RCW 90.48.160). Implementation of a general permit program to comply with chapter 90.48 RCW is described in chapter 173-226, the Waste Discharge General Permit Program rules. Permits issued under chapter 90.48 RCW must be conditioned such that allowed discharges do not cause or contribute to water quality standard, drinking water quality, or sediment quality violations (WAC 173-226-100).

**Waste Discharge General Permit Program**

Chapter 173-226 WAC is the implementation of the general permitting program for state permits and combined permits. It applies to discharges to both surface and groundwater. Permits issued by Ecology under chapter 173-226 WAC must not allow discharges which cause or contribute to water quality standard violations. Water quality standards are contained in chapter 173-201A WAC (surface water) and chapter 173-200 WAC (groundwater) WAC 173-204 (sediments), and the National Toxics Rule, 40 C.F.R. § 131.36.

In order to meet these standards, permit conditions may implement technology based (AKART and/or BMPs) or water quality based limits. Ecology may also require more stringent limitations if necessary to meet water quality standards if technology and water quality based standards will not achieve compliance with water quality standards. Water quality-based effluent limitations must control all pollutants or pollutant parameters which the department determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion of state ground or surface water quality standards. Further, conditions and limitation may be placed in a permit issued under chapter 173-226 WAC to ensure compliance with other regulations such as the Resource Conservation and Recovery Act (RCRA) (WAC 173-226-070(3)(b)).

## Surface Water Quality Standards

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) protect existing water quality and preserve the beneficial uses of Washington's surface waters. All beneficial uses are given equal weight and protection.

Numeric water quality criteria are published chapter 173-201A WAC. They specify the levels of pollutants allowed in receiving water to protect drinking water uses, aquatic life, and recreation in and on the water. The standards may be more restrictive if a waterbody has been identified as being polluted (303(d) listed) or if it has had a ***Total Maximum Daily Load (TMDL)*** completed for the watershed. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (40 CFR 131.36). These criteria protect people from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters.

Narrative water quality criteria (e.g. WAC 173-201A-240(1)) limit the toxic, radioactive, or other deleterious material concentrations that may be discharged to levels below those that have the potential to:

- Adversely affect designated water uses (beneficial uses).
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria are statements that describe the desired water quality goal, such as waters being "free from" pollutants such as oil and scum, color and odor, and other substances that can harm people and fish. These criteria are used for pollutants that numeric criteria are difficult to specify, such as those that offend the senses (e.g., color and odor). Narrative criteria protect the specific designated uses of all freshwaters (WAC 173-201A-200) and all marine waters (WAC 173-201A-210) in the State of Washington.

## Groundwater Quality Standards

Similar to the Surface Water Quality Standards discussed above, the Groundwater Quality Standards (chapter 173-200 WAC) protect existing and future beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards except where an overriding public interest is served, and that all pollutants proposed for entry into groundwater are provided with AKART treatment prior to entry.

Existing and future beneficial uses of groundwater include: drinking water, stream flows through hydrologic connection, stock watering, industrial, commercial, agricultural, irrigation, mining fish and wildlife maintenance and enhancement, recreation, generation of electric power and

preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state. At a minimum, to protect all existing and beneficial uses, groundwater must be protected to drinking water standard levels.

**Sediment Quality Standards**

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards, Ecology may require a Permittee to evaluate the potential for the discharge to cause a violation of sediment standards (WAC 173-204-400). Obtain additional information about sediments at the Aquatic Lands Cleanup Unit website: http://www.ecy.wa.gov/programs/tcp/smu/sediment.html.

**Effluent Limitations used in this Permit**

This permit uses technology based and narrative effluent limitations. Setting a numeric effluent limitation is not feasible for discharges from a CAFO under a general permit as facility conditions are too variable. Discharges are intermittent into surface waters, groundwater, ditches, swales and other conduits to surface or groundwaters. Discharges to groundwater are also dependent on location, facility design and management, cropping methods, and the local environmental conditions. Water quality standards for surface water, groundwater, and drinking water serve as limits. Discharges may not cause or contribute to an excursion above these limits.

## ANTIDEGRADATION

Federal regulations (40 CFR § 131.12), the Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A-300, 310, 320, 330) and Water Quality Standards for Groundwaters of the State of Washington (chapter 173-200 WAC) establish a water quality antidegradation program. This section applies only to the combined permit as the state permit does not authorize surface water discharges.

This program establishes three tiers of protection for surface water quality. These three tiers function to 1) protect existing and designated in-stream uses, 2) limit the conditions under which water of a quality higher than the state standards can be degraded, and 3) provide a means to set the very best waters of the state aside from future sources of degradation entirely. WAC 173-201A-320 contains the Tier 2 antidegradation provisions for the state's surface water quality standards at http://apps.leg.wa.gov/WAC/default.aspx?cite=173-201a.

The antidegradation program also establishes protection for groundwater quality, but it does not require a Tier 2 analysis as the Surface Water Quality Standards do. For groundwater, existing and future beneficial uses must be maintained and protected against degradation that would prevent or interfere with the use of groundwater for a beneficial use. Degradation of groundwater is not allowed in national or state parks, wildlife refuges, or waters of exceptional recreational or ecological existence. If the groundwater is of better quality than the criteria assigned to the

waters, the better quality waters must be protected against degradation to the existing background quality. The exception to the better quality water protection is if there is an overriding public benefit, and any pollutants allowed into better quality waters is provided with AKART.

A Tier 2 analysis is required when new or expanded actions are expected to cause a measurable change in the quality of a receiving water that is of a higher quality than the criterion designated for that waterbody in the water quality standards (WAC 173-201A-320(1)). WAC 173-201A-320(3) defines a measureable change as specific reductions in water quality, and defines "new or expanded actions" as "human actions that occur or are regulated for the first time, or human actions expanded such that they result in an increase in pollution, after July 1, 2003." This definition includes facilities that first began to discharge waste, or increased the discharge of waste, after July 1, 2003. The definition also applies to those facilities that discharged waste prior to July 1, 2003, but were regulated by Ecology for the first time after July 1, 2003. All ***applicants*** for coverage under the CAFO permit have "the potential to cause a measurable change in the physical, chemical, or biological quality of a waterbody" and meet the definition of a "new or expanded action." Therefore, Ecology has prepared this Antidegradation Plan during the development process to comply with the Tier 2 antidegradation rule (WAC 173-201A-320).

WAC 173-201A-320(6) states that "the antidegradation requirements of this section can be considered met for general permits and programs that have a formal process to select, develop, adopt, and refine control practices for protecting water quality and meeting the intent of this WAC section. This adaptive process must:

1. Ensure that information is developed and used expeditiously to revise permit or program requirements.
2. Review and refine management and control programs in cycles not to exceed five years or the period of permit reissuance.
3. Include a plan that describes how information will be obtained and used to ensure full compliance with this chapter. The plan must be developed and documented in advance of permit or program approval under this section.

**Antidegradation Plan**

Even though Ecology has prepared the Tier 2 antidegradation plan because permitted CAFOs can cause measurable degradation of water quality, the CAFO permit is a "no discharge" permit. The implementation of the permit requirements lead CAFOs in the direction of not discharging during their normal operations. Not discharging is the best way to prevent degradation of water quality.

To ensure that information is developed and used expeditiously to revise permit requirements Ecology uses a formal process to develop and reissue the CAFO permit every 5 years. The process includes selecting, developing, adopting, and refining control practices to protect water quality and meet the intent of WAC 173-201A-320. All NPDES permits, including the CAFO permit, are effective for a fixed term not to exceed 5 years (40 CFR § 122.25). Each time Ecology reissues the CAFO permit, it evaluates the effluent limits and permit conditions to determine if it should incorporate additional or more stringent requirements.

Ecology's evaluation includes a review of information on new pollution prevention and treatment practices. Ecology may incorporate these practices into the CAFO permits as conditions or in support of effluent limits. This approach works to reduce the discharge of pollutants incrementally during each successive new 5 years permit cycle. Sources of such information include, but are not limited to:

- *Literature*

  During draft permit development Ecology staff reviewed literature (e.g. university extension publications, scientific journals, etc.) and consulted other Ecology staff that had expertise in pollution control or applicable management practices. See Appendix D for bibliography.

- *EAP Studies/Whitepapers/Literature Reviews*

  Environmental Assessment Program (EAP) staff provided technical recommendations to the permit writer for specific areas of pollution control through the development of technical whitepapers and literature reviews.

- *US EPA Effluent Limitation Guidelines*

  40 CFR § 412 – Effluent Limitations for CAFOs. Ecology and other NPDES permitting authorities are required to incorporate ELGs developed by EPA into each general permit as it is renewed. EPA last updated the CAFO requirements in 2012. 40 CFR § 123.36 required the Ecology develop technical standards for CAFOs that meet the requirements of 40 CFR § 412. The technical standards are pollution control measures, which Ecology has developed as part of this permit.

- *Public Input During Permit Development*

  Ecology receives public comment and testimony during the public comment period on draft permits. Ecology encourages the public to share what is working, and what is not and uses this formal public process to review and refine permit requirements in each successive permit.

- *Public Input During Coverage Issuance*

  The antidegradation requirements state that individual actions covered under a general permit do not need to go through independent Tier II reviews. The antidegradation analysis for general permits is done during permit development. However, Ecology considers it important that the public have the opportunity to weigh in on whether individual actions are in the overriding public interest. The antidegradation rule establishes a refutable presumption that they do, but only through a public notice of intent to provide coverage and expected compliance with antidegradation does the general public have an opportunity to question individual actions. Thus, applicants for new coverages must publish requests for coverage in a local paper according to WAC 173-226-130(5).

## TECHNICAL STANDARDS FOR CAFOS

40 CFR § 123.36 requires state permitting authorities to develop technical standards for nutrient management by CAFOs in their state. The technical standards must be consistent with 40 CFR § 412. 40 CFR § 412 are the regulations for BMPs, BPT, BAT and NSPS for categories of CAFOs. BMPs, BPT, BCT, and BAT are technology-based approaches to limiting pollutants from discharges. The technical standards developed by the state must, at minimum, be consistent with 40 CFR § 412(c)(2) which addresses the land application of manure, litter, and process wastewater. To protect water quality, Ecology has included standards for more than just land application of waste in the permit.

State laws (RCW 90.48, 90.52 and 90.54) require the use of ***all known, available, and reasonable methods of pollution prevention control and treatment (AKART)*** by commercial and industrial operations to prevent and control the pollution of the waters of the state of Washington. AKART is a technology-based approach to limiting pollutants in discharges the same as BMPs, BPT, BCT, and BAT. Ecology determined that implementing the technical standards included as permit requirements meet AKART, the intent of 40 CFR 123.36, and the intent of the federal CAFO rule for the CAFO permit to be a "zero discharge" (in actuality, a limited discharge) permit. The technical standards developed by Ecology are included in the permit special conditions and are discussed in the specific condition, or conditions, where implemented.

The EPA CAFO rule and the previous version of the Washington CAFO permit merged the concepts of individual and general permits. Under these rules, CAFO facilities with a discharge are required to apply for coverage under the CAFO general permit. However, as part of the application process, the CAFO facility must develop a nutrient management plan (NMP) which contains site-specific effluent limits for a specific CAFO. Development of the NMP for each CAFO facility that applies for permit coverage is a time consuming process. It is essentially developing an individual permit for each CAFO covered under the general permit. This often creates a repetitive review loop where the CAFO proposes effluent limits that Ecology then reviews. If the effluent limits do not meet the minimum permit requirements, Ecology requires the CAFO to update its NMP and submit it for further review before Ecology will accept it. This is not productive for either party and removed the advantages of using a general permit.

Another difficulty of implementing the EPA CAFO rule is a required review process by Ecology whenever the CAFO makes a significant change to their operations. If a permitted CAFO wants, or needs, to change their operation from what is described in the NMP submitted for permit coverage, before the changes are implemented on site, the CAFO must:

1. Have the NMP updated

2. Have the updated NMP reviewed and accepted by Ecology

3. Go through the public process (public notice and 30 day comment period) (40 CFR § 122.42(e)(6)).

Examples of significant changes that require update, review and acceptance before the changes are implemented include adding or removing fields from use, increasing the number of animals above permitted numbers, or changing crops that will be grown. Other significant changes that require update are possible. This is a serious roadblock and competitive disadvantage for permitted CAFO facilities.

The proposed permits reinstate the advantages of using a general permit for permitting CAFOs. The same as all other general permits, Ecology's approach in the draft permits is to develop a set of effluent limitations (as permit conditions) that all permitted CAFO facilities must follow. By being prescriptive with effluent limitations, Ecology is removing the review and acceptance loop that the previous version of the permit and the federal CAFO rule generated. This should save time and costs for both Ecology and Permittees. This will also provide clarity for all interested parties as to what permit expectations are for all Permittees.

Essentially, the permit has become the NMP that EPA requires with the Manure Pollution Prevention Plan (MPPP) describing how the CAFO will meet permit requirements.

The other part of Ecology's approach to effluent limitations is to require a yearly submittal of field nutrient budgets instead of a NMP. This allows for changes in the fields that Permittees use and crops planted on a yearly basis as leases and other agreements with landowners change. Each year, before the beginning of the land application season, the Permittee must submit field nutrient budgets for each field they own, operate, lease, or otherwise control based on spring soil and manure sample nutrient analysis, planned crops, and other factors. This provides more flexibility for the Permittee to operate as needed, reducing the competitive disadvantage of being permitted.

These requirements are the technical standards that Ecology is required to develop by EPA rule in 40 CFR 123.36 (see the fact sheet section titled Technical Standards for CAFOs).

EPA CAFO rule requires nine minimum practices that must be in the NMP. However there are two other requirements (depth gauge for liquid waste storage facilities and record keeping) listed in a different CFR that are also part of the NMP. The list of elements the federal CAFO rule (40 CFR 122.42) requires in a NMP is:

1. Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities.

2. Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities.

3. Ensure that clean water is diverted, as appropriate, from the production area.

4. Prevent direct contact of confined animals with waters of the United States.

5. Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.

6. Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States.

7. Identify protocols for appropriate testing of manure, litter, process wastewater, and soil.

8. Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater.

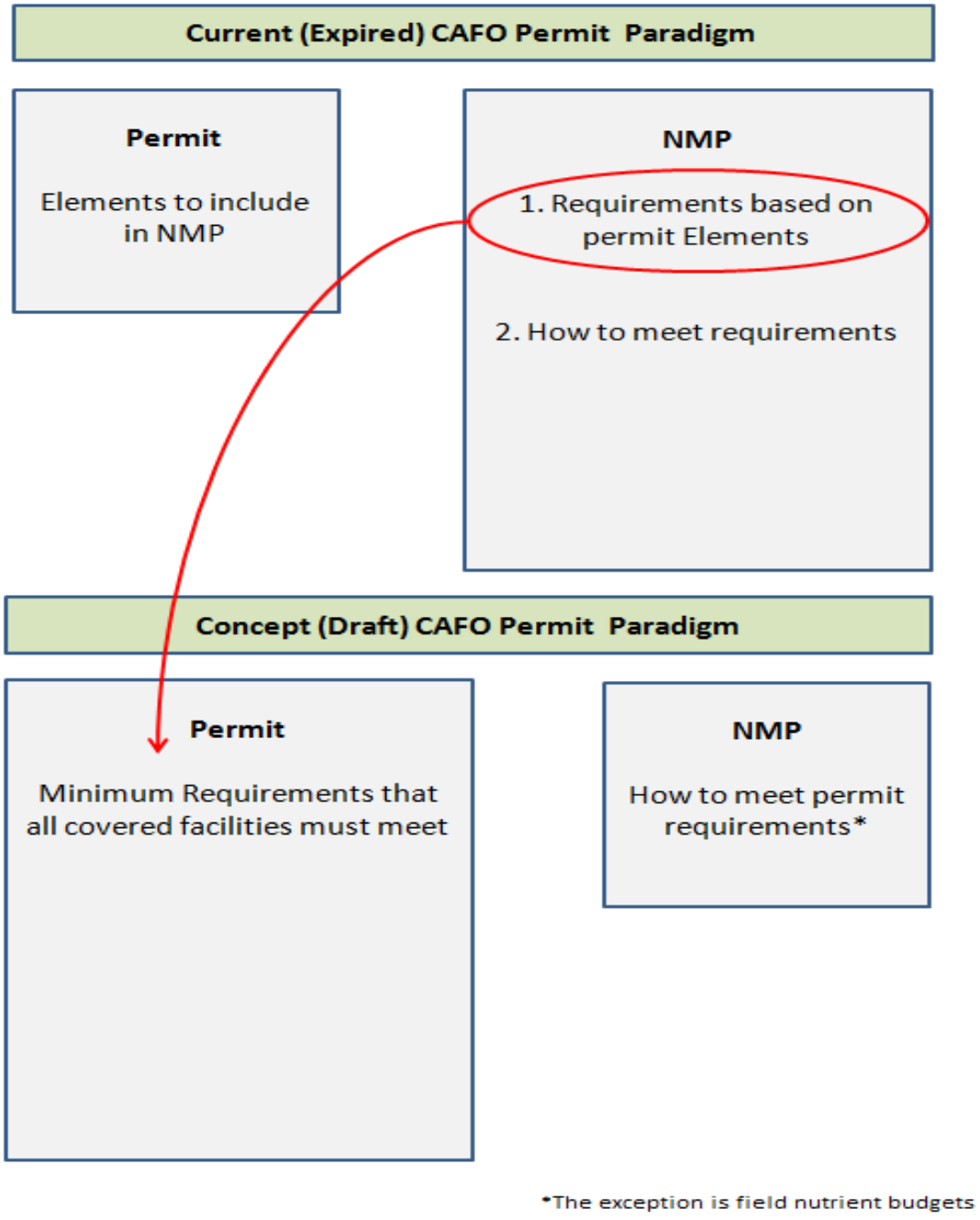
9. Identify specific records that will be maintained to document the implementation and management of the minimum elements described in paragraphs (e)(1)(i) through (e)(1)(viii) of this section.

The nine elements are addressed through specific permit requirements, the minimum operating standards for Permittees (technical standards). Therefore, the permit application (NOI), yearly field nutrient budget, annual reports, and the permit itself satisfy the NMP review and acceptance requirements and the record keeping requirements in number nine. This removes the regulatory review and acceptance process of the entire NMP that is necessary strictly following the federal CAFO rule.

Ecology is setting effluent limitations in this permit instead of through the NMP. 40 CFR 122.42(e)(5)(i) and (ii) define two approaches to developing a NMP, linear and narrative. In the linear approach, effluent limitations are the rates of application of waste expressed as lbs/N or lbs/P. The narrative approach sets effluent limitations as the process by which a facility calculates its waste application rates in lbs/N or lbs/P. This permit takes a different approach to the effluent limitation. It sets a method of calculating a field nutrient budget for a field much like the narrative approach does for application rates. The difference between the inputs and outputs on a completed field nutrient budget worksheet is the maximum amount of nutrients that may be applied to satisfy crop needs on the field the worksheet was completed for. This maximum amount of needed nutrients is the effluent limitation. The Permittee may not exceed this amount for the year.

By setting the difference between the inputs and outputs as the limit, the aim is to have:

$$Inputs - Outputs \cong 0 \; after \; crop \; harvest$$




## BUSINESS INFORMATION

By law, information that is required to be submitted to Ecology by a permit is available to the public. This is necessary because it allows the public to determine if a facility is in compliance with its permit. Certain exceptions apply.

**Disclosure of Information/Records**

RCWs 42.56.610 and 90.64.190 require that certain information for dairies, feedlots, AFOs, and CAFOs **not subject to or applying** for permit be kept only be released in ranges. Once a facility obtains permit coverage under the state permit or combined permit, this exemption from release of records no longer applies to that facility. For a facility under the combined permit, all records and information must be released. For a facility under the state permit, in response to a public disclosure request, the information specified in RCW's 42.56.610 and 90.64.190 is to be released in the ranges identified in WAC 16-06-210. The information these requirement affect includes:

- Number of animals.
- Volume of livestock nutrients (manure) generated.
- Number of acres used for land application (of manure).
- Amount of livestock nutrients transferred to other persons.
- Crop yields.

Other information is exempt from disclosure under RCW 42.56.380. This information is generally business-related such as import/export, veterinary, sales, or other financial information. Unless related to facility effluent, neither the state permit nor combined permit ask for this type of information.

**Confidential Business Information**

Confidential business information may be requested for certain types of information under RCW 43.21A.160. Confidentiality does not extend to discharges or to information which would be detrimental to the public interest if withheld.

The information gathered as part of the state permit and combined permit is necessary to determine compliance with permit conditions. It is also related to the management of the effluent (manure, litter, process wastewater) generated by a facility covered by permit. Withholding such information would be detrimental to the public interest. Because of this, the information required to be submitted to Ecology by either the permit or the permit application is not confidential business information.

## SPECIAL CONDITIONS

Ecology has significantly reorganized the draft state and combined permits compared to the expired CAFO permit to streamline, remove repetitive language, and make the drafts more easily understandable. In addition, Ecology's revisions in the draft permits comply with the governor's "Plain Talk" policy for clearly written documents. The following narrative describes the requirements in the draft state and combined permits and the rationale behind the requirements.

Many of the conditions in the state and combined permits are the same due to both permits addressing similar activities. Where there are differences, the differences are pointed out under State Permit and Combined Permit headings.

# S1. PERMIT COVERAGE

## S1.A Activities Covered Under This Permit

The state permit and combined permit are a reissuance of the Concentrated Animal Feeding Operation (CAFO) National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit that expired July 21, 2011. The two proposed general permits will replace the previous CAFO permit. A general permit is a type of permit that covers a category of discharger, in this case CAFOs (40 CFR §122.28, WAC 173-226. All dischargers covered under a general permit receive the same permit conditions because they have substantially the same or similar operations and discharge characteristics. This reduces the overall workload associated with writing and administering discharge permits. This condition describes which activities and discharges are covered by the permit.

The owner or operator of a large or medium CAFO is not required to apply for coverage under this permit for a discharge to groundwater from a lagoon if the lagoon(s) is:

a. Not discharging to groundwater, or

b. Constructed with a double-layer synthetic liner with a leak detection and capture system between the liner layers, or

c. An above-ground structure constructed of concrete or steel.

**Agricultural Stormwater**
The federal CWA exempts ***agricultural stormwater*** from being a point source of pollution. The federal CAFO rules define agricultural stormwater as : "*Where manure, litter or process wastewater has been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater, as specified in 40 CFR 122.42(e)(1)(vi-ix), a precipitation related discharge or manure, litter, or process wastewater from land areas under the control of a CAFO is an agricultural stormwater discharge"* (40 CFR § 122.23(e)).

Ecology has further clarified in the state and combined permits how the agricultural stormwater and its exemption from being a point source apply to permitted CAFOs. If all the following are true, then a precipitation related surface water discharge from a land application field is agricultural stormwater and does not require a NPDES permit (combined permit):

a. The discharge was not from the **production area**,

b. For CAFOs with permit coverage the Permittee is in compliance with their CAFO permit including nutrient budgets, land application restrictions, record keeping, etc.

c. The discharge was not caused by human activities (e.g. land application, irrigation) even if the activity took place during precipitation, and

For unpermitted CAFOs, the agricultural stormwater definition is more involved because the CAFO is not covered by a permit and MPPP which is in place of a nutrient management plan required by the federal CAFO rules. For unpermitted CAFOs a discharge from a land application field is agricultural stormwater if the CAFO:

a. Has a nutrient management plan (or equivalent) that addresses appropriate site specific practices to be implemented, including as appropriate buffers or equivalent practices to control runoff, identifies protocols for appropriate testing of manure, litter, process wastewater, and soil, established protocols to land apply manure, litter, or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization (e.g. following a field specific nutrient budget) of the nutrients in the manure litter or process wastewater.

b. Is implementing and following their nutrient management plan.

c. Keeps and maintains records to document the implementation and management of the nutrient management plan described above in *a*.

**State Permit**

RCW 90.48.160 requires that any commercial or industrial operation which causes waste material to enter a surface water or groundwater of the state (i.e. a discharge) must have a permit from Ecology. This permit condition specifies which discharges are authorized by the permit.

The draft state permit is a statewide general permit that authorizes the discharge of waste materials (manure, litter, and process wastewater) from a CAFO to groundwater within the state of Washington under specific circumstances. Discharges of waste materials to surface water are not authorized by the state permit.

The state permit only conditionally authorizes discharges to groundwater. Discharges to surface water are not authorized. Generally, a surface water discharge must be authorized under both state and federal statute. Because this permit is a state only permit, only groundwater discharges are allowed. The exception is agricultural stormwater from land application fields which are allowed by the state permit because agricultural stormwater discharges do are not required to obtain an NPDES permit.

### Combined Permit

Section 402 of the CWA (33 USC § 1342) requires that a NPDES permit be issued for the discharge of pollutants. These requirements only apply to surface waters of the United States. Chapter 90.48 RCW also requires that a commercial or industrial operation which causes waste material to enter a water of the state must have a permit from Ecology. As the delegated CWA authority in Washington, Ecology issues combined permits which authorize discharges to surface water under both state and federal statutes. Because discharges are authorized under state law in addition to federal, discharges to groundwater are also authorized under the combined permit. The discharges to groundwater authorized under the combined permit are the same as those authorized under the state permit.

The draft combined permit is a statewide general permit that authorizes the discharge of waste materials (manure, litter, process wastewater) from a CAFO to surface water and groundwater within the state of Washington under conditions specified in the permit.

### S1.B Geographic Area Covered by This Permit

### State Permit

The state permit applies to the discharge of waste materials (manure, litter, process wastewater) to groundwater anywhere in the State where Ecology has authority (chapter 90.48 RCW). Groundwaters are all underground waters within the jurisdiction of the state of Washington (RCW 90.48.020, WAC 173-200-020 and WAC 173-226-030).

### Combined Permit

The combined permit applies to the discharge of waste materials (manure, litter, process wastewater) to surface water and groundwater anywhere in the State where Ecology has authority (chapter 90.48 RCW). Surface waters include lakes, rivers, ponds, streams, inland waters, wetlands, brackish waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington (RCW 90.48.020, WAC 173-201A-020 and WAC 173-226-030). Groundwaters are all underground waters within the jurisdiction of the state of Washington (RCW 90.48.020, WAC 173-200-020 and WAC 173-226-030). Ecology does not have jurisdiction over federal or tribal lands except for a portion of Puyallup Tribal land under the Puyallup Tribe of Indians Land Claims Settlement Act of 1989, 25 USC § 1773.

## S2. PERMIT ADMINISTRATION

### S2.A Who Must Apply for Permit Coverage

Ecology takes the term “Permittee” to mean the person or entity that discharges or controls the discharge of pollutants to waters of the state (surface or ground) and holds permit coverage authorizing that specific discharge. Ecology has established that the Permittee for

the CAFO permit should be the facility owner or operator that is in charge of day-to-day activities at the facility.

Owners or operators of facilities that meet the discharge characteristics described below must apply for coverage under the appropriate permit for their circumstances.

Ecology may, at its discretion, require the Permittee to obtain an individual permit (WAC 173-226-240(2)). Individual permits are site specific in nature. This allows Ecology to design a permit that addresses the unique characteristics at the facility beyond that available in a general permit.

WAC 173-226-200(1)(a) and requires that ***existing operations*** that have a discharge must submit a permit application within 90 days of the state and combined permits being issued. 40 CFR 122.21(c) and WAC 173-226-200(1)(b) require that for ***new operations***, an application for permit coverage be submitted at least 180 days prior to a discharge commencing.

Ecology has chosen to use a ***small CAFO*** category in determining which facilities are required to obtain permit coverage. Smalls CAFOs can still have discharges that require permitting. In order to be required to obtain a permit, Ecology must designate the small facility to be a small CAFO based on a determination that the facility is a significant contributor of pollutants to surface or groundwater. The determination would usually involve an inspection and sampling and factors such as amount of manure, litter, or process wastewater reaching surface water, location relative to surface waters, how manure, litter, or process wastewater are conveyed to surface water, landscape factors affecting frequency and likelihood of discharge, and other relevant factors (40 CFR § 122.23(c)).

**State Permit**

The state permit only authorizes discharges to groundwater. Discharges to surface water are covered under the combined permit. This section describes who is required to apply for and gain coverage under the state permit based on a discharge to groundwater. Discharges of agricultural stormwater are also allowed as they are exempt from being a point source discharge.

There are two sources of groundwater discharge that require the owner or operator of a facility to apply for coverage under the state permit. These are groundwater discharges from lagoons and from land application fields where excess manure is applied.

**Lagoons**

All lagoons have a seepage rate based upon the structure’s permeability. This rate is how much liquid and dissolved materials escape out of containment during a period of time per unit area. This is usually measured in gallons/acre/day, cm/s, or mm/acre/day. The rate is dependent on the engineering properties of the materials used to construct the lagoon as well as the continual operation and maintenance of the structure and any preferential flow paths

(e.g. cracks in a clay liner do to wet/dry cycles) (Environmental Water Resources Institute, 2005).

The amount of seepage from a lagoon, not accounting for preferential flow, may be calculated with Darcy's Law. Darcy's Law is a well-supported mathematical model that is used to describe the volume of fluid flow through a porous medium. It takes into account the permeability of the media (e.g. compacted soils), pressure or head (the depth of the fluid over the media), fluid viscosity, the area that the fluid is flowing through, and the pressure drop from the area under high pressure (head) to low pressure. Each of the characteristics accounted for by Darcy's Law as they apply to a lagoon will depend on the lagoons construction and the materials used.

Based on the characteristics of lagoons and how well the structures were built, the amount of seepage from various lagoons will fall somewhere along a range. At one end of the range will be lagoons that are essentially pits dug in the ground with no other engineering properties. These lagoons are likely to have the most seepage (unless dug in areas with very high clay content in the soil). Lagoons at this end of the seepage range are almost certainly discharging to groundwater because there is little to no modification or addition to the native soils to attenuate permeability and seepage.

At the other end of the range are lagoons that have two layer synthetic liners with a leak detection and capture system between the layers as well as steel and concrete above ground storage structures, synthetic liner over clay (GCL) and concrete lined lagoons. Lagoons at this end of the spectrum will have a very low seepage rate. This seepage rate is low enough that the Water Quality Program has determine that a lagoon with a two layer synthetic liner with leak detection and capture between the layers is not required to obtain a permit for groundwater discharge. Other liner types such as the GCL or above ground storage structures are also likely to have much lower risk of discharge to groundwater and so are a very low permitting priority unless some catastrophic flaw is detected which would enable a discharge.

In between the two ends of the spectrum will be the rest of the existing lagoon structures. Various engineering and environmental characteristics will determine if a lagoon is discharging to groundwater. As part of developing the permit, Ecology has developed a number of risk factors that if present would lead Ecology to believe based on a predominance of the evidence that a lagoon is discharging to groundwater. If the risk factors are present based on the facility owner or operators assessment (or their technical service provider), they have a discharge to groundwater and must apply for coverage under the state permit.

There are two sets of risk factors to consider when determining if, based on a predominance of the evidence if a lagoon is discharging to groundwater. These risk categories are the seepage from the lagoon itself, i.e. the quantity of seepage, and the time of travel to groundwater. Preferential flow paths (such as cracks in clay lagoon liners due to repeated dry/wet cycles) are acknowledged here, but because they can vary greatly are not quantified.

Seepage from a lagoon, assuming no preferential flow paths, is calculated using Darcy's Law and will vary according to the materials used to construct the lagoon as well as the operation

and maintenance of the lagoon. Assuming steady state conditions, the amount of seepage will vary based on head (depth of liquid, which varies), soils, compaction, and permeability. Conditions that allow greater seepage will increase the risk of discharge.

The time of travel (TOT) from the bottom of the lagoon to the first groundwater is dependent on many environmental factors. Put simply the TOT is the time it takes for a drop of water to move from the point just under the lagoon to the point it reaches the first groundwater below the lagoon. Again, this assumes steady state conditions. The TOT is dependent on the environmental conditions in when the lagoon was built. Some conditions such as highly porous soils and seasonally high groundwater will generate a higher risk for discharge to groundwater than high clay soils and a very deep distance to groundwater.

Alternatively, if the risk factors are present indicating a discharge to groundwater based on a predominance of evidence but the facility operator believes that its lagoon is not discharging to groundwater they have the option of showing that there is no discharge to groundwater through a study designed to determine if there is a discharge from the lagoon. The study must be designed and verified by a licensed hydrogeologist with experience performing this type of work (chapter 18.220 RCW and chapter 308-15 WAC). If the study determines there is a discharge to groundwater, the owner or operator of the facility must apply for coverage under the state permit.

Additional factors that Ecology may consider when determining based on a predominance of the evidence if there is a discharge from a CAFO's lagoon to groundwater include, but are not limited to:

1. Type of construction, e.g. above ground storage tank, in ground pit, earthen embankments.

2. Permeability of the structure walls, base, and liner (e.g. synthetic or clay) if present.

3. The depth of liquid in the lagoon when full and seasonal variations.

4. How long the lagoon is full, empty, or in-between.

5. Any additional sealing of the structure or liner pores provided by manure.

6. Operations and maintenance of structure that may have altered the physical characteristics of the structure or liner (e.g. maintenance removes sealing of liner pores by manure).

7. Age of the structure.

8. Permeability of the soils below the lagoon structure.

9. Depth to groundwater.

10. Preferential flow paths (e.g. cracks, scoured areas, liner punctures).

**Land Application Fields**

Land application fields where manure, litter, and process wastewater are applied as crop nutrients can be a source of groundwater discharge. Where sources of nutrients are excessively applied to the field beyond the amounts recommended in field specific nutrient budgets (e.g. for optimal crop growth), nutrients that travel below the root zone of the crop or crops being grown (the vadose zone) is considered a discharge of waste to ground. Those excess nutrients have only one place to go once they have reached the vadose zone, and that is to groundwater.

However as allowed by RCW 70.95.310, the solid waste permitting authority (local health departments) may defer to another permit like the state only permit if it addresses the same sources of discharge to ground that a solid waste handling permit would with at least the same level of protection provided by a solid waste handling permit. Should an owner or operator of a facility be in a situation where excess nutrients were applied to land application fields and a solid waste handling permit is required, an option is for the local health department to defer to the state only permit. This would cover the facility for both solid waste handling purposes as well as discharges to groundwater under chapter 90.48 RCW.

Where a discharge to groundwater from a land application field is found without the requirement to have a solid waste handling permit, the owner or operator of the facility is required to apply for and gain coverage under the state only permit.

Discharges to surface water from land application fields requires the owner or operator of a facility to apply for coverage under the combined permit. The exception is if the discharge is agricultural stormwater.

**Combined Permit**

The combined permit authorizes discharges to surface water and groundwater. This section describes who is required to apply for and gain coverage under the combined permit based on a discharge to either surface water or groundwater. If the discharge is agricultural stormwater, the CAFO is not required to obtain permit coverage.

The conditions under which the owner or operator of a facility with a groundwater discharge is required to obtain permit coverage have already been discussed under the state permit above. They are mostly the same for the combined permit and the only difference will be discussed here.

**Production Area**

Section 402 of the CWA (33 USC § 1251) requires that a NPDES permit be issued for the discharge of pollutants. Discharges to surface waters, even if the facility is otherwise

constructed and operated as specified in 40 CFR§ 412 require the owner or operator of the facility to apply for coverage under the combined permit.

RCW 90.48.160 requires that a commercial or industrial operation obtain a permit for waste discharges to waters of the state (surface or ground). The production area of a CAFO is part of a commercial operation. Discharges of waste materials from the production area, whether caused by environmental conditions or human activities require the owner or operator of the facility to apply for coverage under the combined permit.

**Land application Fields**

Discharges to surface water from land application fields requires the owner or operator of a facility to apply for coverage under the combined permit. The exception is if the discharge is agricultural stormwater.

**S2.B How to Apply for Permit Coverage**

Permittees that plan to continue coverage under the revised permit must submit a renewal application to Ecology to continue their coverage at least 180 days before the current permit expires (WAC 173-226-220). Ecology will consider any Permittee that does not reapply as a ***new applicant***.

The new applicant (those not covered by the current (2006-2011) permit) must submit a ***permit application (Notice of Intent or NOI)*** to Ecology plus any additional documentation required by the NOI at least 60 days (RCW 90.48.170) before any discharge to waters of the state occur. An official who has signature authority for the entity applying for permit coverage must sign all documents (WAC 173-226-200).

For reasons described further in the section on permit condition S4, Ecology is not requiring the submittal of a nutrient management plan along with the permit application. An initial manure pollution prevention plan (MPPP) must be submitted to Ecology six months after permit coverage is issued to a CAFO.

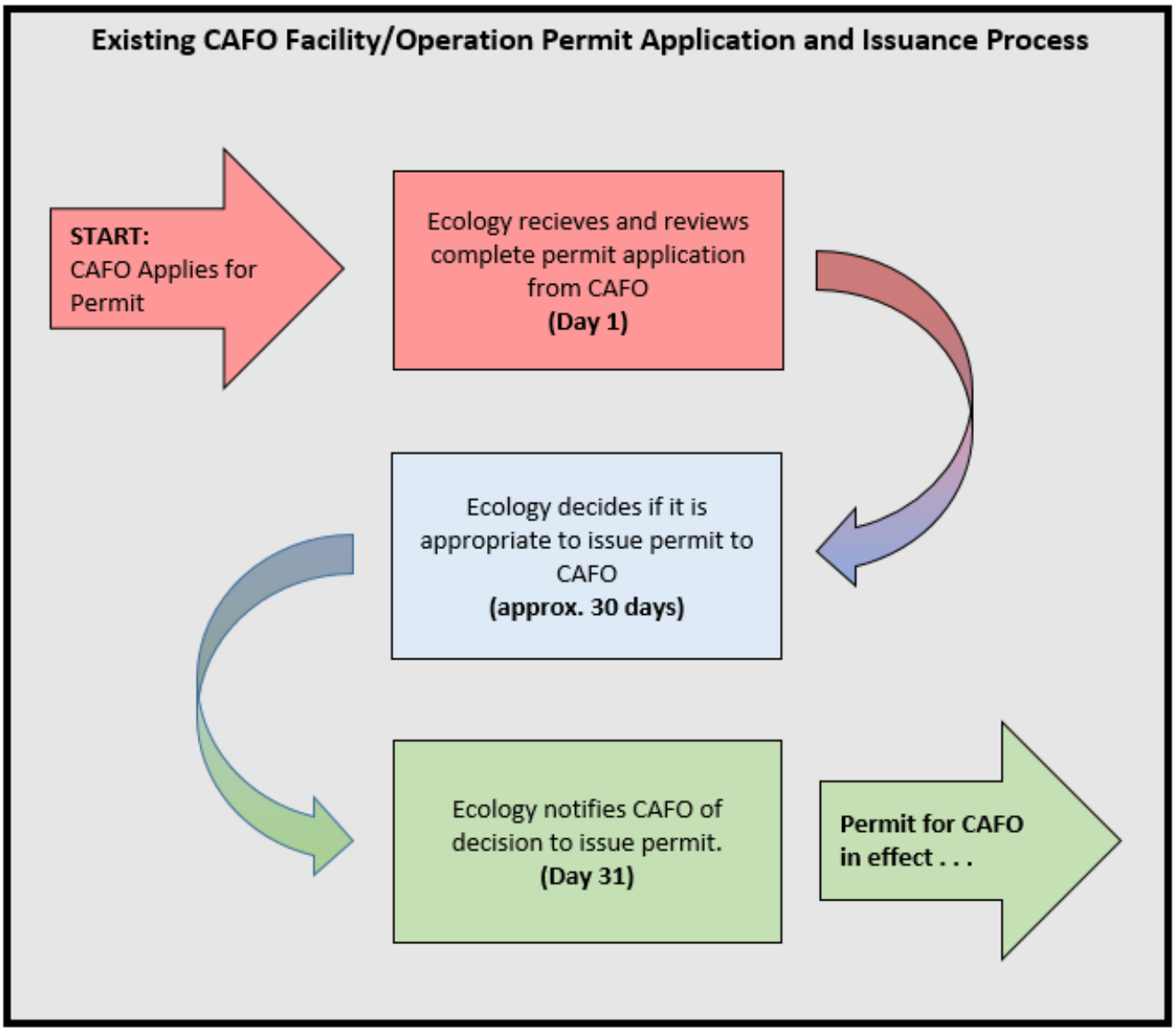
**Existing Operations**
Permit applicants who already have a facility that is build and in operation are not required to public notice their permit application.

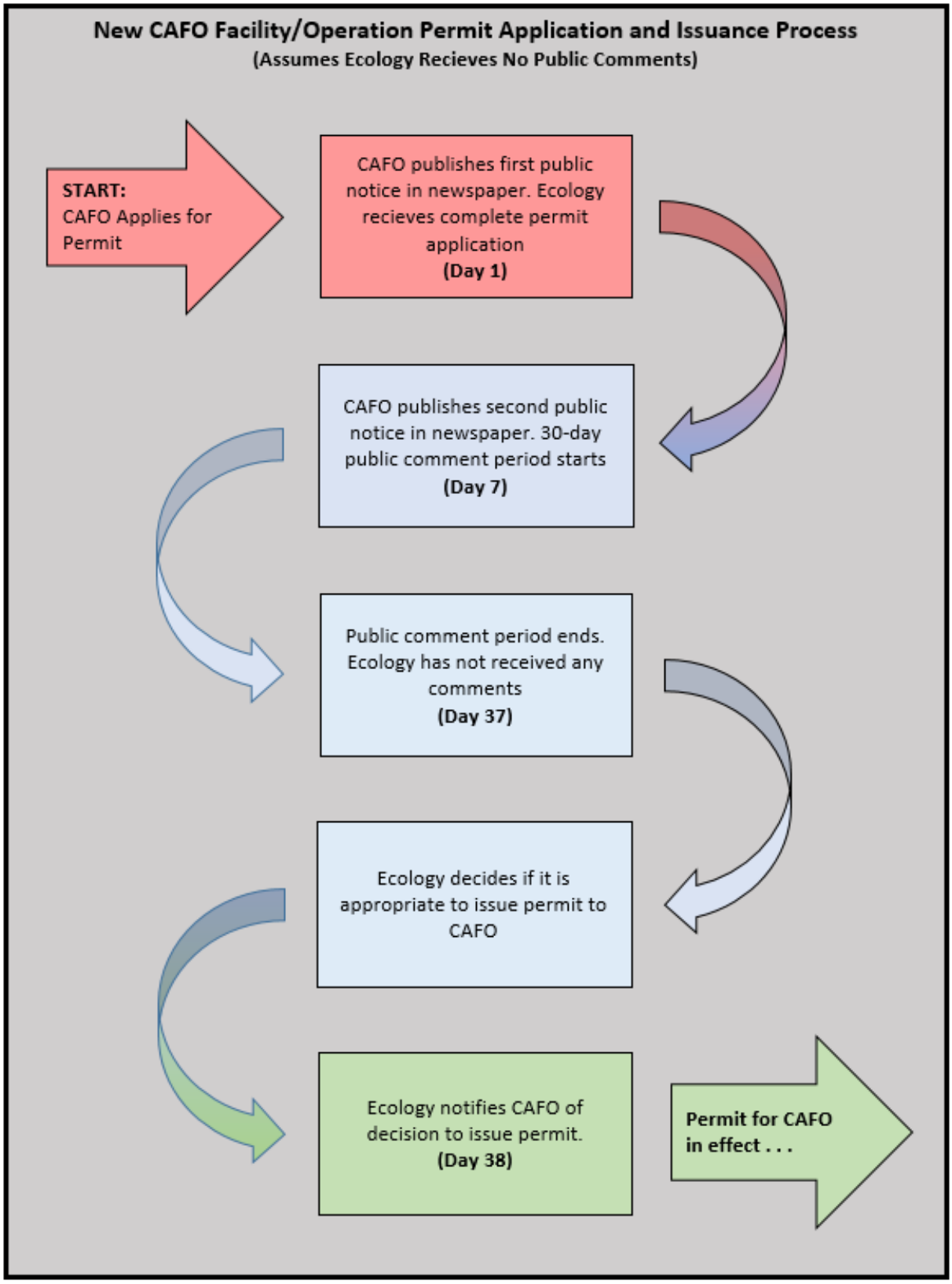
**New Operations**
Permit applicants who build a facility and begin operation after the issuance date of the combined and state permits must public notice their permit application. Ecology must receive the complete application for permit coverage on or before the second publication date of the public notice the permit applicant posts in a newspaper of general circulation (WAC 173-226-130). Ecology considers a newspaper of general circulation to be a major newspaper publication for a region.

The public has the opportunity to comment on the permit application and the proposed coverage during the 30 days after publication of the second public notice (public comment period). Ecology will consider comments about the applicability or nonapplicability of the permit to the proposed activity received during this period. If Ecology receives no substantive comments, it may issue permit coverage on the 38th day (at the earliest) following receipt of a complete application. The public has the right to appeal coverage decisions (WAC 173-226-190).

**S2.C Permit Coverage Timeline**

The section describes how Ecology is implementing WAC 173-226-200 in the permit so that the applicant for permit coverage can know what to expect when applying for permit coverage. See diagrams below.




New CAFO Facility/Operation Permit Application and Issuance Process
(Assumes Ecology Recieves No Public Comments)
START:
CAFO Applies for Permit
CAFO publishes first public notice in newspaper. Ecology recieves complete permit application
(Day 1)
CAFO publishes second public notice in newspaper. 30-day public comment period starts
(Day 7)
Public comment period ends. Ecology has not received any comments
(Day 37)
Ecology decides if it is appropriate to issue permit to CAFO
Ecology notifies CAFO of decision to issue permit.
(Day 38)
Permit for CAFO in effect . . .

### S2.D How to Transfer Permit Coverage

WAC 173-226-210 provides the rules for transferring permit coverage from one party to another. This would generally only occur when a CAFO facility covered by the permit is bought by another party. Both parties sign a Transfer of Coverage (TOC) Form specified by Ecology. Once the transfer is signed and submitted to Ecology, it is considered complete with the new party becoming the Permittee and accepting all permit responsibility and liability (including permit fees).

### S2.E How to Terminate Permit Coverage

As long as a commercial or industrial operation is discharging waste materials to waters of the state it is required to have a permit (RCW 90.48.160). In order to terminate or cancel permit coverage the owner or operator of a CAFO facility must demonstrate that they no longer have a discharge. This may be done be meeting the requirements for permit coverage termination in either the state permit or combined permit depending on which permit the facility is covered by. Requiring demonstration that there is no longer a discharge ensures that facilities that discharge remain covered under permit (WAC 173-226-230; 40 CFR § 122.64(b)).
Conditions for demonstrating eligibility to terminate permit coverage are based on Oregon's CAFO permit here: http://www.oregon.gov/ODA/shared/Documents/Publications/NaturalResources/WPCFPermit.pdf

## S3. DISCHARGE LIMITS

Discharge limits are amounts of discharge whether volume, concentration, or frequency that must not be exceeded. Permit conditions are designed to prevent Permittees from exceeding discharge limits and violating water quality standards. The state permit and combined permit do this through the use of technology-based requirements for preventing and controlling discharges. In the state and combined permits, technology-based requirements include the implementation of AKART and BMPs. Implementation of AKART prior to discharge is required by:

- RCW 90.48.010
- RCW 90.54.020(3)(b)
- RCW 90.54.040
- RCW 90.54.520
- WAC 173-221A-020
- WAC 173-226-070(1)

There are also numerical limits in various water quality standards that the authorized discharges from a CAFO must not cause or contribute to an exceedance of – i.e. the discharge may not

cause a measured water quality parameter to increase to a level above that set in the water quality standards. See also the sections listed below for more discussion on the various water quality standards:

- Chapter 173-201A WAC Water quality standards for surface waters of the state of Washington

- Chapter 173-200 WAC Water quality standards for groundwaters of the state of Washington

The discharges authorized by a permit are also permit limits. Discharges that are not authorized by the permit are considered a permit violation. The Permittee must ensure that any discharges are limited to only those allowed by permit.

**Total Maximum Daily Load (TMDL) Requirements**

TMDLs are studies which determine the relative contributions of a pollutant or pollutants from different sources within a watershed (or part of a watershed). The study also determines the amount of a pollutant that may enter the waterbody and still have the waterbody meet water quality standards – this is the total maximum daily load (of a pollutant) that the waterbody will support (this also becomes the water quality standard for the waterbody studied). From this, the different sources that are contributing a pollutant are given an allocation – how much of a pollutant in total within a watershed may come from a particular type of pollutant source. Unfortunately, many/most TMDLs do not account for CAFOs or the potential discharges from a CAFO. Permit assumes compliance with TMDLs.

**State Permit**

Because surface water discharges are not allowed under the state permit, discharges are limited to only groundwater provided that the Permittee is in compliance with the permit.

**Combined Permit**

For the combined permit, the federal CAFO rules in 40 CFR § 412 specify the instances in which a surface water discharge may occur from a CAFOs production area. If a production area is designed, constructed operated, and maintained to contain all process-generated (generated by facility operation) wastewaters plus the runoff from a 25-year, 24-hour rainfall event at the location of the CAFO, any process wastewater pollutants in the overflow may be discharged to surface water provided that the discharge will not violate water quality standards.

## S4. MANURE POLLUTION PREVENTION

40 CFR § 122.23(h) requires that as part of the permit application process, the permit applicant develop and submit a nutrient management plan (NMP) to the permitting authority (Ecology). The NMP contains a set of actions and activities developed by the permit applicant to address the nine elements in 40 CFR § 122.42(e)(1). Ecology must review the actions and activities and

determine if they are adequate for protecting water quality. If adequate, the actions and activities developed by the permit applicant undergo public review and comment, and then become permit effluent limits. Each permit applicant submits a different set of actions and activities which results in different sets of permit effluent limits. This process is inefficient and not transparent. Ecology is changing this permitting paradigm in the state and combined permits.

Instead of each permit applicant developing their own set of effluent limitations which Ecology must review for adequacy, Ecology developed a single set of effluent limits in the state and combined permits in the form of performance objectives. The nine elements included in 40 CFR § 122.42(e)(1) are addressed. The public had the opportunity to review and comment on the effluent limitations during the permit development process. A manure pollution prevention plan (MPPP) is used to document how effluent limitations are being met on a facility (see discussion of permit condition S4.R for more on the MPPP).

The change in process addresses the nine elements of 40 CFR § 122.42(e)(1) while streamlining the time it takes to issue coverage to individual CAFOs and provides certainty and transparency in expectations to all interested parties.

Because a CAFO could be covered under either the state or combined permit, and could move from being covered by one permit to the other, the conditions for manure pollution prevention are the same in both permits. This is to prevent confusion and the need for a CAFO to change its practices depending on the permit it is covered by.

The table below specifies which permit conditions satisfy which 40 CFR § 122.42(e)(1) requirement.

| **EPA CAFO Rule and CAFO Permit Section Cross-reference** | |
|---|---|
| **EPA Rule Requirement** | **CAFO Permit Reference** |
| 40 CFR § 122.42(e)(1)<br>*Requirement to implement a nutrient management plan.* Any permit issued to a CAFO must include a requirement to implement a nutrient management plan that, at a minimum, contains best management practices necessary to meet the requirements of this paragraph and applicable effluent limitations and standards, including those specified in 40 CFR part 412. The nutrient management plan must, to the extent applicable: . . . | Permit Condition S4 |
| 40 CFR § 122.42(e)(1)(i)<br>Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities | Permit Condition S4.B-C |

| | |
|---|---|
| 40 CFR § 122.42(e)(1)(ii)<br>Ensure proper management of mortalities (*i.e.*, dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities | Permit Condition S4.G |
| 40 CFR § 122.42(e)(1)(iii)<br>Ensure that clean water is diverted, as appropriate, from the production area | Permit Condition S4.D |
| 40 CFR § 122.42(e)(1)(iv)<br>Prevent direct contact of confined animals with waters of the United States | Permit Condition S4.E |
| 40 CFR § 122.42(e)(1)(v)<br>Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants | Permit Condition S4.F |
| 40 CFR § 122.42(e)(1)(vi)<br>Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States | Permit Condition S4.A-C, J, M, N, O |
| 40 CFR § 122.42(e)(1)(vii)<br>Identify protocols for appropriate testing of manure, litter, process wastewater, and soil | Permit Condition S4.H, I<br>Permit Condition S5.B, C |
| 40 CFR §122.42(e)(1)(viii)<br>Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater | Permit Condition S4<br>Permit Condition S4.J-L<br>Permit Condition S5 |
| 40 CFR § 122.42(e)(1)(ix)<br>Identify specific records that will be maintained to document the implementation and management of the minimum elements described in paragraphs (e)(1)(i) through (e)(1)(viii) of this section. | Permit Condition S6<br>Permit Condition S7.C |

| | |
|---|---|
| 40 CFR § 122.42(e)(5)(i)<br>Linear NMP Approach | This permit, the performance objectives/permit conditions, requiring an MPPP that documents how a Permittee is meeting the performance objectives, and specifying how nutrient budgets will be calculated meets the CFR requirements. |
| 40 CFR § 122.42(e)(5)(ii)<br>Narrative NMP Approach | |

**S4.A Production Area Run-off Controls**

One source of run-off from the production area and land application fields is manure and soils that tracked onto public roadways. When it rains, these materials may be carried by run-off into surface waters. The state and combined permits are requiring that the Permittee control the materials tracked off-site (off of the production area or land application field). Ecology has determined that this approach will be effective based on similar requirements in the Construction Stormwater General Permit. All construction sites must have "hardened" entrance pads made up of quarry spall, crushed rock, or other equivalent BMPs over filter cloth where construction traffic leaves the site. Below is the discussion from the Construction Stormwater General Permit Factsheet, issued in 2015:

"*The purpose of stabilizing entrances to construction sites is to minimize the amount of sediment and mud being tracked off-site by motorized vehicles. Installing and maintaining a pad of quarry spalls, crushed rock or other equivalent BMPs over filter cloth where construction traffic leaves a site can help stabilize the egress and minimize sediment tracked onto roads. As a vehicle drives over the stabilized construction access, mud and other sediments are loosened and removed from the vehicle's wheels thereby reducing the offsite transport of sediment. The pad also reduces mechanical erosion and prevents the formation of muddy wheel ruts, which can be a source of "track-out." The filter fabric reduces the amount of rutting caused by vehicle tires by spreading the vehicle's weight over a larger soil area than just the tire width. The filter fabric also separates the gravel from the soil below, preventing the gravel from being ground into the soil (EPA 2002a).*

*Quarry spalls used to stabilize the construction site access should be large enough so that they are not carried off-site on tires, which can result in property damage. Site operators should avoid sharp-edged stone to reduce the possibility of puncturing tires. According to EPA (2002a, EPA 2002b), stone should be installed at a depth of at least 6 inches for the entire length and width of the stabilized construction access. BMP C105: Stabilized Construction Entrance/Exit in the Stormwater Management Manual for Western Washington prohibits the use of crushed concrete, cement, or calcium chloride for construction entrance stabilization because these products raise pH levels in stormwater and concrete discharge to surface waters of the State is prohibited.*

*WSDOT and Ecology have also seen successful application of steel plates used to provide a stabilized construction entrance; this is an acceptable substitute to traditional quarry spall access areas.*

*Limiting construction site access to one point minimizes the surface area that could be affected by tracked out mud and sediment from construction traffic.*

*If the stabilized construction access does not adequately prevent sediment from being tracked off site adequately, the site operator must locate a wheel wash or tire bath on-site. Wheel wash systems remove mud from construction vehicles on site and reduce the amount of sediment transported onto paved roads. Wastewater from wheel washing or street washing activity is typically sediment laden with very high levels of turbidity. In addition, this wastewater may contain other pollutants such as metals, phosphorus, polymers, and/or oil and grease at levels that may harm to aquatic life. As a result, site operators must discharge wheel wash and street wash wastewater to a separate on-site treatment system, such as closed-loop recirculation or land application, or to a sanitary sewer with local approval*."

**State Permit**

The state permit does not authorize discharges from the production area to surface waters. The conditions requiring control of facility run-off are meant to prevent surface water discharges from occurring.

**Combined Permit**

The combined permit only authorizes discharges from the production area to surface water in a narrow range of circumstances. A discharge from the production area to surface water may only occur if the facility is designed, constructed, operated, and maintained to capture all liquids and contaminated run-off plus the direct precipitation from a 24-hour, 25-year storm event. See also the discussion in permit condition S3 Discharge Limits. These permit conditions are meant to prevent surface water discharges except for in the narrow range of circumstances where discharges are allowed.

**S4.B Manure, Litter, Process Wastewater, and Feed Storage**

Manure, litter, process wastewater, feed stocks (i.e. animal feed), and other materials are sources contaminated of run-off on the facility production area. In order to prevent discharges to surface water, the materials listed above need to be stored and managed to prevent run-off (except in limited circumstances) and to collect the contaminated run-off generated for later land application as a source of crop nutrients.

These permit conditions are directed at ensuring that materials which can be sources of contaminated run-off to surface waters are managed to minimize this risk. In general the owner or operator of the facility is required to either cover the materials and direct clean water away from the facility so that it does not come into contact with contaminants, or to collect and run-off and store it for later land application as crop nutrients. It left up to the owner or operator to describe in their MPPP how this is accomplished onsite.

This set of permit conditions also includes general maintenance requirements. In order to ensure that materials which can be contaminants are properly managed, the management

infrastructure must be maintained in proper working order. Due to the variability of the management infrastructure from facility to facility, beyond the general permit requirements, the facility owner or operator must describe how they are maintaining their infrastructure in their MPPP.

The requirements for adequate storage of manure, litter, and process wastewater are based 40 CFR § 122.42(e)(1)(i). Because adequate storage is necessary to prevent surface water discharges and to limit discharges to the circumstances allowed by the combined permit, these requirements are used in both the state and combined permits.

**Liquid Waste Facility Infrastructure Maintenance**

EPA regulations require that lagoons be maintained in good working order, as they were built (40 CFR § 122.41(e)). A good inspection and maintenance program will protect a structure against deterioration and prolong its life. In Washington, any liquid storage facility that impounds 10 acre-feet or more (measured from natural grade to the crest of the impoundment) above ground level and not overseen by another dam safety program (e.g. federal dam safety) is required to comply with chapter 173-175 WAC (Dam Safety). 10 acre-feet is approximately 32.5 million gallons. Most lagoons are likely to be smaller than this, but due to similarities in construction, many of the maintenance procedures required of large liquid impoundments also apply to smaller lagoons as well.

Maintenance will prolong the life of a structure and help prevent catastrophic failure. Permittees should consider the actions necessary to deal with a catastrophic failure of a lagoon to prevent, or minimize to the extent possible, environmental harm.

The Ecology Dam Safety Program oversees impoundments that contain 10 acre-feet or more of liquid above grade. The program has developed an extensive list of operation and maintenance requirements for these large earthen impoundments which are included in inspection reports. Drawing on the expertise of the Dam Safety Program, this list has been modified to fit into the CAFO permit for requirements that Permittees must follow, at a minimum, to maintain liquid storage structures on their facilities.

An "***upset***" is not a defense against failure to maintain a waste storage (or other containment) structure. 40 CRF § 122.41(n) clearly lays out the requirements that must be met for a failure to be considered an upset. As it currently exists: *"(n) Upset—(1) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (2) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (n)(3) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (3) Conditions necessary for a*

*demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that: (i) An upset occurred and that the permittee can identify the cause(s) of the upset; (ii) The permitted facility was at the time being properly operated; and (iii) The permittee submitted notice of the upset as required in paragraph (1)(6)(ii)(B) of this section (24 hour notice). (iv) The permittee complied with any remedial measures required under paragraph (d) of this section. (4) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof*."

**Lagoon Closure**

Ecology has received questions about how lagoons should be closed (decommissioned) in order to comply with regulations. The language included in the draft permits clarifies the conditions to permanently or temporarily close a lagoon for water quality protection. The conditions are intended to reduce the risk of discharge to groundwater of nutrients contained in and below the structure. This is because certain nutrients can built up in the lagoon soils. For example ammonia/ammonium is known to be at high levels in the lagoon liner and depending on the time the lagoon has been in operation, a certain amount of soil depth below the lagoon (Environmental Water Resources Institute, 2005). Then when the lagoon is decommissioned, oxygen becomes more available which causes mineralization of ammonia to nitrate which is then mobile with any water percolating down through the soil profile.

The closure requirements are based partially on EPA's Idaho CAFO permit requirements, Oregon CAFO permit requirements, and NRCS Practice Standard 360 (Closure of Waste Impoundments) to minimize the risk of discharge to surface or groundwaters.

**Combined Permit**

EPA CAFO rules require that all open surface liquid waste storage structures must have a depth gauge which clearly indicates the minimum capacity to contain all the run-off and direct precipitation of a 25-year 24-hour storm when the waste storage is full. The depth gauge should cover the entire depth of the structure so that level of liquid waste may be observed to help detect leaks (which is different from seepage) in the lagoon. The level of liquid in the lagoon should be observed and recorded each week during lagoon inspection. See permit condition S5 for inspection and record keeping requirements.

**S4.C Other Above and Below Ground Infrastructure**

Similar to storage structures for manure, litter, and process wastewater there is other infrastructure such as buried pipes that may be used by a facility for management of manure, litter, and process wastewater. These conditions are in place to ensure that owners and operators of a facility maintain this type of infrastructure to prevent and control discharges. Authority to include these requirements is based upon WAC 173-226-070.

## S4.D Diversion of Clean Water

Water that comes into contact with animals, manure, litter, process wastewater or other sources of contaminants on-site (e.g. silage leachate) will contain pollutants (e.g. nutrients, fecal coliform). Contaminated water must be collected and prevented from discharging.

Clean water may be directed away from the manure, litter, process wastewater, feed stock and other sources of contamination. So long as the water does not come into contact with contaminants on-site, the clean water may be directed away from the facility. Diverting clean water away from the facility reduces the volume that the facility manure management systems must be designed to handle.

These requirements are based upon 40 CFR 122.42(e)(1)(iii). However because a water that comes into contact with contaminants on-site must be collected and stored for later land application in both permits (except in limited circumstances in the combined permit) directing clean water away from the facility is an appropriate way to limit contaminated run-off under both state and combined permits.

### State Permit

This permit does not allow discharges to surface water. All water that comes into contact with contaminants must be directed to storage systems. If water that has come in contact with pollutants is allowed to run off the production area into surface waters, or conduits to surface water this is considered a discharge to surface waters and a permit violation. A discharge to surface waters would trigger the requirement that the facility apply for the combined permit.

### Combined Permit

The combined permit only allows surface water discharges in specific instances see permit condition S3 Discharge Limits. Unless those conditions are met, all water that comes into contact with contaminants must be directed to storage systems. If water that has come in contact with pollutants is allowed to run off the production area into surface waters, or conduits to surface or groundwater, this is considered a discharge and unless the specific conditions in permit condition S3 are met, the discharge is a permit violation.

## S4.E Prevent Direct Animal Contact with Surface Water

Animal access to surface waters causes direct discharges to the water from animal fecal matter (directly excreted or otherwise carried on the animal). Animal use of the water also can lead to degradation of the riparian areas and releases of sediment (turbidity) from animals stirring the bottom sediments and trampling the water body banks. Because heavy use of stream banks by animals for watering causes water quality pollution, animals must be fenced out of riparian areas.

These requirements are based upon 40 CFR § 122.42(e)(1)(iv). However because a discharge from direct animal contact with surface water is not a discharge allowed by either the state or combined permits, these requirements are included in both permits.

**S4.F Chemical Handling**

Many chemicals may be used on a CAFO facility such as pesticides, veterinary medications, cleaning/sanitation agents, or fuels. In general, though the manure management systems are not designed to handle these chemicals directly, they are included in the collected manure, litter, and process wastewater which is later land applied as crop nutrients. This is land treatment of these chemicals.

This permit condition requires that the owner or operator not use the manure management systems to dispose of excess, unused, or unwanted chemicals. This would be inappropriate as many chemicals (e.g. pesticides, veterinary medicines) have specific regulatory requirements (e.g. Federal Insecticide Fungicide and Rodenticide Act (FIFRA)) for how excess, unused, or unwanted chemical or wash water from cleaning chemical application equipment may be disposed of. Safety Data Sheets (SDS) provide proper handling and disposal instructions for chemicals that do not have a FIFRA label. Use of the FIFRA label requirements or SDS instructions for disposal of chemicals is considered, at least in part, AKART (WAC 173-226-070).

Additionally, because the chemicals address by the section of the permit can be pollutants, the permit conditions require that the owner of operator of a facility ensure that chemicals are appropriately handled and stored to prevent spills.

These requirements are based upon 40 CFR § 122.42(e)(1)(v) and WAC 173-226-070. Because chemicals are used on all types of CAFO facilities regardless of if they only have a groundwater discharge or a surface water discharge, the chemical handling requirements are included in both the state and combined permits.

**S4.G Livestock Mortality Management**

Federal CAFO rules requires proper management of livestock mortalities. Mortalities may not be disposed of in liquid waste handling systems (unless the system is designed to handle mortalities), and they must be handled in a way that prevents discharge of pollutants. Addressing livestock mortalities to prevent discharges is based partially upon 40 CFR § 122.42(e)(1)(ii). A discharge from animal mortalities is not a discharge allowed by either the state or combined permits, therefore these requirements are included in both permits.

Washington State also has laws and rules that that are more explicit in describing how mortalities must be handled. The conditions in this permit comply with the requirements in 40 CFR § 122.42(e)(1)(ii), chapters 90.48 and 16.36 RCW and chapters 173-350 and 16-25 WAC.

As livestock carcasses decompose, they release leachate that is high in nutrients and pathogens. Proper handling of livestock mortalities is important for the protection of water quality and for biosecurity. Through different management practices, the environmental and biosecurity impacts of livestock mortalities can be reduced. For routine disposal, a number of options exist including incineration, sending carcasses to an approved landfill (landfilling) where accepted, composting, rendering, and burial. Routine mortality disposal is covered in chapter 16-25 WAC.

The permit requirements general follow the provisions of chapter 16-25 WAC. Ecology has only included requirements related to water quality in the permit. However chapter 16-25 contains requirements beyond those protecting water quality such as moving mortalities away from fence lines if allowed to decompose naturally. The Permittee must still comply with the provisions of chapter 16-25 WAC even if they are complying with permit requirements.

Mortalities due to unknown causes must always be presumed to be from disease. RCW 16.36.092 requires that any livestock that died of disease or unknown causes will be disposed of as described in rule by the director of the Washington State Department of Agriculture. This is implemented in chapter 16-25 WAC which also covers routine disposal of mortalities.

If on-farm mortality composting is conducted, chapter 70.95 RCW and chapter 173-350 WAC must be complied with. In addition, Ecology developed guidance called "On-Farm Composting of Livestock Mortalities" (ECY Pub No. 05-07-034). Ecology has required compliance with the guidance because it reduces the impact mortality composting operations can have on water quality.

In the event of livestock death from a reportable disease, the state veterinarian or local health department must determine appropriate carcass disposal methods.

**S4.H Manure, Litter, and Process Wastewater Sampling and Nutrient Analysis**

Ecology understands from producers that the nutrient content of the various sources of manure, litter, and process wastewater will remain fairly consistent. Analysis will result in nutrient values which remain consistent during the same period of time across different years (e.g. nutrient values for a source will be approximately the same during the same month each year – February 2015 ≈ February 2016, July 2015 ≈ July 2016, etc.). Ecology is providing a reduced monitoring requirement after three years of sampling analysis showing that the nutrient source is remaining consistent (within 5% variation) year to year. The three years may be from the start of permit coverage, or may be prior to permit coverage if the Permittee has maintained records of nutrient analysis that will show consistency year to year. If the Permittee makes a change on site that will affect the nutrient content of a source, then the Permittee must return to yearly nutrient analysis until 3 years of data showing consistency are obtained. The Permittee must keep records showing that the three year data requirement is met for each nutrient source (e.g. each separate lagoon) that the Permittee uses.

See discussion in permit condition S5.B for sample nutrient analysis requirements discussion.

## S4.I Soil Sampling and Nutrient Analysis

Soil sampling is an essential part of determining what nutrients are available for a crop and therefore what nutrients are needed to meet crop and yield goal requirements. Spring soil sampling is necessary to determine what nutrients are available, or that will become available to a crop over the growing season. This is then the basis for a field nutrient budget. Ecology chose not to provide for decreased soil sampling after a trend is established because environmental variability is likely to lead to fluctuations in soil nutrient content in the spring from year to year. For example a warm spring will lead to more mineralization and early nitrogen availability to crops than a cold spring.

Fall soil sampling is required as the "report card" for how well the field nutrient budget was followed during the year. It is a report back that triggers adaptive management (permit condition S4.K and L) on the part of the Permittee to encourage better management practices.

See discussion of permit condition S5.C for sample analysis requirements discussion.

## S4.J Land Application

Land application of manure, litter, process wastewater, and other materials is essential to provide nutrients for crop growth as part of a land treatment system. However it is important that land application take place in a manner that does not pose a high risk to surface and groundwater quality. Instances that increase the risk of discharge from land application fields include, but are not limited to, applying in places and during times where field run-off may occur, applying at times of year where crops will take up minimal to no nutrients, applying right up to the edge of a waterbody (e.g. no buffers or setbacks), not following appropriate application rates or nutrient budgets, applying during precipitation or when other environmental factors increase the likelihood of discharge.

In order to reduce the risk of discharge to surface water from field run-off and to groundwater from excessive over-application, Ecology has included requirements to prevent application during higher risk times and areas that can pose a higher risk of discharge.

Field Nutrient Budget
The basis for including the requirement to follow a yearly nutrient budget for land application for manure, litter, process wastewater and other sources of nutrients is the concept of a field nutrient balance and that other regulatory and technical assistance agencies are in agreement that nutrient budgets are necessary for appropriate land application (WSDA, CD's, NRCS). A field nutrient mass balance means that the nutrient inputs (e.g. nutrient mineralization, fertilizer) to a field roughly equal the nutrient outputs (e.g. crop harvest removed from field).

$$Nutrient\ Balance = Inputs - Outputs$$

When inputs and outputs are in balance, this prevents excessive nutrients (e.g. nitrate) being left in the field soil at the end of the growing season that can leach past the root zone, into the vadose zone, and finally to groundwater.

$$Inputs - Outputs \ > 0 \ = Excess\ Nutrients$$

Excess nutrients that move down below the root zone of crops are going to enter groundwater at some point depending on the soil profile and environmental conditions of a location. Nutrients which move down below the crop root zone can cause impact groundwater. By requiring that Permittees follow a nutrient budget, the amount of excess nutrients moving to groundwater will be reduced.

**Equipment Calibration**
In order to accurately know how much nutrients are being land applied, a rate (application per unit time measurement) for any land application equipment (equipment calibration). It is essential that the rate of application is known in order accurately apply the nutrient budgets. Only basing application rates on a rough estimate is a quick way to break a nutrient budget and end up with either too much or not enough nutrients applied to a field.

**No Application Periods/Conditions**
During certain times of year fields are either bare of crops or crops (e.g. perennial grasses) are taking up limited amounts of nutrients because of cold temperatures. During these times, usually indicated by bare, frozen, snow covered, or saturated fields land application is prohibited. The point of a nutrient budget (or the agronomic rate as used in industry) is to land apply nutrients so that they are available when crops need them and are able to use the nutrients. When nutrients begin to be land applied at questionable times (e.g. high risk of run-off during or right after application) or when crops are unlikely to take up much of the nutrients applied land application begins to look less like an activity that provides a benefit to crops and more like waste disposal (which if land application is waste disposal, requires a solid waste handling permit).

Other specific prohibitions on land application are from guidance documents provided by NRCS or Whatcom CD. These requirements are from the most recent NRCS Practice Standard 590 (or are paraphrased). Nutrients must not be land applied when:

- To fields with a frozen surface crust or deeper, or the soil is at or below 32 degrees F.
- To fields that are snow covered.
- During precipitation events large enough to cause field run-off in the Permittee's location.
- When crop nutrient utilization has stopped or is limited (e.g. no application to perennial grass crops before spring green-up)

These requirements are from the Whatcom Conservation District Application Risk Management (ARM) guidance. Nutrients must not be land applied when:

- To fields with saturated soil (including surface ponding) or with soil moisture content ≥ 90%.

- If the water table is within 12 inches or less of the surface.

- If significant precipitation (≥ 0.5 inches) is forecast in the next 72 hours by WSU AgWeatherNet or NOAA for the Permittee's location.
  AgWeatherNet: http://weather.wsu.edu
  NOAA Forecasts: http://www.wrh.noaa.gov/forecast/wxtables/index.php

**Land Application in Fall/Winter**
Following the permit requirement and technical assistance agencies agreement that a nutrient budget is necessary, and the reason for the nutrient budget is to appropriately land apply various sources of nutrients, appropriate use of nutrients should then only occur when the nutrient budget says that crops will need the nutrients. Land application outside of when the nutrient budget says that the crops will need the nutrients would then not be following the budget. Permit condition S4.J.8 essentially asks for a justification from the Permittee as to why land application needs to occur outside of when the nutrient budget says crops will need the nutrients, for example after crops have been harvested or when they are beginning to go dormant and why the nutrients currently available in the field soils are not enough for the non-growing (or limited growth for perennial crops) period. This condition provides additional oversight to land application that takes place during times when crops have already been harvested, or are going into the non-growing season by ensuring that the crops actually do need extra nutrients that will not be provided by the soil.

**Emergency Application**
The permit restrictions on times and places that land application may occur are intended to reduce land application during times where there is a high risk of discharge to surface or groundwater. Permit condition S4.J.9 is meant to address situations where a Permittee may need to land apply in order to address emergency situations where land application may otherwise be restricted by permit requirements. Emergency situations would be those where the Permittee may experience a system failure such as lagoon overtopping unless it land applies. If such a situation occurs, this permit requirement provides a feedback loop for the Permittee and Ecology to evaluate whether the facility is appropriately designed for current operations. For example, if the Permittee land applies in an emergency situation due to a lagoon overtopping, the Permittee must assess their lagoon and operations to determine the cause of the emergency situation such as not enough lagoon storage space. If the Permittee determines that there is not enough storage space, it must make changes within the next 12 months to increase storage space to prevent the emergency situation from occurring again.

A discussion of the reasons for including adaptive management as part of land application is provided in the discussion of permit conditions S4.K and L.

**State Permit**

Authority to restrict land application to prevent and control discharges as AKART comes from WACs 173-226-070(1) and (3) and 173-226-180(1) as well as RCW 90.48.010 and 90.48.520.

The permit conditions limiting land application during certain times as well as requiring following a field nutrient budget are the same between the state permit and combined permit. This is because the same activity will take place under both permits.

**Combined Permit**

In addition to the authorities provided by state statutes and rules, 40 CFR 122.42(e)(1)(viii) requires the establishment of protocols for the appropriate land application of manure, litter, process wastewater, and other sources of nutrients. In addition 40 CFR 123.36 requires that Ecology develop technical standards for CAFOs for the land application of manure, litter, process wastewater, and other sources of nutrients. The requirements which the technical standards must address and how the permit addresses those requirements are listed below:

a. A field specific assessment that addresses the form, source, amount, timing, and method of application of nutrients.

   Permit condition S4.B and the yearly field nutrient budget form address these requirements.

b. Achieve realistic production goals while minimizing nitrogen and phosphorus movement to surface and groundwaters.

   The permit yearly field nutrient budget form address these requirements which are also listed as permit condition S4.J.1.

c. Determination of application rates must:

   i. Include a field specific assessment for the potential for nitrogen and phosphorus transport from the field.

      The permit yearly field nutrient budget form address these requirements which are also listed as permit condition S4.J.1.

   ii. Address the form, source, timing, and method of application.

      This is addressed in permit condition S4.J, K, and L where controls are placed on the time of year application may take place, weather in which application may take place. Timing of actual applications is left to the Permittee as long as the application takes place within the constraints placed on application within the Permit.

Method of application and form of manure are essentially meaningless because they do not affect the conditions in which waste may be applied under this permit. They may, however, affect the amount of nutrients that are actually applied because of handling.

The permit yearly field nutrient budget form address these requirements which are also listed as permit condition S4.J.1. Each source of manure, litter, process wastewater or other source will have a different nutrient content. The Permittee will need to know this nutrient content in order land apply within the field nutrient budget.

iii. Achieve realistic production goals.

The permit yearly field nutrient budget form address these requirements which are also listed as permit condition S4.J.1. A realistic production goal is the average yield of the past 3 to 5 years of a single crop, on a single field.

iv. Option for multi-year phosphorus applications to fields that do not have a high potential for phosphorus run-off.

This permit cycle, nitrogen is the focus of the field nutrient budgets and MPPP as it is currently the primary nutrient of concern (e.g. high nitrates in groundwater in Yakima and Whatcom Counties). It is highly likely that if Ecology were to require phosphorus based nutrient budgets that many land application fields would no longer be available to use for manures due to the current phosphorus levels from many years of receiving manure.

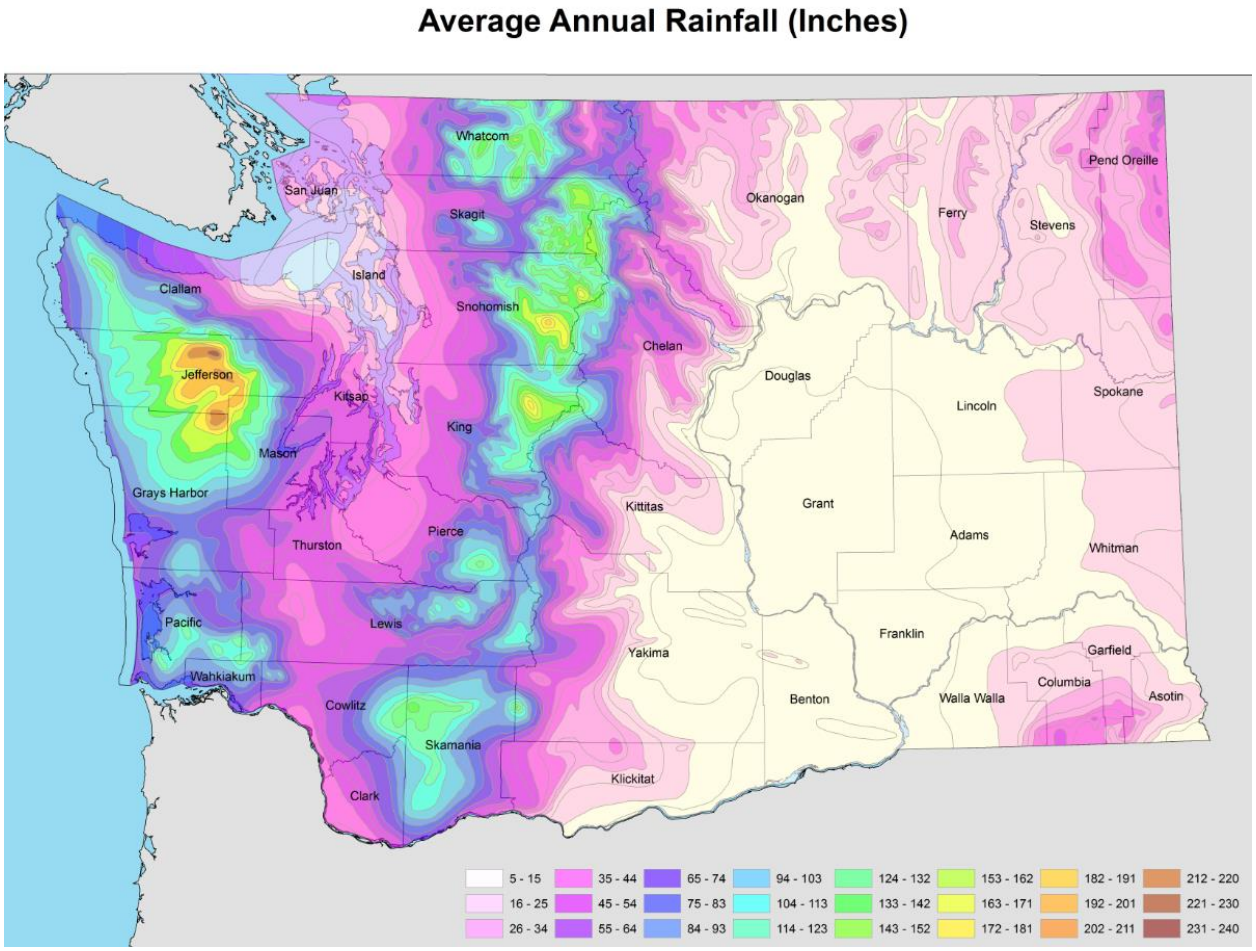
However, the yearly field nutrient budget does require calculating the phosphorus needs for the crop. This will allow Ecology to gather information for the next permit cycle to better determine if, and how phosphorus needs to be addressed.

v. Allow for phased implementation of phosphorus based nutrient management.

This permit cycle, nitrogen is the focus of the field nutrient budgets and MPPP as it is currently the primary nutrient of concern (e.g. high nitrates in groundwater in Yakima and Whatcom Counties). It is highly likely that if Ecology were to require phosphorus based nutrient budgets that many land application fields would no longer be available to use for manures due to the current phosphorus levels from many years of receiving manure.

However, the yearly field nutrient budget does require calculating the phosphorus needs for the crop. This will allow Ecology to gather information for the next permit cycle to better determine if, and how phosphorus needs to be addressed.

## S4.K and L Adaptive Management




Permit conditions S4.K and L provide a feedback loop to the Permittee as a way for Ecology, the public, and the Permittee to determine how well the on-field practices are protecting water quality. The feedback loop is based upon the use of benchmarks. A benchmark is different than an effluent limitation. It is a value that, when reached or exceeded, indicates the Permittee must change their practices to reduce future end of season reporting values to below the benchmark. That is, reaching or exceeding a benchmark triggers an adaptive management action on the part of the Permittee.

A benchmark is not an enforceable limit such as the 10 mg/L nitrate criteria for drinking water. If an enforceable limit is reached or exceeded the Permittee is in violation of the permit. If a benchmark is exceeded it is not a permit violation because the benchmark only serves to trigger adaptive management actions. If a Permittee exceeds a benchmark and does not take the required adaptive management actions, that is a permit violation.

Ecology developed a benchmark matrix that qualitatively assigns risk to levels of nitrate left in the soil based on fall soil test analysis. The ranges of nitrate that are used as benchmarks are the same ranges that WSDA uses when inspecting and providing technical assistance to

dairy producers under chapter 90.64 RCW. Based on the benchmark, and the depth the soil sample was taken at a risk is assigned. The higher the fall soil test analysis the higher the risk and the deeper the sample was taken at the higher the soil test analysis the higher the risk.

Based on the risk for each soil sample depth, a summation is developed that leads a level of adaptive management – an action level. Increased risk levels lead to higher action levels which require more intensive adaptive management actions.

Due to differences in environment, a separate action level matrix was developed for areas with less than or equal to 25 inches of or precipitation and for areas with greater than 25 inches of precipitation. Generally, this is due to higher precipitation in the west and also higher groundwater tables. This means that rooting depths, based on discussions with producers and their technical advisors, are shallower in the west than they are in the east. Therefore, there is greater risk to groundwater at a shallower soil depth in the west than in the east. The benchmark matrices and adaptive management were set up to address these differences.

**S4.M Irrigation Water Management**

Irrigation is necessary in many areas of the state in order to provide adequate water to crops. However, when improperly managed irrigation water can contribute to the movement of pollutants such as nitrate moving to groundwater. In brief, nitrate does not bind with soil particles so any water moving through the soil is likely to also cause nitrate to move downward in the soil profile, eventually to a point where crops cannot use the nitrate at which point the only place for nitrate to go is eventually to groundwater. See the discussion of Nitrogen in the Effluent Characterization section for more on how easily nitrate moves with water.

Appropriately managing irrigation water is necessary in order to slow the downward movement of nitrate in crop fields. To do this the owner or operator of a facility that is also producing crops is required to manage their irrigation water. Each foot of soil profile has a water holding capacity. The permit requires that irrigation water be managed such that the water holding capacity of the crop root zone (approximately 8 inches to 3 feet depending on crop and location in the state) is not exceeded. Exceeding the water holding capacity leads to leaching. A depth of 2 feet was chosen for areas west of the Cascades based on meeting discussions with producers and their technical advisors. 3 feet was chosen for east of the Cascades do to generally deeper rooting depths.

**S4.N Field Run-off Prevention Management Practices**

Field run-off prevent via the use of buffers is usually the way to protect surface and groundwaters from materials that are considered pollutants once they enter water. These materials include nutrients (e.g. nitrate), bacteria (e.g. fecal coliform, e-coli), and sediments.

40 CFR § 122.42(e)(1)(vi) and 40 CFR § 412.4(c) set specific minimum field buffers that Permittees must implement to control run-off from their land application fields. Ecology used

the language directly from the CFR, but added language addressing conduits to groundwater to the default federal language. Because land application will take place in the same ways under both the state permit and combined permit the same buffers are used in both permits. In all cases, buffer distance is measured from the ***top of the bank*** to the inside edge of the buffer.

**S4.O Manure Export**

Export is a way for an AFO to remove excess nutrients from its facility when the facility has more nutrients available than its cropping system can use. Ecology has purposely chosen to use the term ***export*** instead of "transfer" (as used in 40 CFR § 122.42(e)(3)) of waste from one entity to another. This is to help provide a distinction between permit requirements and the NRCS Waste Transfer practice (Practice 634) and to note that properly exported nutrients are no longer the responsibility of the Permittee.

These requirements are based upon 40 CFR § 122.42(e)(3)). However because export is used on all types of CAFO facilities regardless of if they only have a groundwater discharge or a surface water discharge, these requirements are included in both the state and combined permits.

Export requires the Permittee to relinquishing control of the manure, litter, digestate, or process wastewater to another party. Whether the Permittee delivers the manure, litter, and process wastewater, or the receiving party picks it up from the Permittee, until the control of the waste changes hands, the Permittee is responsible for managing the manure, litter, and process wastewater in a manner that prevents discharges. Examples of when export (and therefore control changing hands) occurring are provided in the permit. These are intended to clarify Ecology's position as to who the responsible party is should waste be discharged during the process of exporting waste. Examples of when waste export occurs, include, but are not limited to:

1. After the Permittee has completed delivery of waste to storage facilities of another party. In this case, if the Permittee is using its equipment to deliver waste, the receiving party has no control over the waste until it is delivered. Because the Permittee maintains control until that point, it is still responsible if there is a discharge until each delivery is completed and control changes to the receiving party.

2. Another party picks waste up from the Permittee. The waste does not get applied to any fields the Permittee controls. In this case, the Permittee is in control of the waste until the waste is loaded into the receiving party's equipment and is off the Permittee's facility. Until that occurs, all permit requirements apply.

3. When a Permittee applies waste to a field, or fields, at the request of the person in control of the field. In this case, the Permittee is applying waste it controls to a field that it does not control. While waste application (and incorporation if supplied by the Permittee) is occurring, the Permittee is responsible for ensuring that there is no discharge from the field. The Permittee is also responsible for applying the amount and rate of manure, litter,

or process wastewater specified by the person in control of the field. Once the application of manure, litter, or process wastewater is complete, then the transfer occurs because the Permittee is no longer in control.

4. A Permittee as a custom applicator. At times, a Permittee could apply manure, litter, or process wastewater not generated at the Permittee's facility to fields that another party controls. In this case the Permittee would be regulated for discharges the same as a non-permitted custom applicator. If the party in control of the field is another livestock operation (e.g. AFO), a discharge could result in that party being required to apply for CAFO permit coverage.

As part of the waste export process, the Permittee is required by 40 CFR § 122.42(e)(3) to provide the waste recipient with the most recent manure nutrient analysis. The Permittee must keep records of the date, waste recipient name, address, parcel the manure, litter, and process wastewater will be applied to and the approximate amount of water transferred the recipient.

Another process is used by some producers where export takes place on the facility before manure is moved off-site. In this situation another party (contracted composter for lack of a better term) processes ("composting" or drying) manure solids on-site and then sells the processed manure solids for various purposes. The export occurs when control of the manure solids changes from the Permittee to the contracted composter even though the contracted composter is operating on the Permittee's facility. In order to ensure whole-facility nutrient balance, the amount of manure exported to the contracted composter must be tracked by the Permittee. However, even though the exported manure is still on-site, control has changed hands so any sales or movement of the processed manure off-site is not required to be tracked by the Permittee.

For those that are exporting digestate from digesters, nutrient analysis is required within the last 5000 cubic yards generated (WAC 173-350-250(2)(a) Table 250-A (3) and WAC 173-350-220(1)(b) Table 220-A (3-5) and WAC 173-350-220(4)(a)(x)(B)).

**S4.P Emergency Procedures**

Part of preventing and controlling discharges is planning for emergency situations when infrastructure fails. All emergency situations are not expected to be covered in the plan. What is expected is that the Permittee will consider the types of infrastructure failure that are likely to happen. Based on the types of possible failures, develop a general plan of how to deal with the problem. (WAC 173-226-070(3)). For example if a pipe on the production area bursts the plan is to shut off flow to the pipe (bypassing with temporary pipe if necessary) until the pipe is repaired.

**S4.Q Training**

Ensuring facility infrastructure is maintained and problems are corrected promptly is a way of ensuring that discharges from the facility beyond those allowed by the permit do not occur. Visual inspections/monitoring is a way to do this.

This permit condition was included to suggest a possible avenue for how visual inspection/monitoring of the facility may be integrated into the work the Permittee and their employees are already performing, thus reducing the burden on the permitted facility. Visual inspection/monitoring does not have to be separate from daily tasks. During routine work, the Permittee and their employees could look for the inspection items required in permit condition S5.A. If a problem is noticed as the Permittee or employee is performing their routine work, it could then be reported to the Permittee or designated individual during or after shift via a record sheet. If no problems are noted, a checkbox on the record sheet to this affect could be used.

**S4.R Manure Pollution Prevention Plan (MPPP)**

As discussed under permit condition S4 above, 40 CFR § 122.23(h) and § 122.42(e)(1) require that as part of the permit application process, the permit applicant develop and submit a NMP which contains (after review, public comment, and approval) the facility effluent limitation (nine elements). Ecology has instead set effluent limitations which cover the nine elements from40 CFR § 122.42(e)(1) in the state and combined permits. In order to fully satisfy 40 CFR § 122.23(h) and § 122.42(e)(1), how the permit effluent limitations are being met on a permitted CAFO must be documented. The MPPP is a document developed by the Permittee that documents how the Permittee is meeting the permit conditions (effluent limits/performance objectives) S4.A-Q (the nine elements from 40 CFR § 122.42(e)(1)) at their facility.

**The MPPP does not replace the dairy nutrient management plan (DNMP) required for dairies by chapter 90.64 RCW. It also does not replace the comprehensive nutrient management plan (CNMP) required by NRCS to participate in cost-share programs. The MPPP should be a subset of the information in a well written and implemented DNMP or CNMP.**

The MPPP are meant to be "living documents" that are modified by the Permittee to reflect changes made at the CAFO. The facility documentation requirements are used to gather information about the current state of the facility and then implement triggers for when the Permittee must update its MPPP to reflect what is currently occurring on-site.

WSDA uses a 10% change (increase or decrease) in animal numbers and field acres beyond what is currently in the DNMP for when it suggests that a facility needs to update its DNMP. Ecology is using the same requirement here to trigger the requirement to update the MPPP. A Permittee may plan for a greater increase so that it does not have to modify its MPPP as often based upon animal number changes.

The Permittee is required to update its MPPP within seven days of becoming aware of a condition that would require the MPPP to be updated. This does not mean that if the condition requires modification to the physical facility infrastructure that the modification needs to be completed in seven days. This means that the MPPP must be updated to reflect the changes that are being made – for example updating the MPPP to state that a construction project must take place and the timeline for project completion.

Facility documentation is required to gather information about the facility physical location, facility structures, and infrastructure that are used to manage manure, litter, and process wastewater as well as preventing and controlling discharges. An inventory is necessary to ensure that the owner or operator of the facility is aware of all the potential points where infrastructure failure or poor management could cause an unauthorized discharge. This is also an indication of if the facility is implementing AKART controls for any discharge.

Ecology has included the requirements from 40 CFR 412.37(b)(5) record keeping requirements in this section as well. The data requirements for this record keeping include design and treatment volumes of storage structures which fit within the types of information required in this permit condition.

## S5. MONITORING

Self-monitoring through inspection is an essential part of any permit. It informs the Permittee that they are meeting the permits requirements, and through reporting, informs the public that permits are being followed. RCW 90.48.260, WAC 173-226-080 and WAC 173-226-090, give Ecology the authority to establish inspection, monitoring, entry, and reporting requirements.

General permits may be subject to monitoring requirements that Ecology deems reasonably necessary to ensure permit compliance (WAC 173-226-090). Monitoring is usually associated with a discharge, for example monitoring effluent from a pipe. However, permitted CAFOs do not usually have a continuous discharge to monitor. Monitoring for CAFOs should be in the form of facility inspections to ensure that equipment and facilities are operating correctly to prevent discharges and also in the form of sampling that is needed to appropriately land apply manure, litter, and process wastewater. Permittees are required to keep records of monitoring activities for a minimum of five years, and periodically report to Ecology the results of the monitoring (permit condition S7).

Sampling and analytical methods used to meet the monitoring requirements specified in this permit or submitted to Ecology in support of actions taken by the Permittee must conform to the latest revision of the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR § 136 (or as applicable in 40 CFR subchapters N [§ 400–471] or O [§ 501-503]) unless otherwise specified in this permit. Ecology may only specify alternative methods for parameters without limits and for those parameters without an EPA approved test method in 40 CFR § 136.

All samples must be analyzed by a laboratory registered or accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 173-50 WAC.

**S5.A Operations and Maintenance**

**State Permit**

While the routine visual inspections are based on 40 CFR § 412.37 and § 412.47, WAC 173-226-070(3)(d) allows Ecology to impose additional requirements to prevent or control discharges from spillage or leaks or materials handling or storage. Visual inspections are a method of detecting problems or potential problems and correcting them before an unauthorized discharge occurs. See discussion about the combined permit for more information on the visual inspections.

**Combined Permit**

40 CFR §412.37 and § 412.47 require specific sizes and categories of CAFOs to perform routine visual inspections. The requirements and facilities are similar enough that Ecology is requiring all Permittees, as a good practice, to perform the same routine inspections. This is to ensure that problems with infrastructure that may lead to a discharge are identified and correct early before a discharge occurs. See the discussion in permit condition S4.Q for how visual inspections/monitoring may be included in work already being done to minimize additional work. At a minimum EPA requires:

1. Daily inspection of water lines, including drinking water or cooling water lines.

2. Weekly inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage and containment structure.

3. Weekly inspections of the manure, litter, and process wastewater impoundments; the inspection will note the level in liquid impoundments as indicated by a depth marker. Inspections must be cataloged in a log book or similar way for inspectors to refer to.

40 CRF § 412.4 requires the Permittee to periodically inspect equipment used for land application of waste. Inspections must be cataloged in a log book or similar way for inspectors to refer to.

EPA regulations require that lagoons be maintained in good working order, as they were built. This includes weekly inspection and maintenance of storage structures. A good inspection and maintenance program will protect a structure against deterioration and prolong its life.

In Washington, any liquid storage facility that impounds 10 acre-feet or more of liquid above ground level and not overseen by another dam safety program (e.g. federal dam safety) is required to comply with chapter 173-175 WAC (Dam Safety). 10 acre-feet is approximately

32.5 million gallons. Most lagoons are likely to be smaller than this, but many of the inspection guidelines for a large impoundment apply to smaller ones as well due to similarities in construction.

Two types of inspections can identify deficiencies with a lagoon embankment before it becomes detrimental to the structure. First are informal observations during daily operation of the lagoon system. During normal operations, the Permittee would note any possible deficiencies with the lagoon so that they can be addressed. The second type of inspection is the periodic maintenance inspection. These are conducted by the Permittee walking over and around the impoundment as many times as necessary to observe the entire structure. The inspection should note any deficiencies observed, location, extent or area, and description of the deficiency. A written record of the inspection must be kept for inspectors to verify.

Any necessary construction or modifications for lagoon facilities that contain 10 acre-feet or more, above grade, must be submitted to the Dam Safety Office for construction permit application approval. See the following website for the construction permit application and approval process: http://www.ecy.wa.gov/programs/wr/dams/ConstructionServices.html. Normal maintenance and minor repair do not require a construction permit application. Installation of new design configurations are considered dam construction modifications and require the Dam Safety Permit.

**S5.B Manure, Litter, and Process Wastewater**

In order to know the amount of nutrients that should be applied to a crop field, the amount of nutrients in the various sources that will be used must be known (along with crop nutrient needs and nutrients already available in the soil). Sampling and analysis of nutrient sources provides this information.

In order to ensure that Permittee's appropriately calculate the amount of nutrient that they will land apply, sampling and testing of all the nutrient sources used by the Permittee is being required. Nutrient sources are the manure, litter, process wastewater, digestate, chemical fertilizer or other nutrient sources generated on site or imported to a facility. Chemical fertilizers have a certified nutrient analysis provided on the product container so they are not required to be sampled and tested.

The amount of nutrients contained in waste is going to depend on type of manure, method of collection and storage, kind and amount of bedding or litter used, and amount and type of feed. This is going to be different for every operation.

Book values are estimates but do not take into account differences between operations. Different herds, weather, storage, and local soil conditions all influence the amount of nutrients in the various sources. Because of these variations, book values are not accurate for determining field nutrient balances and land application amounts.

There are two options for sampling waste that is going to be land applied. One option is to sample the waste while it is still in storage. The other is to sample what is actually being land applied at the time of application.

Both options present difficulties. The option of sampling the stored manure, litter, and process wastewater means that when actually applied it is likely to have a different nutrient content due to the handling/application process. However, this option provides a nutrient analysis upon which a land application amount may be determined.

Sampling during the actual application provides a more accurate representation of nutrients applied to a field. The downside is that the application rate is a guess. Actual nutrient analysis is completed sometime after application if finished. This may not be an issue early in the season, but may be during later season applications and may cause the Permittee to exceed the amount of nutrients needed on a field.

Handling waste generally causes the more volatile compounds to volatilize (e.g. ammonia). One assumption that may be made is that the amount of nutrients stored in the waste lagoon will actually be higher than what is applied on a field (losses can be roughly between 15 and 80% of volatile nutrients during land application). This over-estimates the amount of nutrients that are applied. This is a more conservative approach to land application. The Permittee may sample during waste application or more frequently as well if it chooses, but for permitting purposes, the Permittee must sample the waste stored in its lagoons.

The parameters chosen to be included in sample analysis are the minimums necessary to develop a field nutrient budget. 40 CFR § 122.41(j)(4) requires that Ecology use analysis methods included in 40 CFR § 136 unless another method is required by 40 CFR subchapters N or O. Some parameters such as Total Nitrogen do not have approved methods. The methods available are:

| **Parameter** | **Standard Method** | **Units** **(Liquid Materials)** | **Units** **(Solid Materials)** |
|---|---|---|---|
| Ammonia ($NH_3$)/ Ammonium ($NH_4$) as N | 4500-$NH_3$ B, C, D, E, G or H | #/1000 gal | #/ton |
| Nitrate + Nitrite as N | 4500-$NO_3$ E, F or H **OR** 4110 B or C | #/1000 gal | #/ton |
| Organic Nitrogen as N | 4500-$N_{org}$ B or C | #/1000 gal | #/ton |
| Phosphorus ($P_2O_5$) as P | 4500-P B followed by 4500-P E, F, G, or H | #/1000 gal | #/ton |

With regards to Total Nitrogen, it is the sum of Ammonia/Ammonium, Nitrate + Nitrite, and Organic Nitrogen which all have Part 136 methods.

Guidance for appropriate methods for gathering samples varies. Ecology has chosen to use the same guidance that Oregon currently does in its October 2015 state general permit for CAFOs. These guidance documents are PNW 570-E, EM 8832-E, PNW 533, and PNW 673 which has superseded PNW 505.

**State Permit**

WAC 173-226-090(1) requires that discharges authorized by a general permit be subject to monitoring requirements. Generally this applies to discharges, however land application is a slightly different case. Because discharges to ground are being authorized by the permit, the amount of nutrients being discharge to ground must be monitored instead of the actual discharge itself. This plus crop nutrient uptake (crop yields) and other information required by the permit provide the ability to analyze (at least in a gross fashion) how much nutrients are being discharged to ground and eventually groundwater.

For consistency between this permit and the combined permit, the parameters that must be analyzed for are the same. The land application taking place under both the state and combined permits are the same, so it is reasonable to ensure that the monitoring requirements are also equivalent. This also allows comparisons between the activities taking place under both permits to provide a broader set of data to better understand impacts from the permitted activity.

WAC 173-226-090(4) requires that all samples must be analyzed by a laboratory registered or accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 173-50 WAC. Accredited laboratories and the analysis they are accredited to perform may be accessed here: http://www.ecy.wa.gov/programs/eap/labs/index.html.

**Combined Permit**

In addition to the requirements of WAC 173-226-090, 40 CFR § 122.42(e)(1)(vii), 40 CFR § 412.37(b) and (c), and 40 CFR § 412.47(b) require monitoring. Both state and federal monitoring requirements are incorporated. As stated above, Ecology is aligning monitoring requirements between the state and combined permits.

**S5.C Soil**

In order to know the amount of nutrients that should be applied to a crop field, the amount of nutrients available in the soil must be known (along with crop nutrient needs and nutrients available from various sources). Sampling and analysis of field soils provides this information.

The parameters chosen to be included in sample analysis are the minimums necessary to develop a field nutrient budget. Ecology is also somewhat constrained by the type of analysis it can use for permit requirements. 40 CFR §122.41(j)(4) requires that Ecology use analysis methods included in 40 CFR § 136 unless another method is required by 40 CFR subchapters N or O. Some parameters such as Total Nitrogen do not have approved methods. The methods that are available are:

| Parameter | Standard Method | Units |
|---|---|---|
| Ammonia($NH_3$)/ Ammonium ($NH_4$) as N | 4500-$NH_3$ B, C, D, E, G or H | #/Acre |
| Nitrate + Nitrite as N | 4500-$NO_3$ E, F or H<br>**OR**<br>4110 B or C | #/Acre |
| Organic Nitrogen | 4500-$N_{org}$ B or C | #/Acre |
| Phosphorus ($P_2O_5$) as P | 4500-P B followed by<br>4500-P E, F, G, or H | #/Acre |

With regards to Total Nitrogen, it is the sum of Ammonia/Ammonium, Nitrate + Nitrite, and Organic Nitrogen which all have Part 136 methods.

Guidance for appropriate methods for gathering samples varies. Ecology has chosen to use the same guidance that Oregon currently does in its general permit for CAFOs. These guidance documents are PNW 570-E, EM 8832-E, PNW 533, and PNW 673 which has superseded PNW 505.

**State Permit**

For consistency between this permit and the combined permit, the parameters that must be analyzed for are the same. The type of activities taking place under both the state and combined permits are the same, so it is reasonable to ensure that the monitoring requirements are also equivalent. This also allows comparisons between the activities taking place under both permits to provide a broader set of data to better understand impacts from the permitted activity.

WAC 173-226-090(4) requires that all samples must be analyzed by a laboratory registered or accredited under the provisions of Accreditation of Environmental Laboratories, Chapter 173-50 WAC. Accredited laboratories and the analysis they are accredited to perform may be accessed here: http://www.ecy.wa.gov/programs/eap/labs/index.html.

**Combined Permit**

In addition to the requirements of WAC 173-226-090, 40 CFR 122.42(e)(1)(vii), 40 CFR 412.37(b) and (c), and 40 CFR 412.47(b) require monitoring. Both state and federal monitoring requirements are incorporated. As stated above, Ecology is aligning monitoring requirements between the state and combined permits.

## S6. RECORD KEEPING

The reporting and recordkeeping requirements of permit condition S6 are based on the federal and state authorities, which allow Ecology to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges. Section 308(a)(3)(A)(v) of the Clean Water Act and 40 CFR § 122.41(j) provide federal authority. RCW 90.48, WAC 173-226-090 and WAC 173-226-180 provide state authority. Keeping records and reporting provide

practical measures that allow the Permittee, public, and Ecology to assess compliance with the requirements of this permit.

Permittees must keep all records and documents required by this permit for five years. If there is any unresolved litigation regarding the discharge of pollutants by the Permittee, they must extend the period of record retention through the course of the litigation (WAC 173-226-190).

**S6.A Operations and Maintenance**

Permit condition S4.H allows a reduction in spring manure sampling after three years if certain conditions are met. Records are necessary to verify that the conditions are met. Ecology is not requiring submittal of the records supporting reduced spring manure sampling, however records of the three years of testing need to be available for inspectors to review, even if it requires retention of those records beyond the five your minimum period. Like all permits Ecology issues, records must be available from the Permittee upon request from Ecology.

Permit conditions S5.B and C specify the analysis methods that Permittees are required to have used to analyze soil and manure, litter, and process wastewater samples. This satisfies the record keeping requirements of 40 CFR § 122.42(e)(1)(ix) for 40 CFR § 122.42(e)(1)(vii). Results of analysis are submitted as part of annual reports and field nutrient budgets.

Permit condition S4.J specifies that the Permittee must follow the field nutrient budgets submitted to Ecology as required by permit condition S7.C. The permit specified that the Permittee must use the nutrient budget worksheet provided by Ecology. This determines how the Permittee calculates its nutrient budget. This satisfies the record keeping requirement of 40 CFR § 122.36. The annual report also includes reporting of the total amounts of nitrogen and phosphorus applied to land application fields from all sources, so additional record keeping is not necessary.

40 CFR § 412.37(b) further requires record keeping for:

1. Weekly inspection of all manure and contaminated water handling devices.

2. Weekly inspection of all clean water diversion devices.

3. Daily inspection of clean water (e.g. drinking, cooling) lines.

4. Weekly inspections of manure storage, noting the depth of manure in liquid manure storage.

5. Date, time, location, estimated volume of any overflow (lagoon).

6. Documenting actions correcting deficiencies.

These record keeping requirements are included in a monthly record keeping template that Ecology developed for Permittee use. Permittees are not required to use the template, however if

a Permittee chooses not to use the template, the same information must be recorded and retained and provided to Ecology on request.

Records documenting current manure storage structures including volume, volume for solids build up (in liquid storage), design treatment volume, total volume, number of days of storage capacity are captured as part of the MPPP in permit condition S4.R so no further record keeping is necessary.

40 CFR § 412.37 also requires record keeping of mortality management including how many mortalities and how handled. Ecology does not intend to require the Permittee to record this information so long as the livestock mortalities are handled in accordance with permit condition S4.G.

**S6.B Land Application**

Records of land application must be kept so that the Permittee may satisfy the annual reporting requirements in permit condition S7.C as required by 40 CFR § 122.42(e)(4).

**S6.C Public Access to Permit Records Including MPPP**

Interested members of the public are welcome to request copies of MPPPs directly from Permittees as only the initial MPPP's will be submitted to Ecology unless Ecology specifically requests the MPPP from the Permittee. In addition, any MPPPs that Ecology retains are likely to be out-of-date very quickly as site conditions change and the Permittee updates their MPPP. This condition is similar to provisions in the EPA Multi-Sector Industrial Stormwater General Permit, and Ecology's Construction Stormwater and Industrial Stormwater General Permits.

The permit provides three options for public access to the most current MPPPs:

1. The Permittee may send the MPPP directly to the requestor; or

2. The Permittee may allow the requester to view the MPPP at an agreed upon location, or

3. The Permittee may also send the MPPP to Ecology so that Ecology can provide the document to the requestor. In order to ensure that Ecology can provide the document, the Permittee must also notify Ecology that it is sending the MPPP and who requested the document.

This condition does not require the Permittee to provide the requestor with access to their operation nor does it authorize the requestor to enter the Permittee's operation.

Reports and records that are required to be submitted to Ecology are available from Ecology either through the public facing permit database (PARIS) once uploaded or upon public disclosure request.

### S6.D Records Retention

Ecology based this permit condition on its authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-226-090). Permittees must keep all records and documents required by this permit for five years (length of the permit life-cycle). If there is any unresolved litigation the Permittee must extend the period of record retention through the course of the litigation (WAC 173-226-090).

## S7. REPORTS

The reporting and recordkeeping requirements of permit condition S7 are based on the federal and state authorities, which allow Ecology to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges. Section 308(a)(3)(A)(v) of the Clean Water Act and 40 CFR § 122.41(l) provide federal authority. RCW 90.48, WAC 173-226-090 and WAC 173-226-180 provide state authority. Keeping records and reporting provide practical measures that allow the Permittee and Ecology to assess compliance with the requirements of this permit.

Ecology is in the process of redeveloping its permitting database (PARIS). It is possible that during this permit cycle the ability to submit reports required by the CAFO permit electronically will become available. Should this happen, Ecology may modify this permit to require electronic reporting. The requirement for electronic submittal makes progress with Ecology's obligation to comply with EPA's NPDES Electronic Reporting Rule (40 CFR Parts 122, 123, 127, 403, 501 and 503). RCW 43.17.095 also requires Ecology to offer electronic reporting options.

### S7.A Submittal of MPPP

Ecology is requiring that Permittee's submit their completed MPPP within six months of permit coverage. This provides Ecology with baseline information for determining permit compliance and helps assess the state of the industry for future permit cycles. It also ensures that the MPPP's are completed within the specified time frame after permit coverage.

### S7.B One-time Lagoon

As discussed in permit condition S2.A, lagoon construction is variable which will lead to variable seepage rates and therefore variable impacts to groundwater. The current industry standard for lagoon constructions appears to be Appendix 10D of Part 651 of the Agricultural Waste Management Field Handbook from NRCS. This document, calculations using Darcy's Law, and NRCS staff agree that even lagoons built to this standard have a seepage rate. This seepage rate along with other risk factors indicate that those covered under either of the permits have a discharge to groundwater based on a preponderance of the evidence. However, the currently available credible information does not support the conclusion that the seepage from all lagoons is polluting groundwater. In all likelihood, there will be a range of impacts.

The one-time lagoon report will provide Ecology with information to help determine what the range of impacts from lagoons is, which will support decision making in future versions of the permits. Ecology based this permit condition on its authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-226-090).

Because Permittees under the state permit and combined permit are likely to have lagoons, the requirements for the One-Time Lagoon Report are the same in both permits.

**S7.C Annual Report and Yearly Field Nutrient Budgets**

Annual reports are a yearly report card for both Permittees and Ecology. They provide information that allows assessment of land application performance for the prevention of discharges.

**State Permit**

WAC 173-226-090(3) requires that Permittees periodically report to Ecology. In order to align the annual reporting requirements between the state and combined permits, Ecology is requiring reporting on an annual basis. Reporting (as set out below) requirements are the same as in the combined permit.

Field nutrient budgets are required to be submitted along with the annual report each year for each field that the Permittee controls. The nutrient budget is the expression of permit limits for land application of manure, litter, and process wastewater in terms of how much will actually be applied to each field over a season.

**Combined Permit**

40 CFR § 122.42(4)(i)–(viii) describes the federal annual reporting requirements for permitted CAFOs. The following nine requirements must be included on the annual report:

1. "*The number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other);*

2. *Estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);*

3. *Estimated amount of total manure, litter and process wastewater transferred to other person by the CAFO in the previous 12 months (tons/ gallons);*

4. *Total number of acres for land application covered by the nutrient management plan developed in accordance with paragraph (e)(1) of this section;*

5. *Total number of acres under control of the CAFO that were used for land application of manure, litter and process wastewater in the previous 12 months;*

6. *Summary of all manure, litter and process wastewater discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume; and*

7. *A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner; and*

8. *The actual crop(s) planted and actual yield(s) for each field, the actual nitrogen and phosphorus content of the manure, litter, and process wastewater, the results of calculations conducted in accordance with paragraphs* [40 CFR § 122.42] *(e)(5)(i)(B) and (e)(5)(ii)(D) of this section, and the amount of manure, litter, and process wastewater applied to each field during the previous 12 months; and, for any CAFO that implements a nutrient management plan that addresses rates of application in accordance with paragraph* [40 CFR § 122.42] *(e)(5)(ii) of this section, the results of any soil testing for nitrogen and phosphorus taken during the preceding 12 months, the data used in calculations conducted in accordance with paragraph* [40 CFR § 122.42] *(e)(5)(ii)(D) of this section, and the amount of any supplemental fertilizer applied during the previous 12 months*."

(40 CFR § 122.42(4)(i)–(viii))

The annual reporting form developed by Ecology as part of the draft permit contain the required reporting elements. The form may be accessed online here: http://www.ecy.wa.gov/programs/wq/permits/cafo/index.html

Ecology has had to be prescriptive with minimum technical and operating standards in order to shift the permit paradigm away from the review and approval process set in EPA CAFO rules.

The yearly field nutrient budget submittal is one of the pieces necessary to make this process work. Each year, along with the annual report, the Permittee must submit a field nutrient budget for each field that they own, operate, lease, or otherwise control for land application. This does two things for the Permittee: 1) this allows the Permittee to easily change fields in response to changing leases or other agreements. Fields that the Permittee owns, operates, leases, or otherwise controls can change on a yearly basis, which under the EPA rule requires a revision of the NMP, approval by Ecology, public notice, and a public comment period. 2) this allows the Permittee to change the crops they choose to grow on a yearly basis (which may otherwise require the review process mentioned in 1)). Based on the EPA rule, a NMP would need to include the crops that a Permittee is planning to grow for the next 5 years. Any changes to that (e.g. based on market conditions) would require an update of the NMP, and approval by Ecology.

To comply with public review needs, Ecology plans to post these field nutrient budgets every year (or when they are received for new Permittees) on its CAFO Permit website. This is similar to how Oregon has handled NMP updates for its permitted facilities.

## S7.D Noncompliance

### State Permit

WAC 173-226-180 authorizes Ecology to establish permit conditions as necessary to achieve compliance with effluent standards, water quality standard, discharge limits, and other applicable requirements. These conditions require that the Permittee report instances of noncompliance to Ecology within 24-hours of becoming aware of an instance of noncompliance (e.g. unauthorized discharge) and follow up with a written report within five days. This type of reporting provides practical measures that allow the Permittee, public, and Ecology to assess noncompliance with the requirements of this permit and potential impacts to waters of the state.

The timing of noncompliance reporting and reports that must be submitted are the same as those in the combined permit based on 40 CFR § 122.41(l)(6) in order to maintain consistency across the two permits which cover the same type of activities.

Failure to report noncompliance is a violation of the state permit and may constitute grounds for enforcement actions or termination of the permit coverage.

### Combined Permit

In addition to state requirements under WAC 173-226-180 the code of federal regulations 40 CFR § 122.41(l)(6) specifies when and how a Permittee must report noncompliance with their permit that may endanger human health or the environment. Ecology requires that if a Permittee violates permit conditions, it must take steps to stop the activity, minimize any violations, and report those violations to Ecology.

Permittees are required to orally report noncompliance to Ecology within 24-hours of the Permittee becoming aware of the instance of noncompliance. This must be followed up within five days with a written report detailing the noncompliance unless Ecology agrees to waive the written report.

CAFOs essentially operate on a 24-hour basis in order to ensure that animals are cared for appropriately. It is likely that instances of noncompliance that occur outside of the 8am-5pm business hours. In the instances of noncompliance outside of business hours Permittees could leave a phone message instead of waiting until business hours the next day to report the noncompliance. A phone message is for all intents and purposes an oral email though it is less certain exactly when the phone message was left and must be transcribed in order for a record of the message to be permanently kept. For these reasons Ecology is providing the option for the Permittee to submit 24-hour noncompliance notification to Ecology via email. The option to orally report the noncompliance via phone call or message are still available.

Both the 24-hour report and the five day written report must both contain the information specified in 40 CFR § 122.41(l)(6) which is included a permit requirements. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been

corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

**S7.E Spills**

The Permittee must be prepared to mitigate for any potential hazardous spills and, in the event of a spill, perform the necessary cleanup, and notify the appropriate Ecology regional office (see RCW 90.48.080, and WAC 173-226-070).

RCW 90.56.280 and chapter 173-303-145 WAC require Permittees to report spills of oil or hazardous materials. The phone numbers for the Washington Emergency Management Division and National Response Center are provided in the permit.

## S8. APPENDICIES

The attached appendices are incorporated by reference into this permit.

## GENERAL CONDITIONS

General conditions are taken from federal and state regulation and generally remain the same from permit to permit.

# APPENDIX A: ACRONYMS AND DEFINITIONS

**AFO:** Animal Feeding Operation
**AKART:** All known, available, and reasonable methods of pollution control, prevention, and treatment
**BAT:** Best Available Technology Economically Achievable
**BCT:** Best Conventional Pollutant Control Technology
**BPJ:** Best Professional Judgment
**BPT:** Best Practicable Control Technology Currently Available
**BOD:** Biological Oxygen Demand
**CAFO:** Concentrated/Confined Animal Feeding Operation
**CFR:** Code of Federal Regulations
**COD:** Chemical Oxygen Demand
**CWA:** Federal Clean Water Act
**DNMA:** Dairy Nutrient Management Act, chapter 90.64 RCW
**DNMP**: Dairy Nutrient Management Program
**EPA:** United States Environmental Protection Agency
**FIFRA:** Federal Insecticide, Fungicide, and Rodenticide Act
**FWPCA:** Federal Water Pollution Control Act, synonym for CWA
**MOA:** Memorandum of Agreement
**MPPP:** Manure Pollution Prevention Plan
**NMP:** Nutrient Management Plan
**NOI:** Notice of Intent (also referred to as the Application for Coverage)
**NOT:** Notice of Termination
**NPDES:** National Pollutant Discharge Elimination System
**NRCS:** Natural Resource Conservation Service
**NSPS:** New Source Performance Standards
**PCHB:** Pollution Control Hearings Board
**RCW:** Revised Code of Washington
**SEPA:** State Environmental Policy Act, RCW 43.21C, WAC 197-11
**TMDL:** Total Maximum Daily Load
**TSP:** Technical Service Provider
**WAC:** Washington Administrative Code
**WSDA:** Washington State Department of Agriculture
**USC:** United State Code
**USDA:** United States Department of Agriculture

**25-year, 24-hour Storm Event:**
Means the amount of precipitation from a 24-hour storm event that has the likelihood of occurring once in a 25-year period. The amount of precipitation from a storm event of this type varies by location.

**Agricultural Stormwater:**
Discharges to surface water from land application fields generated only by precipitation provided that the following are true:

1. The discharge was not from the **production area**,

2. The discharge was not caused by human activities even if the activity took place during precipitation, and

3. Permittee is in compliance with their CAFO permit.

**All known, available, and reasonable methods of prevention, control, and treatment (AKART):**
A technology-based approach of engineering and economic decision-making for limiting pollutants from discharges. AKART represents the most current methodology for preventing, controlling, and abating pollution that can be reasonably installed or used at a reasonable cost. Described in chapters 90.48 and 90.54 RCW and chapters 173-201A, 173-204, 173-216 and 173-220 WAC.

**Applicant:**
The person or entity applying for permit coverage.

**Application for Coverage:**
Means the form developed by Ecology used by a discharger to apply for coverage under a ***general permit***. It is specific to each general permit. Also referred to as a ***Notice or Intent*** or ***NOI***.

**Application Rate:**
Means the rate in quantity per acre (e.g. gallons/acre, tons/acre) that manure, litter, process waste, process wastewater, or other nutrients from all sources are applied to a land application field.

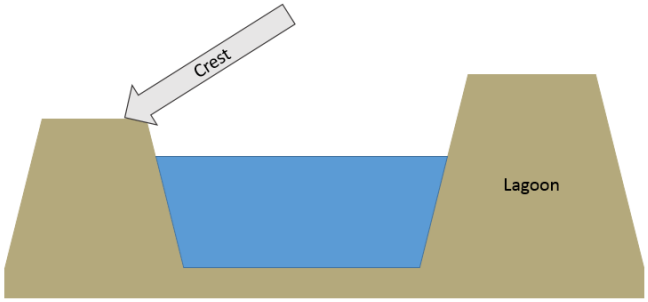
**Beneficial Use:**
Means all existing and future uses of waters of the state as defined in WAC's 173-200-020(4), 173-201A-020, and 173-216-030(1). All uses have the same priority.

**Best Management Practices (BMPs):**
Mean schedules of activities, prohibitions on practices, maintenance procedures, and other management techniques or strategies to prevent or reduce the discharge to ***waters of the state***. BMPs also include treatment requirements, operating procedures, and physical interventions and

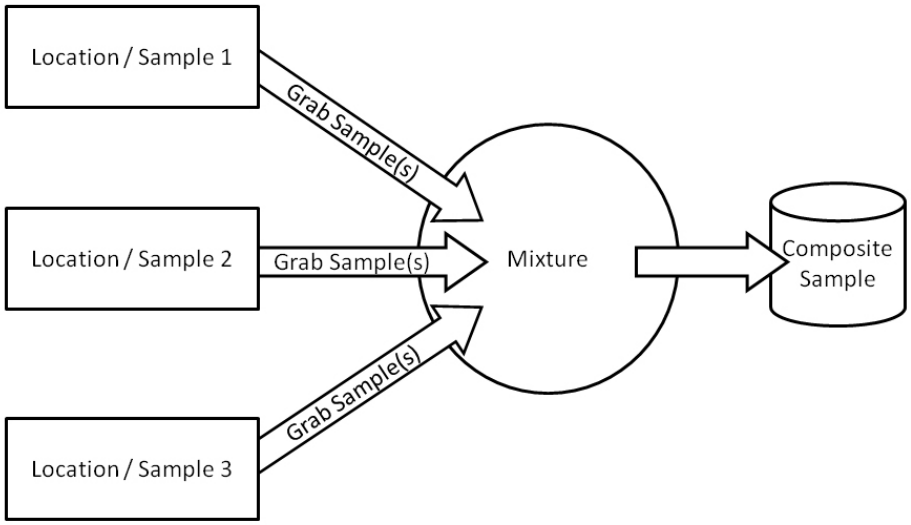
barriers to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Control**:
Performing, directing, managing, overseeing, supervising, or giving instruction about, any action or decision.

**Crest:**
Means the highest point of the structural (e.g. embankment) wall of a ***lagoon*** or other liquid storage structure.




**Composite Sample:**
A series of grab samples collected over several locations within a field or ***management unit*** and combined together.




**Discharge:**
Means the addition of any ***pollutant*** or combination of pollutants to ***waters of the state***.

**Discharger:**
Means the owner or operator of any commercial or industrial operation subject to regulation under chapter 90.48 RCW or the federal Clean Water Act due to a ***discharge***.

**Effluent Limitation:**

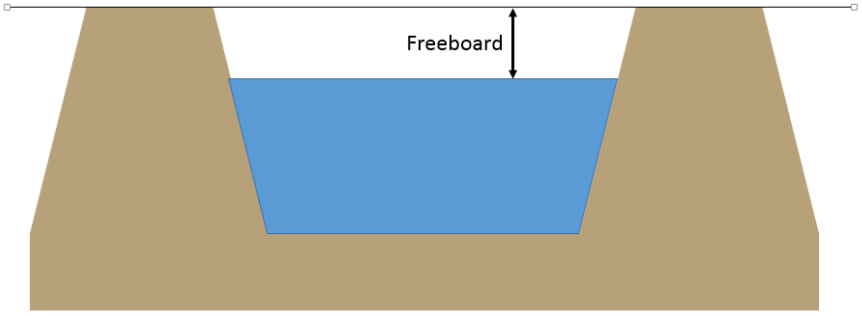
Means any restriction on timing, quantities, rates, and concentrations of ***pollutants*** discharged from point sources into waters of the state. Includes ***best management practices***.

**Existing Operation:**
An operation that began operating prior to the issuance date of this permit.

**Export:**
Means the removal of manure, litter, and process wastewater, or other sources of nutrients from the CAFO's production system to another party that is not under the ***control*** of the Permittee.

**Feed:**
Materials used for animal nutrition or that will be processed and used for animal nutrition that are stored by the CAFO such as silage, grain, vegetable leavings, or other materials used for animal nutrition.

**Freeboard:**
Means the vertical distance from the maximum storage level (including normal storage plus storage volume for a 25-year, 24-hour storm event) of a lagoon to the lowest point on the lagoon ***crest***.




**General Permit:**
Means a permit that covers multiple dischargers of a point source category within a designated geographical area in lieu of issuing individual site-specific permits to each discharger.

**Geomembrane Liner:**
Means a type of lagoon liner material that is a synthetic polymer such as reinforced polypropylene, high density polyethylene (HDPE), or polyvinyl chloride (PVC) and that is usually between 35 and 60 mil thick.

**Groundwater:**
Water located below the surface of the ground that is a ***water of the state***. Surficially perched water is groundwater (Douma v. Ecology PCHB 00-019).

**Indian Country:**
Means as defined in 18 USC 1151: "Except as otherwise provided in sections 1154 and 1156 of this title, the term ''Indian country'', as used in this chapter, means (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government,

notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same."

**Lagoon:**
Means a structure designed for storage of liquid manure, process wastewater, digestate, or other liquids or slurries.

**Land Apply/Application:**
Means the process of putting manure, litter, process waste, process wastewater, or other sources of nutrients on to a field to provide nutrients for crop growth.

**Land Application Field:**
Means a single contiguous land unit under the control of the CAFO (excluding the production area) to which manure, litter, process wastewater, or other sources of crop nutrients are added as a fertilizer or soil amendment.

**Litter:**
Animal bedding, materials used in animal housing such as straw, sand, or shavings on the floor, or spilled **feed** that has come into contact with manure or other contaminants.

**Management Unit:**
Means portions of a field or portions of multiple closely located fields which have the same or very similar soil and crop growth characteristics which allow them to be managed as a single **land application field**.

**Manure:**
Liquid and solid livestock excrement.

**New Operation:**
An operation that began operation after the issuance date of this permit.

**Notice of Intent (NOI):**
A formal application or request for coverage under a ***general permit*** pursuant to WAC 173-226-200. See also ***Application for Coverage***.

**Notice of Termination (NOT):**
A request by the ***Permittee*** to Ecology to end the Permittee's permit coverage because the facility no longer requires a permit.

**Over-Top:**
The addition of manure, litter, process waste, process wastewater, liquid, or other material including precipitation, to a lagoon until the level of the liquid in the lagoon rises over the lagoon ***crest***.

**Permit:**
Means an authorization, license, or equivalent control document issued by Ecology to implement chapter 90.48 RCW, the federal Clean Water Act, and associated statutes by allowing discharges of pollutants to ***waters of the state*** within constraints.

**Permittee:**
Means the person or entity that holds a permit coverage allowing specific discharge(s) to waters of the state (surface or ground).

**Point Source:**
Means any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

**Pollutant/Pollution:**
Means such contamination, or other alteration of the physical, chemical or biological properties, of any waters of the state, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental or injurious to the public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.

It also means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

**Process Wastewater:**
Any water that is used as part of the operation of a CAFO that has come into contact with **manure**, **litter**, **feed**, or digestate from anaerobic digesters, is used in the processing of products (e.g. egg washing) by the CAFO, or otherwise comes into contact with contaminants on the CAFO.

**Production Area:**
Means the locations making up a CAFO facility that are used for animal confinement, ***manure, litter***, ***feed***, and ***process wastewater*** storage, product processing facilities (e.g. milking parlor, egg washing, feed mixing), and other areas used for the storage, handling, treatment, processing, or movement of raw materials, products, or wastes. This includes manure stockpiled on fields.

**Sanitary Control Area**:
Means ***groundwater*** source protection areas as defined in WAC 246-290-135.

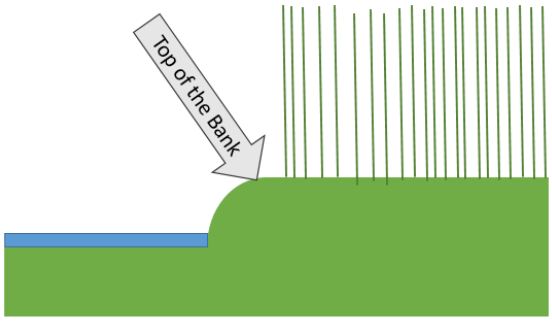
**Saturated Soil:**

Means soil that no longer has the capacity to retain additional water within is pore structure.

**Silage Leachate:**
Seepage from silage piles in bags, bunkers, silos, or other silage storage areas.

**Synthetic Liner:**
Synonymous with ***Geomembrane Liner***.

**Top of the Bank:**
Means the point on the edge of a field past which the land drops quickly down into a drainage ditch, surface water, or depression in the land.




**Total Maximum Daily Load (TMDL):**
A calculation of the maximum amount of a pollutant that a water body can receive and still meet state water quality standards. Percentages of the total maximum daily load are allocated to the various pollutant sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The TMDL calculations include a "margin of safety" to ensure that the water body can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation also accounts for seasonable variation in water quality.

**Trust or Restricted Lands:**
Means as defined in 25 USC § 2201(4): "(i) '*trust or restricted lands' means lands, title to which is held by the United States in trust for an Indian tribe or individual, or which is held by an Indian tribe or individual subject to a restriction by the United States against alienation; and (ii) 'trust or restricted interest in land' or 'trust or restricted interest in a parcel of land' means an interest in land, the title to which interest is held in trust by the United States for an Indian tribe or individual, or which is held by an Indian tribe or individual subject to a restriction by the United States against alienation*."

**Upset:**
Means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. See 40 CFR § 122.41.

**Waste**:
Means discarded materials.

**Water Table:**
Means the level at, and below, which the ground is completely saturated with water.

**Waters of the State:**
Includes lakes, rivers, ponds, streams, inland waters, underground waters (***groundwater***), salt waters and all other surface waters and watercourses within the jurisdiction of the state of Washington (RCW 90.48.020).

**Water Quality Standards:**
Means the current state and federal standards for water quality including, but not limited to:

- Surface Waters of the State of Washington (chapter 173-201A WAC).
- Ground Water Quality Standards (chapter 173-200 WAC).
- Sediment Management Standards (chapter 173-204 WAC).
- Human health based criteria in the National Toxics Rule (40 CFR § 131.36).

# APPENDIX B: PUBLIC INVOLVEMENT INFORMATION

All comments about the proposed permit must be received or postmarked by 5 p.m. on August 17, 2016 to be considered.

Ecology has tentatively determined to issue two permits, the CAFO NPDES and State Waste General Permit and the CAFO State Waste Discharge General Permit. Both permits are for animal agriculture activities as identified in Special Condition S1 Permit Coverage.

Ecology will publish a Public Notice of Draft (PNOD) on June 15, 2016 in the Washington State Register. The PNOD informs the public that the draft permits, fact sheet, and other supporting documents are available for review and comment.

Ecology will also email the notice to those identified as interested parties.

Copies of the draft general permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the Ecology offices listed below, may be obtained from Ecology's website, or by contacting Ecology by mail, phone, fax, or email.

Permit website: http://www.ecy.wa.gov/programs/wq/permits/cafo/index.html

Ecology Headquarters Building Address:
300 Desmond Drive
Lacey, WA 98503

Contact Ecology

Department of Ecology
Water Quality Program
Attn: CAFO Permit Writer
P.O. Box 47600
Olympia, WA 98504-7600

Jon Jennings
Email: jonathan.jennings@ecy.wa.gov
Phone: (360) 407-6283
Fax: (360) 407-6426

**Submitting Written and Oral Comments**
Ecology will accept written comments on the draft Concentrated Animal Feeding Operation (CAFO) General Permit, Fact Sheet, and application. Ecology will also accept oral comments at the public hearings on DATE(s) at LOCATION(s) starting TIME. Comments should reference specific text. Comments may address the following:

- Technical issues.
- Accuracy and completeness of information.
- Adequacy of environmental protection and permit conditions.

- Any other concern that would result from the issuance of this permit.

Ecology prefers comments be submitted by email to: Jonathan.Jennings@ecy.wa.gov
Ecology must receive written comments (via email or postmarked DATE) no later than 5:00 p.m. on DATE.

Submit written, hard copy comments to:

Department of Ecology
Water Quality Program
Attn: CAFO Permit Writer
P.O. Box 47600
Olympia, WA 98504-7600

You may also provide oral comments by testifying at the public hearing.

**Public Hearing and Workshop**
Ecology will hold public hearings and workshops on the draft general permit at the locations below. The hearings provide an opportunity for people to give formal oral testimony and comments on the draft permit. The workshops held immediately prior to the public hearings will explain the special conditions of the State and Combined permits.

**Hearings and Workshops**

**Tuesday, July 26 at 6 pm**
Whatcom Community College - Heiner Theater
237 W Kellogg Rd
Bellingham, WA 98226

**Thursday, July 28 at 6 pm**
Yakima Convention Center – Room B
10 North 8th Street
Yakima, WA 98901

**Webinar:**
Wednesday, July 27 at 2 pm

**Issuing the Final Permit**
Ecology will issue the final permit after it receives and considers all public comments. Ecology expects to issue the new general permit by the end of 2016. It will be effective one month after the issuance date.

For further information, contact Permit Writer, Jon Jennings, at Ecology, by phone at (360) 407-6283, by email at Jonathan.Jennings@ecy.wa.gov, or by writing to Ecology at the Olympia address listed above.

## APPENDIX C: RESPONSE TO COMMENTS

To be added after the public comment period (June 15 – August 17, 2016)

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