Chapter 4

4. Elements of an NPDES Permit for a CAFO

The elements of an NPDES permit for a CAFO are the same as for those issued to other point sources. The elements consist of a cover page, effluent limitations, monitoring and reporting requirements, record-keeping requirements, special conditions, and standard conditions (see Table 4-1). Each of those elements, other than the cover page, will be addressed in turn below as each specifically relates to CAFOs. For additional details on the elements of an NPDES permit, see EPA's *NPDES Permit Writers' Manual* (EPA-833-B-96-003).

Table 4-1. Elements of an NPDES Permit for a CAFO

Element	Section	Description
Cover Page		Serves as the legal notice of the applicability of the permit, identifies the authority under which the permit is issued, and contains applicable dates and signature(s).
Effluent Limitations and Standards	4.1	Serves as the primary mechanism for controlling discharges of pollutants to receiving waters by identifying the specific narrative or numeric limitations applied to the facility and the point of application of these limits.
Monitoring and Reporting Requirements	4.2	Describes the types of monitoring to be performed, the frequencies for collecting samples or data, how to record and maintain the data and information, and how to transmit the required information to the permitting authority.
Record-Keeping Requirements	4.2	Specifies the types of records to be kept on-site at the permitted facility (e.g., inspection and monitoring records; waste and soil sampling results; time, amount, and duration of land application activities; precipitation records; records of recipients of waste intended for application on land outside the operational control of the CAFO facility, etc.).

Table 4-1. Elements of an NPDES Permit for a CAFO *(continued)*

Element	Section	Description
Special Conditions	4.3	In NPDES permits for CAFOs, special conditions must include (1) the requirement to develop and fully implement an NMP, and (2) the requirement that the NMP address nine minimum practices defined in the regulation. In addition, NPDES permits for CAFOs may include other special conditions as determined necessary by the permitting authority.
Standard Conditions	4.4	Conditions that are included in all NPDES permits, such as the requirement to properly operate and maintain all facilities and systems of treatment and control, as specified in 40 CFR part 122.41.

4.1. NPDES Effluent Limitations and Standards

Section 301(a) of the Clean Water Act (CWA) prohibits the discharge of pollutants from a point source into waters of the U.S. unless the discharge complies with other provisions of the Act, including the requirement for a discharge to be authorized under an NPDES permit. Effluent limitations serve as the primary mechanism in NPDES permits for minimizing discharges of pollutants to receiving waters. When developing effluent limitations for an NPDES permit, a permit writer must include applicable technology-based effluent limits to control the pollutants. CWA § 302(a). Technology-based effluent limits are included in NPDES permits to achieve a level of treatment of pollutants for point source discharges on the basis of the applicable level of control according to technologies specific to that industry. If technology-based limits are insufficient to meet applicable water quality standards, the permit writer must include more stringent water quality-based effluent limitations in the permit. CWA § 301(b)(1)(C).

This section addresses each type of limitation in turn.

4.1.1. Overview of Applicable Technology-Based Effluent Limitations and Standards

Technology-based effluent limitations and standards for CAFOs must address all discharges from a CAFO. 40 CFR § 122.42(e). As discussed below, technology-based standards are established through a national ELG for some CAFO discharges. All other discharges must be addressed through technology-based effluent limitations developed on a case-by-case basis by the permit writer using her best professional judgement, or a combination of the two methods. 40 CFR § 125.3. (See the definition of best professional judgment [BPJ] in Section 4.1.4.) In general, CAFO permits will include limits for process wastewater discharges from the CAFO's production area and land application area.

The production area at a CAFO includes the animal confinement areas and other parts of the facility, including manure storage areas, raw materials storage areas, and waste

containment areas. 40 CFR § 122.23(b)(8). The land application area means all land under the control of the CAFO owner or operator, including where the CAFO owns, rents, or leases the land to which manure from the production area is applied. 40 CFR § 122.23(e)(3). It includes situations where a CAFO determines when and how much manure is applied to fields not owned, rented, or leased by the CAFO.

The regulation at 40 CFR part 412 contains the ELG applicable to CAFOs. The CAFO ELG establishes the technology-based effluent limitations and new source performance standards (NSPS) for those operations that meet the regulatory definition of a Large CAFO.[1]

Construction of a storage pond at a farm in Lonoke County, Arkansas. (Photo courtesy of USDA/NRCS)

ELG Animal Sectors

Because the technology-based limits are developed on the basis of information concerning different sectors in the industry, the ELGs for CAFOs are broken into the following subparts addressing specific animal sectors:

- Subpart A: Horses and Sheep
- Subpart B: Ducks
- Subpart C: Dairy Cows and Cattle other than Veal
- Subpart D: Swine, Poultry, and Veal Calves

Table 4-2 provides a summary of the ELG applicable to each animal sector.

Table 4-2. Effluent limitation summary

Animal sector	ELG technology-based limits
Large CAFOs	**40 CFR § 412**
Subpart A—Horses and sheep	40 CFR § 412.13
Subpart B—Ducks	40 CFR § 412.22
Subpart C—Dairy cows and cattle other than veal calves	40 CFR §§ 412.33, 412.37
Subpart D—Swine, poultry, and veal calves	40 CFR §§ 412.45, 412.47

All four subparts include specific discharge limitations. Subparts A and B contain technology-based requirements for the production area only. Subparts C and D include technology-based requirements for both production areas and land application areas under the control of the CAFO owner or operator. (For a discussion on the technology-based effluent limitations for Small CAFOs, Medium CAFOs, and exotic animal species, see the discussion on BPJ in Section 4.1.4)

CAFOs That Are New Sources

The term *new source* is defined in 40 CFR part 122.2, and the criteria for determining a new source is identified at 40 CFR part 122.29(b). Only Large CAFOs can be new sources subject to NSPS requirements promulgated in accordance with CWA section 306 (as provided in 40 CFR part 412). The new source criteria in 40 CFR part 122.29(b) are used to determine which Large CAFOs are defined as new sources.

Regulatory Citation

New source means any building, structure, facility, or installation from which there is or could be a ***discharge of pollutants***, the construction of which began

(a) After promulgation of standards of performance under CWA section 306 that are applicable to such a source, or

(b) After proposal of standards of performance in accordance with CWA section 306 that are applicable to such a source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal. 40 CFR § 122.2.

Criteria for new source determination:

(a) Except as otherwise provided in an applicable NSPS, a source is a new source if it meets the definition of new source in 40 CFR part 122.2, and

(i) It is constructed at a site at which no other source is located; or

(ii) It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

(iii) Its processes are substantially independent of an existing source at the same site. In determining whether those processes are substantially independent, the Director shall consider such factors as the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source. 40 CFR § 122.29(b).

The first criterion for identifying a new source is construction of a new facility at a location where no other source exists. Any Large CAFO that is newly built at a site where no other source exists would be a new source CAFO subject to NSPS. In addition, an AFO that is constructed after the establishment of the NSPS requirements that later expands to become a CAFO would be considered a new source if it meets the criteria of 40 CFR part 122.29(b)(4).

The second criterion for defining a new source is where new construction at the facility replaces the process or production equipment that causes the discharge of pollutants at an existing source.

For CAFOs, that can include replacement of animal housing, an overhaul of the facility's production process, or a substantial replacement of production equipment or waste-handling system that causes the discharge of pollutants. Confinement housing and barns at CAFOs are periodically replaced, allowing the opportunity to install improved systems that provide increased environmental protection. Modern confinement housing used at many swine, dairy, veal, and poultry farms is designed so the waste handling and storage generates little or no process water. Such systems negate the need for traditional flush systems and storage lagoons, reduce the risks of uncontrollable spills, and decrease the costs of transporting manure. Similarly, the replacement of an old dairy parlor with a new one would likely result in the facility being considered a new source, particularly where it is accompanied by a change in the size of the dairy herd.

Regulatory Citation

Construction of a new source as defined under 40 CFR part 122.2 has commenced if the owner or operator has

(a) Begun, or caused to begin as part of a continuous on-site construction program:

(i) Any placement, assembly, or installation of facilities or equipment; or

(ii) Significant site preparation work including clearing, excavation or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or

(b) Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation with a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility engineering, and design studies do not constitute a contractual obligation under the paragraph.

40 CFR § 122.29(b)(4).

Third, a CAFO would be a new source if, when built, its production area and processes are substantially independent of an existing source at the same site. For example, CAFOs could construct new or additional production areas that are on one contiguous property, without sharing waste management systems or commingling waste streams. Separate production areas could also be constructed for biosecurity reasons. New production areas could also be constructed for entirely different animal types, in which case, the more stringent NSPS requirements for that animal subpart would apply to the separate and newly constructed production area for any other subparts of animals. For example, a dairy could add a poultry production facility that is, in fact, substantially independent of the dairy operation. In such a case, the poultry operation would be a new source. In determining whether production processes and waste-handling systems are substantially independent, the permitting authority should consider factors such as the extent to which the new production areas are integrated with the existing production areas, and the extent to which the new operation is engaging in the same general type of activity as the existing source.

In some instances, such as the construction of a new Large CAFO, it is clear that the facility is a new source. In other instances, such as where new equipment or a new waste handling system is installed, the determination is a site-specific one that could turn on a number of factors. In such

cases, the permitting authority should provide clear guidance to the facility concerning its status if it is determined to be a new source.

Any new source CAFO is subject to the NSPS requirements applicable to the appropriate subpart of part 412. 40 CFR § 412. The NSPS requirements for subparts A and B were not revised in the 2003 or 2008 CAFO rules. The NSPS requirements for subpart C were revised in 2003, and the NSPS requirements for subpart D were revised in 2003 and again in 2008. The regulation at 40 CFR part 122.29(d) allows a 10-year *protection period* for new sources. That protection period determines which facilities are subject to BAT and which are subject to NSPS depending on the date of construction of the operation and for how long they may be subject to NSPS after the promulgation of new NSPS standards. Table 4-3 describes the applicability of BAT and NSPS requirements for operations under subparts C and D relative to when the facility was constructed or defined as a CAFO.

Table 4-3. Applicability of NSPS for NPDES permits issued to CAFOs in subparts C and D after promulgation of the revised CAFO regulations

Period that the Large CAFO began construction [consistent with the new source criteria in 40 CFR part 122.29(b)]	Do the BAT requirements of subparts C or D apply to those facilities?	Do the NSPS requirements of subparts C or D apply to those facilities?
(1) Large CAFOs that were defined as CAFOs prior to the 2003 regulatory revisions and that began construction before April 1993	Yes	No
(2) Large CAFOs that were defined as CAFOs prior to the 2003 regulatory revisions and that began construction between April 1993 and April 14, 2003 [note that actual dates of the protection period vary for each CAFO—as of July 2010, most are no longer in the protection period]	Once the protection period established by 40 CFR part 122.29(d) expires, such CAFOs are subject to the BAT requirements of the ELGs.	Pre-2003 NSPS requirements apply until the end of the protection period established by 40 CFR part 122.29(d). Once the period expires, the CAFO is subject to the BAT requirements of the ELGs.
(3) Existing AFOs that began construction prior to April 14, 2003, and were newly defined as Large CAFOs after the 2003 NPDES regulatory revisions	Yes	No
(4) Large CAFOs subject to subpart C that began construction after April 14, 2003	No	Yes

Table 4-3. Applicability of NSPS for NPDES permits issued to CAFOs in subparts C and D after promulgation of the revised CAFO regulations *(continued)*

Period that the Large CAFO began construction [consistent with the new source criteria in 40 CFR part 122.29(b)]	Do the BAT requirements of subparts C or D apply to those facilities?	Do the NSPS requirements of subparts C or D apply to those facilities?
(5) Large CAFOs subject to subpart D that began construction after April 14, 2003, and before December 4, 2008 [note that actual dates of the protection period vary for each CAFO]	Once the protection period established by 40 CFR part 122.29(d) expires, the CAFOs are subject to the BAT requirements of the ELGs.	2003 NSPS requirements apply until the end of the protection period established by 40 CFR part 122.29(d). Permitting Authority may establish more stringent requirements. Once the period expires, the CAFO is subject to BAT under the newly promulgated guideline.
(6) Large CAFOs subject to subpart D that began construction after 12/04/08	No	Yes

For a detailed discussion of NSPS requirements by subpart see, Section 4.1.2. New Source Performance Standards – Subpart C and D.

Where EPA is the permitting authority, a new source permit for a CAFO subject to NSPS (as identified in Table 4-3) is subject to review under the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 *et seq*. Depending on the circumstances associated with the facility or facilities covered by the permit and the requirements of the permit, NEPA requirements may be satisfied by completing an environmental impact statement (EIS) or an environmental assessment (EA). An EA may be used where there is a finding of no significant impact (FONSI). Federal permit writers should coordinate efforts with the Office of Federal Activities and document all NEPA activities in the permit file and fact sheet.

CAFOs That Are New Dischargers

An AFO that is (1) newly constructed; (2) implements changes so that it meets the definition of a CAFO; or (3) that is designated as a CAFO is a *new discharger* if it is not a new source. A new discharger is an AFO that becomes a CAFO either through definition or designation and is not a new source (i.e., subject to NSPS). Such operations could be a CAFO for one of the following reasons: (1) the facility is newly constructed (but not subject to NSPS and therefore not a *new source*); (2) the facility has changed some aspect of its operations such that it becomes defined as

a Medium CAFO or designated as a Small or Medium CAFO. The following are examples of such operations:

- A newly constructed Medium CAFO operation. Because the CAFO NSPS apply only to Large CAFOs, such a facility would not be subject to NSPS but would be subject to BPJ/BCT and BAT requirements. However, if the facility later expands to become a Large CAFO, the facility would likely be considered a new source, because construction began after the applicable NSPS requirements were established.
- An existing operation that increases the number of animals confined and thus meets the threshold numbers to be defined as a Large CAFO but is determined to not meet any of the new source criteria. It is subject to the ELGs requirements applicable to its subcategory.
- An existing operation that increases the number of animals confined and thus meets the threshold capacity to be defined as a Large CAFO.

4.1.2. Technology-Based Requirements for the Production Area of Large CAFOs

Flock of sheep near Dubois, Idaho. (Photo courtesy of USDA/NRCS)

Operations Covered by Subpart A—Horses and Sheep

The ELG requirements for subpart A, 40 CFR subparts 412.10-15, address the production area only. Any additional technology-based requirements for discharges from the CAFO must be developed using BPJ.

Existing and new Large CAFOs that confine horses and sheep may not discharge manure or process wastewater (which includes horse washdown water) pollutants to waters of the U.S. from the CAFO (i.e., *no-discharge* standard). The only exception to the no-discharge standard is an overflow that occurs because of a rainfall event from a facility that is designed, constructed, operated, and maintained to contain all process wastewater plus the runoff from a 25-year, 24-hour rainfall event for the location of the CAFO. 40 CFR §§ 412.13, 412.15.

To ensure that a facility meets the no-discharge standard, the CAFO must ensure that the production area has adequate storage structures that are designed, constructed, operated, and maintained to contain all manure including the runoff and direct precipitation from a 25-year, 24-hour rainfall event. An important consideration as to whether the CAFO meets

the ELG requirements is whether it has adequate storage or treatment structures capable of containing all manure, litter, and process wastewater that accumulates during the critical storage period. 40 CFR § 412.13. To comply with the ELG, the storage volume in the production area must contain all those wastes. For a detailed discussion on adequate storage of manure, see Section 5.3.

Regulatory Citation

Overflow means the discharge of manure or process wastewater resulting from the filling of wastewater or manure storage structures beyond the point at which no more manure, process wastewater, or stormwater can be contained by the structure.

40 CFR § 412.2(g)

Operations Covered by Subpart B—Ducks

The ELG requirements for subpart B, 40 CFR part 412.20-26, address the production area only. The ELG distinguishes between two types of manure handling systems in the production area of duck operations (*wet lot* and *dry lot*). Chapter 2.2.4. explains the difference between wet lot and dry lot manure handling systems. Any additional technology-based requirements for discharges from the CAFO must be developed on a BPJ basis. 40 CFR § 125.3(a).

All duck operations constructed before 1974 subject to the ELG must meet specific discharge limitations established by 40 CFR part 412.22. Those are the only numeric limitations in the CAFO ELGs. The limitations are shown in Table 4-4.

Table 4-4. Numeric effluent limitations for subpart B—Ducks

Regulated parameter	Maximum daily[a]	Maximum monthly average[a]	Maximum daily[b]	Maximum monthly average[b]
BOD_5	3.66	2.0	1.66	0.91
Fecal coliform	([c])	([c])	([c])	([c])

Notes:
a. Pounds per 1,000 ducks
b. Kilograms per 1,000 ducks
c. Not to exceed MPN of 400 per 100 mL at any time

All duck CAFOs constructed after 1974 are new sources subject to a no-discharge standard that is identical to the BAT standard for subpart A (Horses and Sheep). 40 CFR § 412.25. Subpart B CAFOs may not discharge process wastewater pollutants into waters of the U.S., except for an overflow of process wastewater caused by rainfall events from a facility that was designed, constructed, operated, and maintained to contain all process generated wastewater plus the runoff from a 25-year, 24-hour rainfall event. 40 CFR §§ 412.25(b), 26(b).

To ensure that a facility meets the no-discharge standard, the CAFO must ensure that the production area has adequate storage structures that are designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour rainfall event. An important consideration as to whether the

CAFO meets the ELG requirements is if it has adequate storage or treatment structures capable of containing all manure, litter, and process wastewater that accumulate during the critical storage period. To comply with the ELG, the storage volume in the production area must contain all those wastes. For a detailed discussion on adequate storage of manure, see Section 5.3.

Operations Covered by Subpart C—Dairy Cows and Cattle Other than Veal Calves and by Subpart D—Swine, Poultry and Veal Calves

Existing Sources—Subparts C and D

The ELG requirements for subparts C and D, 40 CFR subparts 412.30-37, 412.40-47, address both the production area and the land application area. This section addresses the technology-based requirements associated with the production area. Subpart C includes requirements for Large CAFOs that confine dairy cattle and cattle other than veal calves, and subpart D includes Large CAFOs that confine swine, poultry and veal calves. The requirements in subpart C are identical for existing sources and new sources. The requirements in subpart D differ for existing and new sources. The new source requirements for subpart D are addressed below.

Existing sources subject to subparts C and D and new sources subject to subpart C are subject to a no-discharge requirement. Those operations may not discharge manure into waters of the U.S. from the production area. 40 CFR §§ 412.31(a), 412.32(a), 412.33(a) (subpart C), 40 CFR §§ 412.43(a), 412.44(a), 412.45(a) (subpart D). The only exception to that no-discharge standard is when precipitation causes an overflow, provided that the production area is designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour rainfall event (see the definition of overflow).

To ensure that a facility meets the no-discharge standard, the CAFO must ensure that the production area has adequate storage structures that are designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from a 25-year, 24-hour rainfall event. An important consideration of whether the CAFO meets the ELG requirements is whether it has adequate storage or treatment structure capable of containing all manure, litter, and process wastewater that accumulate during the critical storage period. To comply with the ELG, the storage volume in the production area must contain all those wastes. For a detailed discussion on adequate storage of manure, see Section 5.3.

To meet the no-discharge requirement, the CAFO must operate the production area in accordance with additional measures and record-keeping requirements specified in 40 CFR parts 412.37(a)-(b), 412.47(a)-(b). Those include requirements for routine visual inspections of the production area, the use of depth markers for liquid impoundments, corrective action when deficiencies are identified, and mortality handling. Records must be maintained on-site, including records for each of the above measures, and records documenting the design of storage structures and any overflows that occur.

Voluntary Performance Standards

The voluntary alternative performance standards provisions in 40 CFR part 412.31(a)(2) also apply to existing sources subject to subpart C and D and new sources subject to subpart C. (See Appendix F, Voluntary Alternative Performance Standards for CAFOs, of this Manual.)[2]

Holstein dairy cows. (Photo courtesy of USDA/ARS)

This provision applies only to discharges from the production area. The provision for alternative performance standards allows a CAFO owner or operator to request from the Director NPDES permit effluent limitations according to site-specific alternative technologies where the CAFO can establish that the alternative technologies will achieve a quantity of pollutants discharged from the production area equal to or less than the quantity of pollutants that would be discharged under applicable baseline effluent guidelines performance standards.

The production area baseline for existing sources subject to subparts C and D and new sources subject to subpart C prohibits the discharge of manure except when rainfall events cause an overflow from a storage structure designed, constructed, operated, and maintained to contain all manure plus the runoff and direct precipitation from a 25-year, 24-hour rainfall event. 40 CFR §§ 412.31(a), 412.32(a), 412.33(a) (subpart C), 412.43(a), 412.44(a), 412.45(a) (subpart D). Thus, a Large CAFO seeking permit conditions according to a voluntary alternative performance standard would have to first establish the predicted discharge on the basis of the baseline effluent guidelines and second, establish that its alternative technologies and management practices result in equivalent or improved pollutant reductions for the production area. In meeting each of those requirements, the CAFO must submit technical analyses and other relevant information and data specified in the regulation. Because the production area baseline provides for no discharge except in specified circumstances, the alternative standard must take into account those circumstances where discharges do occur under the baseline (i.e., extreme rainfall events). When meeting those requirements, the regulations require calculation of the median annual overflow volume on the basis of an extended period (25 years) of actual rainfall data (and then calculating a predicted average annual discharge of pollutants).

Large CAFOs seeking permit conditions that are based on the voluntary performance standards must still meet any other applicable federal, state, and local requirements (see Appendix F, Voluntary Alternative Performance Standards for CAFOs). Because using voluntary alternative performance standards is typically contemplated for discharging systems, it is important to keep in mind that any allowable discharges might be subject to other requirements, notably water

quality-based standards, and more stringent state requirements. (For a discussion on water quality-based effluent limitations, see Section 4.1.9)

The permit writer must determine which ELG requirements the alternative standard replaces and which remain intact and applicable to all CAFOs. Under the alternative standard, the management practices and additional measures specified in the effluent guidelines that apply to the production area and land application area remain applicable to all Large CAFOs. 40 CFR §§ 412.4, 412.37, 412.47. Conversely, other requirements might no longer be applicable because of the alternative performance standard. For example, if under an alternative performance standard the operation does not have a liquid storage structure, the depth marker requirement would no longer be applicable.

New Source Performance Standards—Subparts C and D

As discussed in the previous section, Large subpart C beef and dairy CAFOs that are new sources have the same production area requirements as existing subpart C operations.[3] Large subpart D swine, poultry, and veal calf CAFOs that are new sources are subject to the NSPS. 40 CFR § 412.46. Like existing sources subject to subpart D, new sources under subpart D may not discharge manure, litter, or process wastewater into waters of the U.S. from the production area and are required to comply with the additional measures and record-keeping requirements at 40 CFR parts 412.47(a), (b).

Unlike the requirements for existing sources, 40 CFR part 412.46 does not allow an exception for new sources to the no discharge requirement. Rather, a CAFO subject to the requirements of 40 CFR part 412.46 must either (1) have an absolute prohibition of any discharge from its production area as a condition of its permit, or (2) request the permitting authority to "establish NPDES best management practice effluent limitations designed to ensure no discharge…" whereby the facility can satisfy the no discharge effluent limitation. 40 CFR § 412.46(a)(1).

A site-specific effluent limitation established in accordance with 40 CFR part 412.46(a)(1) must address the CAFO's entire production area. For any CAFO using an open surface manure storage structure, the no-discharge standard used in 40 CFR part 412.46 "means that the storage structure is designed, operated, and maintained in accordance with best management practices established by the Director on a site-specific basis after a technical evaluation of the storage structure." 40 CFR § 412.46(a)(1). The technical evaluation must be based on information used in the design of the storage structure necessary to meet the NSPS requirements, including minimum storage periods for rainy seasons; additional minimum capacity for chronic rainfalls; applicable technical standards that prohibit or otherwise limit land application to frozen, saturated, or snow-covered ground; planned emptying and dewatering schedules consistent with the CAFO's NMP; additional storage capacity for manure intended to be transferred to another recipient later; and any other factors that would affect the sizing of the open manure storage structure. 40 CFR § 412.46(a)(1)(i). (For further discussion of adequate storage, see Section 5.3.)

Part 412.46(a)(1)(ii) requires that the technical evaluation include an evaluation of the adequacy of the design of the open manure storage structure using the most recent version of the Natural Resources Conservation Service's (NRCS's) AWM tool and an evaluation of the overall water budgets using SPAW Field and Pond Hydrology Tool, or equivalent analytic tools (see Appendix N, References for NPDES Permit Writers). 40 CFR § 412.46(a)(1)(i). Where 100 years of continuous rainfall data are not available for all CAFOs, models can be run using actual rainfall data where available, and then simulated with a confidence interval analysis over a period of 100 years.

AWM tracks gross nutrients, but it does not track the mass or concentration of nutrients. Further, the storage period or drawdown schedule is usually determined by the individual CAFO. Accordingly, in conducting the technical evaluation, the CAFO's NMP must be used as an input to confirm both a water balance and a nutrient balance has been achieved by the CAFO. The NSPS provisions require that each CAFO use the SPAW model (or equivalent approved by the permitting authority) to assess daily hydrologic budgets for each field. The complete modeling demonstration shows not only that the storage facility does not discharge, but also that there is no runoff of process wastewater from fields during land application activities consistent with the CAFO's NMP. Those calculations are necessary to ensure that the open containment system is operated in a way to meet land application requirements of 40 CFR part 412.46(b). The requirement to use the SPAW model (or equivalent tool) ensures that CAFOs will rely on appropriate operational measures to achieve no discharge standards.

The CAFO NSPS provisions require certain specified information regarding design, construction, and operation and maintenance (O&M) of the system to be included in the CAFO's NMP. That includes the key user-defined inputs and model system parameters. CAFOs must submit a site-specific analysis to the Director. 40 CFR § 412.46(a)(1). The site-specific design, construction, and O&M measures are enforceable requirements of the CAFO's permit. As long as the CAFO complies with the requirements, the CAFO is presumed to meet the no-discharge requirement, such that, if a discharge occurs, the CAFO may rely, to the extent they are applicable, on the NPDES upset and bypass provisions of 40 CFR parts 122.41(m), (n).

Under NSPS, the Director has the discretion to require additional information from a new source subpart D CAFO owner or operator to support site-specific BMP effluent limitations. The burden is on the CAFO to demonstrate that any proposed system it employs, including an open system, meets the new source standard. CAFOs are encouraged to use the most current version of AWM and SPAW when submitting their demonstration to the permitting authority. However, EPA is aware that other peer-reviewed models and programs have been or could be developed that the permitting authority could determine are equivalent to AWM and SPAW. The Director may approve design software or procedures that are equivalent to AWM and SPAW. Once approved by the Director, the public still would have the opportunity to comment on the CAFO's modeling.

The design parameters and evaluation process required of all CAFOs wishing to avail themselves of the alternative is intended to allow CAFOs the flexibility to demonstrate compliance with the no-discharge requirements for any type of open storage facility. As a practical consideration, it is expected that most CAFOs selecting the compliance alternative will submit designs for open

manure storage structures accompanied by a narrow range of acceptable operation and management practices. However, for a given type of storage facility design (for example, an integrator with several company-owned CAFOs, each designed and constructed in an essentially identical manner within the same county), an operator may conduct a series of assessments that together fully encompass the range of operational and management measures that would be used across multiple CAFOs with the specific storage facility design (i.e., types of crops, soil types and other field parameters, land application and other equipment, timing and land application schedules). In such a case, SPAW could be run to validate a wide range of NMP and storage pond management. This alternative does not affect the requirement for a CAFO to develop a site-specific NMP. The NSPS requirements allow the permitting authority to determine that CAFOs that have a specified facility type and submit an NMP that falls within the preapproved range of operational and management practices would not need to conduct an individualized assessment (i.e., the validation using SPAW).

The availability and use of such a geographical and categorical approach would require that the permit writer determine that a number of conditions are met. First, the assessment would need to fully account for all pertinent factors relevant to determining the potential for a discharge from an open storage system. The assessment would also need to include all parameters that mirror the range of soil, plant, climatic, and hydrological conditions in the representative geographical area. Finally, the assessment would need to reflect the operational and management practices to be employed by each CAFO at each individual site. Each CAFO must have a site-specific NMP that includes the operational and management measures used in the geographical assessment.

New sources subject to subpart D using an open storage structure must have a depth marker to indicate the maximum volume of manure and process wastewater the structure is designed to contain (whereas existing sources and new sources subject to subpart C must use a depth marker that indicates the 25-year, 24-hour storm event).

An important consideration of whether a CAFO meets the NSPS alternative is if it has an adequate storage or treatment structure capable of containing all manure that accumulates during the critical storage period. To comply with the NSPS, the storage volume in the production area must contain all wastes. For a detailed discussion on adequate storage of manure, see Section 5.3.

4.1.3. Technology-Based Requirements for the Land Application Area of Large CAFOs

Each CAFO subject to the ELG requirements in subparts C and D that land applies manure must do so in accordance with certain practices that constitute the technology-based effluent limitations for the land application area. 40 CFR §§ 412.4, 412.37(c).

A general description of the practices required by 40 CFR part 412.4 follows (for additional discussion of the requirements for nutrient management practices see Chapters 5 and 6):

- Develop and implement a field-specific NMP that fully incorporates the other requirements of 40 CFR part 412.4 concerning land application.

- Land apply manure at application rates that minimize nitrogen and phosphorus transport from the field to waters of the U.S. in compliance with the technical standards for nutrient management established by the permitting authority. The technical standard for nutrient management must include a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to waters of the U.S. and address the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals while minimizing nitrogen and phosphorus movement to waters of the U.S. The standard must also include appropriate flexibility for any CAFO to implement nutrient management practices to comply with the standard such as consideration of multiyear phosphorus applications to fields that do not have a high potential for phosphorus runoff to waters of the U.S. and phased implementation of phosphorus-based nutrient management, as determined appropriate by the Director.

Landowner and an NRCS staff member discuss management options for the land application area. (Photo courtesy of USDA/NRCS)

- Analyze manure at least once a year for nitrogen and phosphorus content, and analyze soil at least once every 5 years for phosphorus content. The results of the analyses are to be used in determining application rates for manure, litter, and other process wastewater.
- Periodically inspect equipment used for land application of manure for leaks (before each application is recommended to ensure the manure is delivered at the proper rate of application).
- Implement a minimum setback for manure application of 100 feet from surface waters and conduits to surface waters; or substitute with a 35-foot vegetated buffer, or other alternatives where the CAFO demonstrates equivalent pollutant reductions.
- Complete on-site records documenting implementation of all required best management practices (BMPs) and any additional records specified by the permitting authority (for additional information, see Section 4.2).

Many states have unique requirements for developing an NMP. The requirements of EPA regulations establish the minimum requirements for permitted CAFOs. States may require more stringent requirements, and in many instances states have established additional requirements to address land application. For example, many states require more frequent soil

analysis than is required by 40 CFR part 412.4(c)(3). In recognition of that, 40 CFR part 412.4(c)(2) requires application rates for land application of manure, litter, and process wastewater to be in compliance with technical standards for nutrient management established by the Director. Part 123.36 requires that the state's technical standards be a part of every approved state's NPDES program. 40 CFR § 123.36. EPA strongly encourages states, when establishing their technical standards for nutrient management, to address water quality protection issues when determining appropriate land application practices. At a minimum, the permitting authority must include in the technical standard the following components:

- A field-specific assessment of the potential for nitrogen and phosphorus transport from the field to waters of the U.S.
- The form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to waters of the U.S.
- Appropriate flexibility for CAFOs to implement the standard (e.g., multiyear phosphorus banking.)

40 CFR § 412.4(c).

The state technical standards will provide additional specificity to key nutrient management provisions in the ELG. The standards should include additional information, such as soil and manure sampling and analysis protocols, application methods, and plan content requirements.

State and tribal technical standards for nutrient management are typically developed collectively among the agencies responsible for various aspects of the nutrient management planning in a state, including the respective NPDES permitting authorities, state departments of agriculture, tribes, state land grant universities, NRCS state conservationists, and EPA Regions. Many technical standards for nutrient management have already been developed as part of implementing U.S. Department of Agriculture's (USDA's) National Nutrient Management policy. NRCS developed a national nutrient management conservation practice standard (Code 590) that serves as the basis for each state NRCS office to develop its owned tailored standard. In many cases, the NRCS state standards have formed the basis for the standard established by the permitting authority. However, state technical standards established by the Director to meet NPDES requirements must address the criteria specified in 40 CFR part 412.4(c)(2). State technical standards are subject to review and approval by EPA under 40 CFR part 123.62. When establishing the technical standards, the Director may use discretion regarding the means of expressing and documenting the standards (i.e., as law, regulations, or policy) for use by CAFOs and technical standard providers in developing NMPs, for permit writers and the public in reviewing NMPs, and for submission to EPA as part of the state authorized NPDES program pursuant to the requirements of 40 CFR part 123.36. (For a detailed discussion on state technical standards, see Section 6.3.1)

The ELG also specifies that manure must be analyzed at a minimum once every year for nitrogen and phosphorus, and the soil must be analyzed at a minimum once every 5 years for phosphorus. 40 CFR § 412.4(c)(3). The analytical results are to be used in determining application rates for

manure. More frequent analyses than required by the ELG might be needed to ensure appropriate agricultural utilization of the applied nutrients. The actual sample collection process and frequency should be established in the CAFO's NMP in accordance with the technical standards for nutrient management.

Finally, the ELG specifies that the site-specific conservation practices for a permitted Large CAFO must include maintaining a 100-foot setback or establishing a 35-foot vegetated buffer between land application areas and any downgradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters. 40 CFR § 412.4(c)(5). The ELG allows for compliance alternatives in place of the setback or buffer under certain scenarios. Those and other requirements applicable to permitted Large CAFO requirements are described in greater detail in Chapters 5 and 6.

4.1.4. Best Professional Judgment (BPJ)

NPDES permit limitations are based on BPJ when national ELGs have not been issued pertaining to an industrial category or process. Specifically, the NPDES regulations require a permit writer to establish permit limitations on a case-by-case BPJ basis when ELGs are inapplicable, or in combination with the effluent guidelines, where the ELG apply to only certain aspects of the operation or certain pollutants. CWA § 402(a)(1); 40 CFR § 122.44(k).

Alpaca farm. (Photo courtesy of USDA/MO NRCS)

As explained in Section 4.1.1, ELGs have been promulgated for only those operations that meet the regulatory definition of a Large CAFO, and apply to the production area for subparts A, B, C, and D, and land application area for subparts C and D. For example, there is no ELG for Small or Medium CAFOs or for exotic animal species. Exotic animal species are those not specifically identified in the ELG, for example: llamas, geese, or ostriches. Nonetheless, just as for any other permitted facility, the CWA requires that an NPDES permit for small, medium, and exotic animal CAFOs include technology-based effluent limitations. Therefore, the technology-based limits in the permit must be determined by the permit writer using BPJ (see Table 4-5).

Table 4-5. Facilities where the technology-based limits must be developed using BPJ

Animal Sector
Medium CAFOs—Horses, sheep, duck, dairy cows, cattle, swine, poultry, and veal calves
Small CAFOs—Horses, sheep, duck, dairy cows, cattle, swine, poultry, and veal calves
Other CAFOs—Alligators, geese, emus, ostriches, mink, bison, etc.

Similarly, for any part of a permitted facility from which there could be an authorized discharge, but for which there is no applicable ELG, technology-based limits must be set using BPJ. That includes any part of a CAFO not addressed by the land application or production area requirements of the ELG, even where the ELG address some parts of the CAFO operation. For example, land application areas at large horse, sheep, or duck CAFOs, which are not subject to the ELG requirements of 40 CFR part 412.4 but are required to have an NMP that meets the requirements of 40 CFR part 122.42(e)(1). It also includes any other discharges from CAFOs subject to subparts C and D that are not addressed by the ELG.

For all Small and Medium CAFOs, exotic animal species, and areas of Large CAFOs not addressed by the ELG, the permit writer can develop effluent limits on a case-by-case basis using the permit writer's BPJ. The term *case-by-case* has been understood to mean on a permit-by-permit basis so as to allow the use of general permits that include BPJ limits. It is important to note in such a context that a CAFO is not required to seek coverage under a general permit and always has the option to apply for an individual permit. The authority to issue case-by-case permit limitations comes from CWA section 402(a)(1) and 40 CFR parts 122.44(a), 125.3.

Given the similarity in the operational characteristics of CAFOs, in many cases, permit writers might find that it is appropriate to develop BPJ effluent limitations that are the same as, or similar to, the effluent limitations established in the ELG. See 40 CFR part 125.3. For example, a permit writer might decide that the most appropriate limitations for Medium and Small CAFO permits are the same as some of or all the requirements established for Large CAFOs in the ELG. On the other hand, a permit writer may establish different technology-based limitations for Medium and Small CAFOs using his or her BPJ, such as the site-specific circumstances that resulted in the small or medium-size AFO being defined or designated a CAFO. BPJ requirements based on the ELG should include requirements for the production area and the land application area and should include specific record-keeping requirements.

For all CAFOs, there are other circumstances where a permit writer must use BPJ or special permit conditions to address specific discharges at a CAFO that are not included in the ELG. For example, the CAFO ELG does not address plate chiller water, filter backwash water, chemicals used in the production area (for disinfection), or pollutants (such as manure, feathers, and feed) that have fallen to the ground immediately downward from confinement building exhaust ducts and ventilation fans and are carried by precipitation-related or other runoff to waters of the U.S. The permit must address technology-based limitations for those discharges on a BPJ determination, and more stringent water quality-based limits where necessary to ensure compliance with water quality standards. CWA § 402(a)(1). The same requirements apply to discharges that constitute stormwater discharges associated with industrial activities subject to 40 CFR part 122.26(b)(14) (see discussion on other discharges in Section 4.1.5).

40 CFR part 125.3(c): *Methods of imposing technology-based treatment requirements in permits.* Technology-based treatment requirements may be imposed through one of the following three methods:

(1) * * * * *

(2) On a case-by-case basis under section 402(a)(1) of the Act, to the extent that EPA-promulgated effluent limitations are inapplicable. The permit writer shall apply the appropriate factors listed in 40 CFR part 125.3(d) and shall consider: (i) The appropriate technology for the category or class of point sources of which the applicant is a member, based upon all available information; and (ii) Any unique factors relating to the applicant.

[Comment: These factors must be considered in all cases, regardless of whether the permit is being issued by EPA or an approved State.]

(d) In setting case-by-case limitations pursuant to 40 CFR part 125.3(c), the permit writer must consider the following factors:

(1) ***For BPT requirements:*** * * * * *

(2) ***For BCT requirements:*** (i) The reasonableness of the relationship between the costs of attaining a reduction in effluent and the effluent reduction benefits derived; (ii) The comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources; (iii) The age of equipment and facilities involved; (iv) The process employed; (v) The engineering aspects of the application of various types of control techniques; (vi) Process changes; and (vii) Non-water quality environmental impact (including energy requirements).

(3) ***For BAT requirements:*** (i) The age of equipment and facilities involved; (ii) The process employed; (iii) The engineering aspects of the application of various types of control techniques; (iv) Process changes; (v) The cost of achieving such effluent reduction; and (vi) Non-water quality environmental impact (including energy requirements).

4.1.5. Industrial Stormwater Discharges[4]

CAFOs are subject to industrial stormwater permitting requirements of 40 CFR part 122.26. Large CAFOs, as defined in 40 CFR parts 122.23 and 412 are included in category (i) of facilities considered to be engaging in *industrial activity* under part 122.26 (b)(14), which defines 15 categories of "storm water discharge associated with industrial activity." See 40 CFR part 122.26(b)(14)(i); *NPDES Storm Water Program Question and Answer Document Volume 1* (USEPA 1992). As a result, Large CAFOs are subject to the requirements of part 122.26 regardless of whether they are a permitted facility under part 122.23. The requirements of

NRCS District Conservationist suggests filter strip as one option to protect the land and improve water quality. (Photo courtesy of USDA/NRCS)

part 122.26 apply to any stormwater discharge associated with industrial activity at a Large CAFO that is not otherwise regulated under parts 122.23 and 412.

CAFOs that are permitted to discharge pursuant to 40 CFR parts 122.23 and 122.26 may have both sets of requirements included in a single permit or in separate wastewater and stormwater permits. CAFOs subject to part 122.26 requirements may qualify for the conditional exclusion provided in part 122.26(g) for *no exposure* certifications for stormwater discharges.

CAFOs may also be subject to stormwater permitting requirements for construction activity under 40 CFR parts 122.26(b)(14)(x) or 122.26(b)(15).

4.1.6. Other Technology-Based Limitations that Apply to Discharges from CAFOs

CAFOs may have additional discharges not specifically addressed in the ELG or CAFO regulations, either from the production area or from outside the production area. Those include but are not limited to the following:

- Process wastewater discharges from outside the production area, such as washdown of equipment that has been in contact with manure, raw materials, products or by-products that occurs outside the area.
- Discharges that do not meet the definition of process wastewater, such as domestic wastewater discharges; chiller water; discharges associated with feed, fuel, chemical, or oil spills, and equipment repair.

Where appropriate, permit writers should consider writing technology-based limitations for runoff associated with fan exhaust deposits outside a poultry house. (Photo courtesy of USDA/NRCS)

- Discharges of pollutants from poultry, swine, and veal calf animal confinement houses that are not covered by the ELG. Those include removal of animals and cleaning out houses, and runoff associated with fan exhaust deposits outside the houses.

A properly written CAFO permit will address discharges such as those and establish BAT/BCT limits developed on a BPJ basis (as discussed in Section 4.1.4). The determination of whether to apply the no-discharge standard to areas other than those that are covered by the ELG (animal confinement area, manure storage area, waste containment area, and so on) is a site-specific determination that must be made by the permitting authority. EPA and states can begin the BPJ analysis

with an evaluation based on the no-discharge standard, because that is the applicable standard most closely related to those facilities (see discussion of BPJ-based limits in Section 4.1.4). (For an example of limitations on other discharges from CAFOs, see the example general permit in Appendix J, NPDES General Permit Template for CAFOs.) If other measures are appropriate, they may be identified in the permit and subject either to conditions applicable to all permittees or addressed on a site-specific basis, perhaps in conjunction with the CAFO's NMP. It should be noted that any such discharges are also subject to applicable water quality standards.

4.1.7. Nutrient Management Plan (NMP)

An NMP is a detailed planning document that identifies conservation practices and management activities that, when implemented, help to ensure that both production and natural resource protection goals are achieved. The objective of an NMP is to document those practices and activities that will help achieve the goals of the producer and protect or improve water quality.

An NMP that is part of a CAFO permit must include, at a minimum, BMPs necessary to achieve the nine minimum requirements of 40 CFR parts 122.42(e)(1)(i)-(ix) (minimum measures) and other effluent limitations and standards, to the extent applicable, which are described in greater detail in Chapters 5 and 6. 40 CFR § 122.42(e)(1). The minimum measures include requirements applicable to both the production area and the land application area. See Appendix H, NPDES CAFO Nutrient Management Plan Review Checklist.

Creating a nutrient management plan. (Photo courtesy of USDA/MO NRCS)

As discussed in Chapter 3.2, CAFOs must submit a site-specific NMP to the permitting authority as part of their permit application or NOI when they are seeking permit coverage. The permitting authority may require the CAFO operator to make changes to its NMP before permit coverage is granted. 40 CFR § 122.23(h). Once coverage is granted, the permittee must implement the NMP approved by the Director.

Minimum Measures that Must be Terms and Conditions of the NPDES Permit

Every NPDES permit issued to a CAFO must require that the CAFO implement the terms of a site-specific NMP approved by the Director. 40 CFR § 122.42(e)(5). Those site-specific *terms of the NMP* are defined as "the information, protocols, [BMPs], and other conditions" identified in a CAFO's NMP and determined by the permitting authority to be necessary to meet the requirements of 40 CFR part 122.42(e)(1). 40 CFR § 122.42(e)(5). To meet those requirements,

Discussion is an important part of the permit writing process. (Photo courtesy of USDA/MO NRCS)

the information, protocols, BMPs, and other conditions in the plan must, at a minimum, address the following: manure storage, mortality management, clean water diversions, prevention of direct animal contact with water, chemical handling, conservation practices to control runoff, manure and soil testing protocols, land application protocols and record keeping requirements. 40 CFR § 122.42(e)(1). For a detailed discussion of each of the minimum measures, see Chapters 5 and 6.

For Large CAFOs subject to the land application requirements of the ELG, in addition to the requirements of 40 CFR part 122, the *terms of the NMP* must also include the BMPs necessary to meet the requirements of 40 CFR part 412.4(c). Part 412.4 requires that the NMP address the form, source, amount, timing and method of application and include a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface waters. The Director may also allow appropriate flexibilities to implement nutrient management practices.

Part 122.42(e)(5) further elaborates on the terms of the NMP associated with *protocols for land application*. Those must include the fields available for land application, field-specific rates of application, and any timing limitations on when manure can be land applied. The terms for rates of application must follow one of two approaches that the regulation identifies as the linear approach and the narrative rate approach. The terms for each of those approaches are discussed in detail in Chapter 6 .

While 40 CFR part 122.42(e)(5) specifies the minimum terms of the NMP that must be included in NPDES CAFO permits, states may adopt additional or more stringent requirements. CWA section 510.

It is important for permit writers to understand that where the Director incorporates the terms of a CAFO's NMP into a general permit, the procedures established in 40 CFR part 122.62 for permit modification do not apply to CAFO permits. Instead, the regulations include procedures for incorporation of the terms of the NMP as part of the CAFO general permitting process itself, as required by 40 CFR part 122.23(h), which establishes the procedures for permit coverage under a CAFO general permit (see Chapter 3.2).

Including the Terms of the NMP as NPDES Permit Terms

As previously mentioned, the *terms of the NMP* are the information, protocols, BMPs and other conditions determined by the Director as necessary to meet the requirements of

40 CFR part 122.42(e)(1), and must be included by the permit writer in a CAFO's NPDES permit as enforceable terms and conditions of the permit. The terms of the NMP must specify what the CAFO operator is required to do relating to each of the nine minimum measures when implementing its NMP and include the specific conditions on which such actions must be based.

There is no requirement concerning where the terms of the NMP must appear in the permit, so a permit writer has discretion as to how to write the terms into the permit. Because the terms of the NMP are effluent limits, it is advisable for the permit writer to include all the conditions associated with the terms of the NMP in a section of the permit dedicated to effluent limitations, even where the terms are generally applicable to all permitted CAFOs. Where that is done, it is also a good idea for the permit writer to cross-reference in the site-specific section any generally applicable conditions of the permit relating to the minimum measures that may be included elsewhere in the permit.

Given the unique inter-relationship between the NMP and the permit, the permit writer may choose to establish permit conditions associated with the NMP in a separate part of the permit from other effluent limitations. For example, in the Example Permit included in this Manual document, Appendix J, NPDES General Permit Template for CAFOs, multiple sections are dedicated to effluent limitations; one of which is dedicated to the terms of the NMP.

Establishing the Minimum Measures as NPDES Permit Terms

As discussed in this section and elsewhere in this Manual, depending on the type of permit and the attributes of the various terms of the NMP, a permit writer may establish the terms of the NMP as broadly applicable permit conditions that are identical for multiple CAFOs (e.g., all CAFOs covered by a general permit); as site-specific permit terms based on the facility-specific NMP; or some combination of both, whereby a broadly applicable permit condition is supplemented with a site-specific term. Regardless of how the minimum measures are captured as permit terms, it is important that all permits establish clear and objective requirements. Using site-specific information from an NMP where available, helps to provide clear and objective requirements for an operation to satisfy 40 CFR part 122.42(e)(5).

How the permit writer chooses to capture the terms of the NMP in the permit is primarily up to the permit writer, except to the extent that the CAFO regulations necessitate that certain terms be site-specific. Moreover, the permit writer's discretion may be limited by applicable state-specific requirements for certain BMPs. Further, because the public must have an opportunity to review the NMP and comment on the terms of the NMP to be included in the permit, the extent of discretion allotted to the permit writer might vary.

Although the permit writer has broad discretion regarding how to write the minimum measures as permit terms, to facilitate public review of the NMP the permit writer should decide how he can clearly write the permit terms so that they are easy to locate and are readily understood by the permitee, permitting authority, and the public. The following section describes different ways that a permit writer can write permit terms.

Terms of the NMP may be written as broadly applicable permit terms for the following minimum measures: mortality management; clean water diversion; prevention of direct animal contact with water; proper chemical handling; protocols for manure and soil testing; and record-keeping requirements as long as they provide sufficient clarity for implementation of the terms by the CAFO. Where broadly applicable terms alone are sufficient to comply with 40 CFR part 122.42(e)(5), and are established in a general permit, CAFOs may submit NMPs to the Director that do not duplicate those requirements.

However, when an NMP provides site-specific measures for those terms, the permit writer should consider whether it is beneficial for clarity to include the site-specific measures to supplement the generally applicable term. As part of that evaluation, the permit writer should also determine if the NMP is missing any site-specific information that is necessary to comply with 40 CFR part 122.42(e)(5). Where site-specific information is missing, the permitting authority may require that the CAFO provide supplemental site-specific information for those terms. To the extent that the CAFO is required to provide supplemental site-specific information in its NMP to comply with 40 CFR part 122.42(e)(5), that information should be included as part of the terms of the permit. Examples of both broadly applicable terms and site-specific terms for each of the minimum measures are in Chapter 5.

Sample permit language for a general permit referencing generally applicable terms:

The terms of the NMP also include sections [***identify section(s)***] of this permit concerning [for example—no direct contact of animals with water of the U.S. or waters that are discharged to waters of the U.S.; handling and disposal of chemicals and other contaminants; limitations on the timing of application of manure, litter, and process wastewater] that are applicable to all CAFOs authorized under this permit and are included as terms of the NMP for every CAFO covered by this permit.

From time to time, situations can arise where generally applicable permit terms conflict with site-specific provisions in the NMP. In such instances, the permit writer should include provisions in the permit that clarifies which of the conflicting (or potentially conflicting) requirements must be followed by the CAFO when implementing the terms of the NMP.

EPA believes that the requirements for *waste storage*, 40 CFR part 122.42(e)(1)(i), and *conservation practices to control runoff,* 40 CFR part 122.42(e)(1)(vi), have site-specific components; therefore, it would not be sufficient to write those as generally applicable permit terms. However, because some elements of those two terms may apply to multiple facilities, EPA encourages permit writers to write the permit terms for those two measures as a hybrid of broadly applicable permit terms that are supplemented by site-specific information derived from the permitted CAFO's NMP. Examples of those approaches are provided in Chapter 5.

Sample permit language—generally applicable terms with clarifying language

The terms of the NMP also include [***identify section(s)***] of this permit concerning [for example—waste storage and conservation practices to control runoff]. Such terms are applicable to all CAFOs authorized under this permit, except where the NMP explicitly includes site-specific alternatives that meet all the requirements of this permit and are included as terms of the NMP, as follows: [Here list those terms from the NMP to be incorporated into the permit.]

Finally, the terms of the permit that are conditions that ensure compliance with the requirement to establish *protocols for land application* can be written only as site-specific permit terms. 40 CFR § 122.42(e)(5). Those are described in detail in 40 CFR part 122.42(e)(5). The terms for land application are discussed extensively in Chapter 6.5.

Approaches for Writing Site-Specific Permit Terms of the NMP

When incorporating the site-specific terms of the NMP into the permit, a permit writer may take a variety of approaches, depending on the type of permit, the complexity and length of the NMP, and—for rates of application—whether the permittee intends to follow the linear approach or the narrative rate approach. Those approaches may include (1) incorporation by reference of the NMP in its entirety; (2) incorporation of only the terms of the NMP by reference, using language that parallels the regulatory provisions for the terms of the NMP; and (3) a specific, detailed identification of each of the terms of the NMP in the text of the permit. The discussion that follows focuses on terms for rates of application but can be used by permit writers when considering how to incorporate site-specific terms for all the minimum measures.

The first approach for identifying the terms of the NMP in the permit is to incorporate the entire NMP by reference (blanket incorporation) and attach the NMP to the permit. That would be an appropriate approach to use when the terms of the NMP are clearly identifiable in the NMP, and where the NMP does not contain a lot of extraneous information that could be confused with parts of the NMP that constitute the permit terms. If a permit writer chooses to use that approach, it is generally not sufficient to merely attach the NMP to the permit. A reference to the attached NMP and a statement that it is incorporated into the permit is generally necessary to make the terms of the NMP enforceable as permit conditions. States may have specific legal requirements or standard text for incorporation by reference.

Sample permit language—*blanket incorporation* method

The [attached NMP: specify facility, responsible parties, and date of the NMP, as well as in what manner the NMP is ***attached*** to the permit, its location if not physically attached, etc.] is incorporated by reference and constitutes in its entirety the terms of the NMP, which are included as terms and conditions of this permit, as determined by the Director to constitute the information, protocols, BMPs, and other conditions necessary to meet the requirements of 40 CFR part 122.42(e)(1).

For rates of application, this method of incorporation by reference is most suitable where the permittee is using the linear approach for rates of application, where the only factor of the NMP that is variable is the amount of manure to be applied. (For a detailed discussion of the linear approach, see Chapter 6.5.1 and 6.5.2). The conditions that determine the actual amount of manure to be land applied can be specifically articulated either in the permit or in the NMP itself. It is not necessary to filter out elements of the NMP that are not actually conditions of the permit, unless there is a specific concern that there could be confusion as to whether some of the content of the NMP is considered a term of the NMP. If the concern is limited to only a few issues, this form of incorporation by reference can be used effectively, as long as clarification is provided.

Incorporation of the NMP in its entirety may also be used where the permittee follows the narrative rate approach, as long as any factors that can vary during the period of permit coverage are explicitly discussed in the NMP and the conditions, range, and other appropriate limitations concerning such variables are clearly described in the NMP. Where a permittee chooses to use the narrative rate approach, it could be problematic if the permit incorporates the NMP in its entirety, because the permittee believes that the plan is intended to allow changes to occur at the facility during the period of permit coverage and that adjustments can be made in the implementation of the plan, which will be allowed by the permit. If the NMP is incorporated as written, it must be clear to anyone reviewing the NMP what the terms are that will apply to the CAFO throughout the period of permit coverage. An NMP incorporated in this fashion will need to specifically describe the variations that may occur during the period of permit coverage and the conditions and implications associated with such variations so that changes to the NMP will not require reopening the plan for review. In those situations, EPA strongly recommends that the NMP itself clearly describe to the extent possible the array of variables that are anticipated during the period of permit coverage. Given the complexity of factors associated with rates of application, however, it might be difficult to specifically identify all the conditions that could vary within the allowable framework of the narrative rate approach.

When incorporation by reference is done using the blanket incorporation approach, it is important to keep in mind that the NMP may address more nutrient management practices than are specifically required by the CAFO regulations. If the permit incorporates the entire NMP by reference, the permittee will be expected to implement everything as described in the plan, to the extent that it pertains to the regulatory requirements, whether or not intended by the permit writer.

The second approach by which a permit writer may establish site-specific terms of the NMP in a permit is through a more detailed form of incorporation by reference. Such a detailed form of incorporation by reference specifically refers to each portion of the NMP that is incorporated as a permit term. That would be an appropriate approach to use where the NMP has delineated sections that relate to the nine minimum measures. Under this approach, it is necessary to ensure that the permit includes a reference to the NMP and make clear that the terms of the incorporated NMP are themselves terms and conditions of the permit. See 40 CFR part 122.23(h). Although it is similar to the blanket incorporation method, this approach has the advantage of providing some of the nuances identified in the NPDES regulations, thereby avoiding some of the pitfalls of

blanket incorporation of the NMP. Of course, changes that exceed the bounds of the narrative rate approach may be made if the procedures for changes to the NMP are followed (see Changes to a Permitted CAFO's NMP, below). The text box below includes sample language for incorporating the terms for rates of application for a CAFO using the narrative rate approach.

Sample language—incorporation method for rates of application for a CAFO using the narrative rate approach

The terms of the NMP with respect to rates of application of manure, litter, and process wastewater include the following:

- The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field.
- The crops to be planted in each field or any other uses such as pasture or fallow fields (including alternative crops identified in accordance with 40 CFR part 122.42(e)(5)(ii)(B).
- The realistic yield goal for each crop or use identified for each field.
- The nitrogen and phosphorus recommendations from sources specified by the Director for each crop or use identified for each field.
- The methodology by which the NMP accounts for the following factors when calculating the amounts of manure, litter, and process wastewater to be land applied:
  - Results of soil tests conducted in accordance with protocols identified in the NMP, as required by 40 CFR part 122.42(e)(1)(vii).
  - Credits for all nitrogen in the field that will be plant available.
  - The amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.
  - Consideration of multiyear phosphorus application.
  - Accounting for all other additions of plant-available nitrogen and phosphorus to the field.
  - The form and source of manure, litter, and process wastewater.
  - The timing and method of land application.
  - Volatilization of nitrogen and mineralization of organic nitrogen.
- Alternative crops that are not in the planned crop rotation but that are listed, by field, where the plan includes the realistic crop yield goals and the nitrogen and phosphorus recommendations for each such crop.

The following projections in the NMP are not terms of the NMP:

- The planned crop rotations for each field for the period of permit coverage.
- The projected amount of manure, litter, or process wastewater to be applied.
- Projected credits for all nitrogen in the field that will be plant available.
- Consideration of multiyear phosphorus application.
- Accounting for all other additions of plant-available nitrogen and phosphorus to the field.
- The predicted form, source, and method of application of manure, litter, and process wastewater for each crop.
- Timing of application for each field, as far as it concerns the calculation of rates of application.

To ensure clarity, in many instances, the best method of incorporating the terms into the permit might be to specifically delineate the terms of the NMP with site-specific conditions in the permit. Although that might be resource-intensive from the perspective of the permit writer, it can help to avoid confusion when the terms of the NMP are established by the permitting authority and when they are implemented by a CAFO during the period of permit coverage. A permit writer taking that approach would include all the terms of the NMP in the body of the permit, including all the terms associated with rates of application. When following that approach, the permit writer is advised to include a catch-all provision in the permit that ensures that the terms of the NMP fully encompass all the requirements established in the CAFO regulations. Chapter 6.6 provides a detailed example of this method for rates of application and illustrates how a permit writer can identify and extract information from an NMP and use the information to write permit terms for the *protocols for land application* minimum measure.

It is worth noting that plan writers can help the permit writer by highlighting the key information in the plan that identifies the terms of the plan. Similarly, some of that information may be included in software used in developing the NMP. Permitting authorities may allow plans to rely on such default information, as long as there is a means of clearly identifying the information used to develop the NMP and that serves as the basis for the terms of the NMP.

Regardless of the method of incorporation used by the permit writer, it is the permit writer's responsibility to ensure that the permit clearly delineates the terms of the NMP so that the CAFO operator, the public, state and federal inspectors, and others understand what is expected of the permitted CAFO when it implements its NMP. Some combination of the methods discussed above may be used to address concerns that might be raised by one or more of the parties when the draft terms of the NMP are made available for review by the permitting authority. EPA's expectations concerning specific terms of the NMP are discussed in detail in Chapters 5 and 6 and are intended to foster effective permit writing and be helpful in avoiding ambiguities in an NPDES permit. Chapter 5 includes examples of terminology that may be used for including site-specific terms for each of the minimum measures in a permit. Chapter 6 includes a detailed example of terms of the NMP for rates of application.

Changes to a Permitted CAFO's NMP

Agricultural operations modify their nutrient management and farming practices during the normal course of their operations. Such alterations might require changes to a permitted CAFO's NMP during the period of permit coverage.

Because of the way NMPs are developed and the flexibility provided by the two options for developing the terms of the NMP at 40 CFR part 122.42(e)(5), most routine changes at a facility should not require changes to the permit itself. For example, a CAFO using the narrative rate approach would not ordinarily need to change any permit terms when it makes changes to the factors that are not themselves terms but are accounted for in the methodology (such as the timing, method, form, or source of manure to be applied, which are all described in detail in Chapter 6.5.3). To minimize the need for revision, NMPs should account for and accommodate

routine variations inherent in agricultural operations such as anticipated changes in crop rotation, and changes in numbers of animals and volume of manure resulting from normal fluctuations or a facility's planned expansion.

Typically, an NMP is developed to reflect the maximum number of animals confined at the facility; the maximum capacity for manure storage; the total number of fields available for land application and their maximum capacity for nutrient applications. Fluctuations under those maximum amounts would not necessitate changes to NMPs. EPA encourages operators to develop an NMP that includes reasonably predictable alternatives that a CAFO may implement during the period of permit coverage. However, unanticipated changes to an NMP and in some cases, permit terms, might nevertheless be necessary.

The regulation at 40 CFR part 122.42(e)(6)(i) requires a CAFO to notify the Director of changes to the CAFO's NMP, and 40 CFR part 122.42(e)(6) excludes the results of calculations made to calculate the maximum amount of manure. See 40 CFR parts 122.42(e)(5)(i)(B), 122.42(e)(5)(ii)(D). The results of the calculations, which are required of Large CAFOs using the linear approach and all CAFOs using the narrative rate approach, must be reported in the CAFO's annual report. Thus, there is no need to notify the Director of such types of changes, as long as they are within the scope of the terms of the NMP applicable to the permitted CAFO.

The regulations at 40 CFR part 122.42(e)(6)(iii) identify a list of changes to the NMP that would constitute a substantial change to the terms of a facility's NMP, thus triggering requirements for public notice and permit modification. Substantial changes include the following:

1. Addition of new land application areas not previously included in the CAFO's NMP.
2. Any changes to the maximum field-specific annual rates of application or to the maximum amounts of nitrogen and phosphorus derived from all sources for each crop, as expressed in accordance with the linear approach or the narrative rate approach.
3. Addition of any crop not included in the terms of the CAFO's NMP and corresponding field-specific rates of application.
4. Changes to field-specific components of the CAFO's NMP, where such changes are likely to increase the risk of nitrogen and phosphorus transport from the field to waters of the U.S.

The regulations allow a specific exception to the first type of substantial change (a land application area being added to the NMP), where additional land is already included in the terms of another existing NMP that is incorporated into an existing NPDES permit. If, under the revised NMP, the CAFO owner or operator applies manure on the land application area in accordance with the existing field-specific terms of the existing permit, addition of new land would under the revised NMP not be a substantial change to the terms of the CAFO owner or operator's NMP.

The second substantial change is any change to the field-specific maximum rates of application. The regulations clarify that, for the narrative rate approach, a substantial change is triggered by a change in the field-specific maximum amount of nitrogen and phosphorus derived from all sources.

District Conservationist reviewing a conservation plan with a farmer in Orange County, Virginia.
(Photo courtesy of USDA/NRCS)

The third substantial change is the addition to the NMP of crops or other uses not previously included in the CAFO's NMP, together with the corresponding maximum field-specific rates of application for those crops or other uses. Because rates of application are based on the yield goals for each specific crop, any crops or other uses that are added to the plan will require corresponding newly calculated rates of application. In addition, because the maximum rates of application must be made available to the public for review before incorporation as terms of the permit, the addition of new crops or other uses and their corresponding rates of application is considered a substantial change.

Finally, any change to site-specific components of the CAFO's NMP that is likely to increase the risk of nitrogen and phosphorus transport to waters of the U.S. is a substantial change. The actual crop planted, timing and method of land application, and conservation practices used with respect to the land application areas are all key factors that affect nitrogen and phosphorus runoff from the land application area. Changes to any of the planning considerations listed above can alter the outcome of the decisions made in an NMP and the efficacy of that plan in ensuring appropriate agricultural utilization of those nutrients that are land applied.

Whether a change to any of those factors would be considered a substantial change for purposes of 40 CFR part 122.42(e)(6)(iii) is linked to the *outcome of the field-specific risk assessment*, which is a permit term for both the linear and narrative rate approaches. The *outcome of the field-specific risk assessment* evaluates the risk of nutrient runoff from a field to surface waters, and establishes the baseline risk parameters for both nitrogen and phosphorus. Chapter 6.5.1 discusses that permit term in detail.

The risk of nitrogen runoff is minimized as long as a crop's nitrogen need is not exceeded and as long as the crops' nitrogen need is based on the realistic crop yield goal and all contributing credits of available nitrogen. This permit term is crop specific, so any changes to the crop such as a change in the yield goal or a change in the type of crop would change the amount of nitrogen that would be land applied. The risk of nitrogen transport increases when the amount of nitrogen that is applied exceeds the amount identified in the permit for the planned crops. That increase in risk would result in a substantial permit change under 40 CFR part 122.42(e)(6)(iii).

There are various methods for assessing the risk of phosphorus transport from fields, such as soil test, soil phosphorus threshold, and the phosphorus index. As discussed in Chapter 6.5.1, the method for assessing the risk of phosphorus transport should be identified in a state's technical standard, and the outcome of the assessment is the permit term. The linear and narrative

rate approaches for writing this permit term affect whether a change in risk would rise to be a substantial change under 40 CFR part 122.42(e)(6)(iii). (For further discussion, see Chapter 6.5.4.)

The four substantial changes identified in the regulations are applicable to both the linear and narrative rate approaches for expressing rates of application. For example, proper implementation of the narrative rate approach depends on identifying the fields to be used for land application, so use of a new field for land application that had not been previously covered in the facility's (or another facility's) permit terms would constitute a substantial change. In addition, under the narrative rate approach, a change to the field-specific maximum amounts of nitrogen and phosphorus derived from all sources is a substantial change to the NMP because it defines the upper bounds on nutrient additions.

Finally, NPDES permits for all types of dischargers, including CAFOs, typically include reopener provisions under which the Director may revise the permit during the permit term on the basis of factors such as changes to the status of the receiving waterbody. Such standard NPDES provisions are sufficient to allow permit revisions necessary to support the criteria and standards established for receiving waters.

An advantage of the narrative rate approach is that it reduces the likelihood that changes to a CAFO's operation would result in a substantial change to the terms of the CAFO's NMP. For example, a change to the method or timing of application would be a substantial change to the terms of the NMP for CAFOs using the linear approach if the Director determines that it is likely to increase the risk of nutrient transport to surface waters. For a CAFO using the narrative rate approach, a change in the method or timing of application would not be a change to the terms of the NMP, and therefore not a substantial change, as long as the methodology in the NMP (itself a permit term) accounts for the change in method or timing.

Because changes to the NMP could result in a change to a permit term, the owner or operator is required to provide the Director with the revised NMP and identify the changes from the previous version submitted. Of course, any change to the CAFO's implementation of its NMP that does not constitute a change to the NMP itself would not be submitted to the Director. For example, for CAFOs following the narrative rate approach, any change in crop rotation or substitution of crops in a given rotation with alternative crops identified in the NMP for a given field would not be a change and, thus, would not need to be submitted to the Director before implementation.

Process for Review and Modification of the NMP

When a permitted CAFO operator revises its NMP, the CAFO regulations require the owner or operator to submit the revised NMP to the permitting authority for review and for the permitting authority to incorporate any revised terms of the NMP into the permit. The regulation at 40 CFR part 122.42(e)(6) includes provisions that enable the Director to determine whether revisions to the CAFO's NMP necessitate revisions to the terms of the NMP incorporated into the permit, and if so, whether such changes are substantial or nonsubstantial. Figures 4-1 and 4-2 illustrate the NMP review process as well as necessary steps for determining and making revisions to the

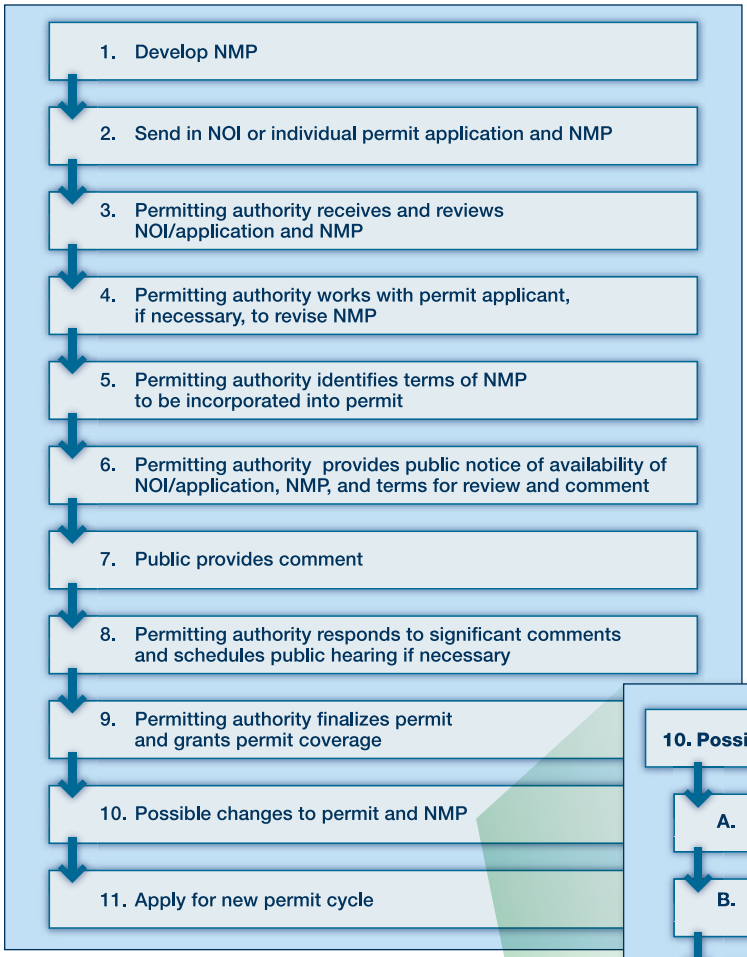


Figure 4-1. Process for Review and Modification of the Nutrient Management Plan

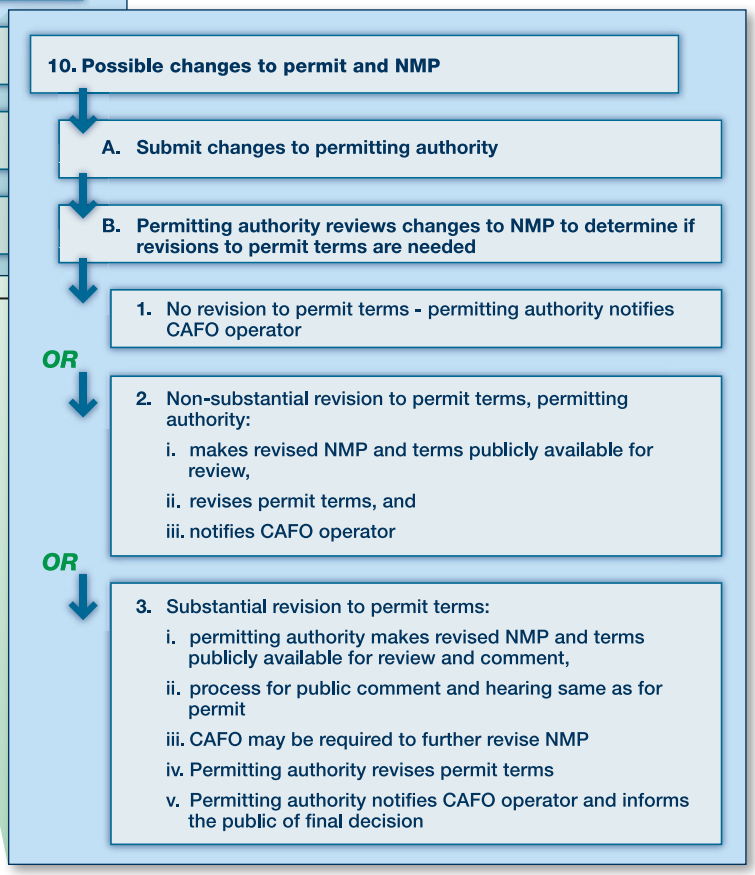


Figure 4-2. Process for Review and Modification of the Nutrient Management Plan (detail)

permit terms. The regulation identifies several specific types of changes that must be considered substantial changes to the NMP It also establishes a streamlined process for formal public notice and comment that the permitting authority must follow for permit modification when a CAFO is seeking to make substantial changes to the terms of its NMP. Nonsubstantial changes to the terms of the NMP are not subject to public notice and comment before the permit is revised. Those procedures apply to all permitted CAFOs, regardless of whether they are covered under an individual permit or under a general permit.

When a Director receives a revised plan, 40 CFR part 122.24(e)(6)(ii) requires the Director to then review the revised plan to ensure that it still meets the requirements of 40 CFR part 122.42(e) and applicable effluent limitations and standards, including those specified in 40 CFR part 412. The Director must also determine whether the changes necessitate revision to the terms of the NMP that were incorporated into the permit issued to the CAFO. If not, the Director must notify the CAFO that the permit does not need to be modified. On such notification, the CAFO may implement the revised NMP.

If, on the other hand, the Director determines that the changes to the NMP do require that the terms of the NMP that were incorporated into the permit be revised, the Director must next decide whether the change is substantial. The Director must evaluate the change on the basis of the provisions in 40 CFR part 122.42(e)(6)(iii) discussed above. Pursuant to 40 CFR part 122.42(e)(6)(ii)(A), for nonsubstantial changes, the Director must make the revised NMP publicly available and include it in the permit record, revise the terms of the NMP incorporated into the permit, and notify the owner or operator and inform the public of any changes to the terms of the NMP that are incorporated into the permit. On such notification the CAFO, may implement the revised NMP.

If the changes to the terms of the NMP are substantial, the regulations provide for a public review and comment period before the Director modifies the permit by incorporating revised terms of the NMP. 40 CFR § 122.42(e)(6)(ii)(B). The process for public comments, hearing requests, and the hearing process if a hearing is granted must follow the procedures for draft permits set forth in 40 CFR parts 124.11–124.13. The Director must respond to all significant comments received during the comment period as provided in 40 CFR part 124.17 and require the CAFO owner or operator to further revise the NMP if necessary. Once the Director incorporates the revised terms of the NMP into the permit, the Director must notify the owner or operator and inform the public. Such a type of permit modification may be appealed in the same manner as the initial, final permit decision.

The Director may establish by regulation or in the general permit for CAFOs an appropriate period that differs from the period specified in 40 CFR part 124.10 for the public to comment and request a hearing on the proposed substantial changes to the terms of the NMP incorporated into the permit. Allowing the Director to establish a different period from 40 CFR part 124.10 provides the Director the discretion to allow CAFOs to implement revised nutrient management practices in accordance with growing seasons and other time-sensitive circumstances. When proposing the period that differs from 40 CFR part 124.10, the public must have an opportunity to comment on the sufficiency of the proposed period.

Because the process in 40 CFR part 122.42(e)(6)(ii) allows for public review of substantial changes to the terms of NMPs and the underlying data and calculations, the incorporation of changes to the permit through the process is a minor permit modification under 40 CFR part 122.63(h), and no additional review of the permit modification is required.

The process and timing of modifying a permit will vary. A CAFO owner or operator must remain in compliance with his or her permit and, thus, should work closely with the permitting authority and should initiate the coordination as early as possible.

The regulations do not provide a permitting authority with the discretion to preapprove certain substantial changes, unless they are specified in an NMP that encompasses normal fluctuations or variations. That is because the *Waterkeeper* decision held that the terms of the NMPs must be subject to permitting authority review and be available for public comment.

4.1.8. Agricultural Stormwater Exemption for Permitted CAFOs

All permits issued to CAFOs that land apply manure must contain terms and conditions that, when implemented, ensure that all precipitation-related discharges from land application are composed entirely of agricultural stormwater. Section 502(14) of the CWA excludes from the definition of a point source *agricultural stormwater discharges*. The CAFO regulations establish when a discharge from a land application area under the control of a CAFO is considered to be exempt agricultural stormwater, as opposed to a point source discharge from the CAFO.[5] A precipitation-related discharge from a CAFO's land application areas is considered agricultural stormwater only when the manure was applied in accordance with site-specific nutrient management practices that "ensure appropriate agricultural utilization of the nutrients" in the manure to be applied. 40 CFR § 122.23(e). For CAFOs, the agricultural stormwater exemption applies only to discharges from land application areas.[6] Furthermore, discharges occurring during dry weather can never be discharges of agricultural stormwater.

Criteria for site-specific nutrient management practices for land application are specified in 40 CFR parts 122.42(e)(1)(vi)-(ix). Those are discussed in greater detail in Chapter 6. For permitted CAFOs, the permit must set forth the, "site-specific nutrient management practices" that will be implemented for each requirement of 40 CFR parts 122.42(e)(1)(vi)-(ix). Under 40 CFR part 122.42(e)(1)(vii), all permitted CAFOs must establish field-specific application rates for manure. The site-specific land application rates must be established as enforceable terms in the facility's NPDES permit following either the linear approach described in 40 CFR part 122.42(e)(5)(i), or the narrative rate approach described in 40 CFR part 122.42(e)(5)(ii) (see Section 6.5).

Permitted Large CAFOs

In addition to the requirements described above, permitted Large CAFOs subject to the requirements of subpart C and D of Part 412 must also meet the requirement of 40 CFR part 412.4(c) to qualify for the agricultural stormwater exemption. 40 CFR §§ 122.23(e)(1), 122.42(e)(1). The ELG

specifies requirements for implementing site-specific application rates, manure and soil sampling, and setback requirements. Additionally, it provides protocols for inspecting the land application equipment. See discussion in Section 4.1.3.

The site-specific application rates for manure must be developed in accordance with technical standards established by the Director. 40 CFR § 412.4(c)(2). The rates must also be identified in the facility's NPDES permit as enforceable terms following either the linear approach or narrative rate approach (73 FR 70420). The technical standards are discussed in Chapter 6.3.1, and site-specific rates of application are discussed in Chapter 6.5.

Precipitation related runoff from a land application area where manure has been applied in accordance with an NMP is exempt as agricultural stormwater. (Photo courtesy of USDA/NRCS)

Permitted Small and Medium CAFOs

For precipitation-related discharges from the land application area of a Medium or Small CAFO to qualify for the agricultural stormwater exemption, the owner or operator of the CAFO must implement an NMP that includes the practices and protocols specified in 40 CFR part 122.42(e)(1)(vii)-(ix).

Effluent limitations for Medium and Small CAFOs are based on the BPJ of the permit writer. As discussed in Section 4.1.4, permit writers could find that it is appropriate to develop BPJ effluent limitations that are the same as, or similar to, the effluent limitations established in the ELG for Large CAFOs. Thus, a Medium or Small CAFO might be required to develop protocols for land application in accordance with the state technical standards for nutrient management and comply with the requirement for a 100-foot setback or a 35-foot vegetated buffer between land application areas and any downgradient surface waters or conduits to surface waters. Because the practices for ensuring appropriate agricultural utilization of the nutrients in land-applied manure at Large CAFOs do not differ significantly for Medium and Small CAFOs, the permit writer might find it appropriate to apply the requirements established in the state technical standards equally to land application sites at all permitted CAFOs.

4.1.9. Water Quality-Based Effluent Limitations and Standards

As discussed in Section 4.1.1, all NPDES permits must include technology-based effluent limitations. However, a permit must also include more stringent water quality-based limitations when such limitations are necessary to meet water quality standards. CWA sections 402(a), 301(b)(1)(C).

A water quality-based effluent limitation is designed to ensure that state or tribal water quality standards are met. Federal regulations require permit limitations to control all pollutants that could be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard. 40 CFR §§ 122.4(d), 122.44(d). That includes, where appropriate, water quality-based effluent limitations for the production area, land application area, and all other discharges covered by the permit.

Requirements for the Production Area of Large CAFOs

The permit writer may determine the need to establish more restrictive requirements for the production area. Even for CAFOs subject to a no-discharge, technology-based standard for the production area, situations could arise where the permitting authority needs to impose more stringent requirement for allowable discharges. Specifically, more stringent discharge limitations are necessary in instances where CAFOs discharge from a production area to a waterbody listed under CWA section 303(d) as impaired due to nutrients, dissolved oxygen or bacteria, or where an analysis of frequency, duration and magnitude of the anticipated discharge (consisting of potential overflows of manure, litter, or process wastewater) indicates the reasonable potential to violate applicable water quality standards.

The imposition of a water quality-based effluent limitation could necessitate a more stringent standard or the inclusion of additional management practices. Examples of such practices include additional storage capacity beyond that required by technology-based limits, monitoring the water quality of the waterbody and monitoring the extent of impairment where a discharge occurs, and installing an impermeable lining in a lagoon or storage pond.

Requirements for the Land Application Area of Large CAFOs

As discussed in Section 4.1.7, all permitted CAFOs are required to develop and implement an NMP. When a permitted CAFO implements an NMP in accordance with its permit requirements, any remaining precipitation related discharges of manure are considered agricultural stormwater, as discussed in Section 4.1.8. For Large CAFOs subject to the ELG, that also means that the NMP must comply with permit requirements that implement the ELG, including technical standards established by the Director for nutrient management. For facilities not subject to the ELG, it means that the NMP must comply with permit requirements that implement 40 CFR part 122.42(e) and any additional nutrient management requirements developed by BPJ. As previously mentioned, by definition, the agricultural stormwater exemption applies only to precipitation-related discharges. Any other discharges from the land application area allowed by the permit may be subject to more stringent water-quality based requirements (unless they are exempted irrigation return flows), as appropriate, to protect water quality. Those may be included in the permit as water-quality based effluent limits. They might also be addressed through the development of more protective technical standards for land application.

In addition, where there are water quality impacts associated with precipitation-related discharges from CAFO land application areas, permitting authorities are encouraged to update their technical standards to include requirements that are more protective of water quality. 68 FR 7,198 (Feb. 12, 2003).

Appropriate land application practices might include requiring phosphorus-based application rates for all manure application, additional timing restrictions such as prohibiting manure application on frozen ground, additional mandatory setbacks or buffers, groundwater monitoring requirements, or prohibiting multiyear application of phosphorus.

4.2. Monitoring, Record-Keeping, and Reporting Requirements of NPDES Permits for CAFOs

The NPDES regulations identify record-keeping, monitoring, and reporting requirements that are applicable to all CAFOs. 40 CFR §§ 122.41, 122.42(e)(2)-(4). The CAFO ELG identify additional record-keeping and monitoring requirements that are applicable only to Large CAFOs. The record-keeping requirements associated with the off-site transfer of manure are applicable to Large CAFOs. For CAFOs not subject to the ELG, additional monitoring and record-keeping requirements may be established as technology-based limits by the permitting authority on a case-by-case basis using BPJ (see Section 4.1.4).

4.2.1. Monitoring Requirements

When developing the monitoring requirements for NPDES permits, the permit writer should address the routine operational characteristics of the facility and the minimum reporting requirements at 40 CFR part 122.41(l). The ELG includes specific monitoring requirements for daily and weekly visual inspections of specific aspects of the production area and monitoring requirements associated with land application, including manure and soil analysis and land application equipment inspection. 40 CFR §§ 412.37, 412.47. Although the ELG requirements apply only to Large CAFOs subject to Part 412 subparts C and D, the permit writer should consider those as a starting point when establishing BPJ requirements for other permitted CAFOs. The permit should also include monitoring requirements that address nonroutine activities. For example, discharges at a CAFO can occur because of an overflow during a catastrophic storm event (which may be an allowable discharge under the terms of the permit) or a leak, breach, overflow, or

Sampling of wastewater from a lagoon on a hog farm. (Photo courtesy of USDA/NRCS)

other structural failure of a storage facility because of improper operation, design, or maintenance (which would be an unauthorized discharge). Unauthorized discharges could also occur because of manure releases related to the improper storage or handling of liquid or solid manure, or improper land application. The permit must require specific data collection activities (as well as notification and reporting activities as described in Section 4.2.3, *Reporting Requirements*). 40 CFR § 122.41(l)(6). As explained in Section 4.1.8 where there is a discharge from the production area to an impaired water, a permit writer may impose more restrictive water quality-based effluent limitations that could include additional monitoring requirements.

The monitoring requirements include an analysis of the discharge, if needed to determine compliance by the permitting authority. 40 CFR § 122.44(g). At a minimum, the analysis should include total nitrogen, ammonia nitrogen, P, pH, temperature, *Escherichia coli* or fecal coliform, 5-day biochemical oxygen demand (BOD_5), and total suspended solids. 40 CFR § 122.44(g). The analysis is to be performed in accordance with approved EPA methods for wastewater analysis listed in 40 CFR part 136. The permitting authority might wish to specify additional parameters at its discretion.

4.2.2. Recordkeeping Requirements

CAFO operators should maintain in their records a copy of the current NPDES permit and any supplemental documents identified by the permitting authority. Permits should specify that all CAFOs must retain copies of all required documentation. In addition, permits should require that the records be organized in a manner that inspectors can easily review during a compliance inspection, such as the use of a dedicated logbook. The required records for Large CAFOs are listed in Table 4-6 and for Small and Medium CAFOs in Table 4-7. Records must be maintained for 5 years.

Recordkeeping is an important part of the permitting process. (Photo courtesy of USDA/ARS)

Table 4-6. Required records for permitted Large CAFOs

Regulatory requirement for recordkeeping	Records required
Requirements to maintain records for the nine minimum terms of the NMP. 40 CFR § 122.42(e)(2)	
Adequate storage capacity	Satisfied by requirements of 40 CFR part 412.37(b) (below)
Mortality management	Satisfied by requirements of 40 CFR part 412.37(b) (below)
Divert clean water	Satisfied by requirements of 40 CFR part 412.37(b) (below)
Prevent direct contact with waters of U.S.	Identify what waters of the U.S., if any, exist within the animal confinement areas and the measures, including operation, and maintenance procedures and associated records, that are implemented to prevent animals from contacting waters of the U.S.
Chemical disposal	Identify chemicals used or stored (or both) on-site and document appropriate disposal methods
Conservation practices to control runoff to waters of the U.S.	Identify the conservation practices used to control pollutant runoff, including location, and the protocols and procedures, including installation, operation, and maintenance, and associated records, that are implemented to ensure the practices function to control pollutant runoff
Manure and soil testing	Satisfied by requirements of 40 CFR part 412.37(c) (below)
Protocols for land application	Satisfied by requirement of 40 CFR parts 122.42(e)(2)(ii) and 412.37(c) requirement to maintain on-site a site-specific NMP
Requirements to maintain records for the production area. 40 CFR § 412.37(b)	
A complete copy of the information required by 40 CFR part 122.21(i)(1)	The name and owner or operator
	The facility location and mailing address
	Latitude and longitude of the entrance of the production area
	A topographic map of the geographic area in which the CAFO is located showing the location of the production area
	Specific information about the number and type of animals
	Type of confinement animals are in (open confinement or housed under a roof)

Table 4-6. Required records for permitted Large CAFOs *(continued)*

Regulatory requirement for recordkeeping	Records required
A complete copy of the information required by 40 CFR part 122.21(i)(1) (continued)	The type of containment and storage (anaerobic lagoon, roofed storage shed, storage ponds, under floor pits, aboveground storage tanks, belowground storage tanks, concrete pad, impervious soil pad, other)
	The total capacity for manure, litter, and process wastewater storage (tons/gallons)
	The total number of acres under control of the applicant available for land application of manure, litter, or process wastewater
	Estimated amounts of manure, litter, and process wastewater generated per year (tons/gallons)
	Estimated amounts of manure, litter, and process wastewater transferred to other persons per year (tons/gallons)
	The site-specific NMP
Requirements to maintain records for the production area. 40 CFR § 412.37(b)	
Records documenting the inspections 40 CFR § 412.37(a)(1)	Necessary documentation for inspections of the production area
	Records documenting weekly inspections of all stormwater diversion devices, runoff diversion structures, and devices channeling contaminated stormwater to the wastewater and manure storage and containment structure
	Records documenting daily inspection of water lines, including drinking water or cooling water lines
	Records documenting weekly inspections of the manure, litter, and process wastewater impoundments
Wastewater levels 40 CFR § 412.37(b)(2)	Weekly records of the manure and wastewater level in liquid impoundments as indicated by the required depth marker
Corrective actions 40 CFR § 412.37(b)(3)	Records of any actions taken to correct deficiencies found in the visual inspections of the production area
	An explanation of the factors preventing immediate correction of any deficiencies identified in the visual inspections of the production area that are not corrected within 30 days

Table 4-6. Required records for permitted Large CAFOs *(continued)*

Regulatory requirement for recordkeeping	**Records required**
Mortality management required 40 CFR §§ 412.37(b)(4), (a)(4)	Records must identify that mortalities were not disposed of in any liquid manure or process wastewater system. They must also identify that mortalities were handled in such a way as to prevent the discharge of pollutants to surface water, unless alternative technologies pursuant to 40 CFR part 412.31(a)(2) and approved by the Director are designed to handle mortalities.
Storage structure design 40 CFR § 412.37(b)(5)	Current design of any manure or litter storage structures, including volume for solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity
Overflows 40 CFR § 412.37(b)(6)	The date, time, and estimated volume of any overflow
Requirements to maintain records for the land application area. 40 CFR § 412.37(c)	
	Expected crop yields
	Weather conditions 24 hours before application, at time of application, and 24 hours after application
	Explanation of the basis for determining manure application rates, as provided in the technical standards established by the Director
	Calculations showing the total nitrogen and phosphorus to be applied to each field, including sources other than manure, litter, or process wastewater
	Total amount of nitrogen and phosphorus actually applied to each field, including documentation of calculations for the total amount applied
	The method used to apply the manure, litter, or process wastewater
	Test methods used to sample and analyze manure, litter, process wastewater, and soil. 40 CFR §§ 412.37(c), 47(c)
	Results from manure, litter, process wastewater, and soil sampling. 40 CFR § 412.37(c)
	Date(s) of manure application equipment inspection
Additional recordkeeping requirements	**Records required**
40 CFR § 412.37(c)	At the discretion of the permitting authority

For Medium and Small CAFOs, the monitoring and record-keeping requirement for the effluent limitations are established by the permitting authority on a case-by-case basis. The inclusion of additional record-keeping requirements in the permit for Large CAFOs would be at the discretion of the permitting authority. The specific record-keeping requirements for other CAFOs would be established by the permitting authority.

Table 4-7. Required records for permitted Small and Medium CAFOs

Regulatory requirement for recordkeeping	Responsive records or documentation
Requirements to maintain records for nine minimum terms of the NMP. 40 CFR §122.42(e)(1)(ix)	
Adequate storage capacity	Documentation of the storage capacity required to meet permit requirements and the storage capacity available
Mortality management	Records of practices implemented to meet the mortality disposal or management practices (or both) of the permit
Divert clean water	Document implementation of any operation and maintenance practices used to ensure that clean water is diverted as appropriate
Prevent direct contact with waters of the U.S.	Identify what waters of the U.S., if any, exist within the animal confinement areas and the measures, including operation and maintenance procedures and associated records, that are implemented to prevent animals from contacting waters of the U.S.
Chemical disposal	Identify chemicals used or stored (or both) on-site and document appropriate disposal methods
Conservation practices to control runoff to waters of the U.S.	Identify the conservation practices used to control pollutant runoff, including location, and the protocols and procedures, including installation, operation, and maintenance, and associated records, that are implemented to ensure the practices function to control pollutant runoff
Manure and soil testing	Results of manure and soil tests taken to meet the requirements of the permit and NMP
Protocols for land application	Satisfied by requirement of 40 CFR part 122.42(e)(2)(ii) requirement to maintain on-site a site-specific NMP
Additional record-keeping requirement to satisfy the effluent limitations	
Determined by the permitting authority on a case-by-case basis	

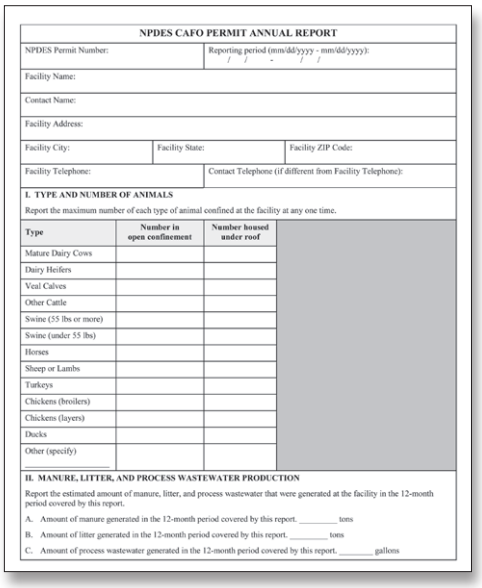
Appendix D, Example Nutrient Management Plan Record Keeping Forms, and Appendix M, Nutrient Management Recordkeeping Calendar, include some examples of record-keeping forms. Those forms can help the operation meet some of the record-keeping requirements specified in the regulations.

4.2.3. Reporting Requirements

Reporting requirements are generally linked to monitoring requirements and can include periodic reports, emergency reports for overflow events, and special reports. When developing the reporting requirements for an NPDES permit, the permit writer should consider monitoring requirements for routine operational characteristics of the facility, including the required annual report, and the minimum reporting requirements at 40 CFR part 122.41(l). The permit also should include reporting requirements that address nonroutine activities such as discharge notification (for both authorized and unauthorized discharges). The permit must require immediate notification of the permitting authority and a follow-up report describing the specific data collection activities required for discharges. 40 CFR § 122.41(l)(6). The reporting requirements must ensure that the permittee provides a description of the discharge, describes the time and duration of the event, identifies the cause(s) of the discharge, and provides the result of any required an analysis(es) to the permitting authority. 40 CFR §§ 122.41(l)(6), 122.44(g).

Annual Reports

All NPDES permits for CAFOs must include a requirement that the permittee submit an annual report with specific information defined in the regulation. 40 CFR § 122.42(e)(4). In addition to the information required by the NPDES regulations, state permitting authorities can require additional information to be included with the annual report. As with NOIs, EPA will promote electronic submission of annual reports and immediate posting on publicly available locations. Appendix C, Example NPDES CAFO Permit Annual Report Form includes all the information specified in the NPDES CAFO regulation.



NPDES CAFO PERMIT ANNUAL REPORT

NPDES Permit Number:	Reporting period (mm/dd/yyyy - mm/dd/yyyy): / / - / /	
Facility Name:		
Contact Name:		
Facility Address:		
Facility City:	Facility State:	Facility ZIP Code:
Facility Telephone:	Contact Telephone (if different from Facility Telephone):	

I. TYPE AND NUMBER OF ANIMALS

Report the maximum number of each type of animal confined at the facility at any one time.

Type	Number in open confinement	Number housed under roof
Mature Dairy Cows		
Dairy Heifers		
Veal Calves		
Other Cattle		
Swine (55 lbs or more)		
Swine (under 55 lbs)		
Horses		
Sheep or Lambs		
Turkeys		
Chickens (broilers)		
Chickens (layers)		
Ducks		
Other (specify) _____		

II. MANURE, LITTER, AND PROCESS WASTEWATER PRODUCTION

Report the estimated amount of manure, litter, and process wastewater that were generated at the facility in the 12-month period covered by this report.

A. Amount of manure generated in the 12-month period covered by this report. _____ tons

B. Amount of litter generated in the 12-month period covered by this report. _____ tons

C. Amount of process wastewater generated in the 12-month period covered by this report. _____ gallons

The annual report must include the following. 40 CFR § 122.42(e)(4)

- The number and type of animals confined at the CAFO.
- Estimated total amount of manure, litter, and process wastewater generated by the CAFO in the previous 12 months (tons/gallons).
- Estimated total amount of manure, litter, and process wastewater transferred to other persons by the CAFO in the previous 12 months (tons/gallons).
- Total number of acres for land application covered by the NMP.
- 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.

- Summary of all manure, litter, and process wastewater discharges from the production area that have occurred in the previous 12 months, including the date, time, and approximate volume of the discharge.
- A statement indicating whether the current version of the CAFO's NMP was developed or approved by a certified nutrient management planner.
- The actual crop(s) planted and actual yield(s) for each field.
- The nitrogen and phosphorus content of the manure, litter, and process wastewater as reported on the laboratory report for the required analyses (lbs/ton, g/Kg, pounds/1,000 gallons, mg/L, ppm).
- The results of calculations conducted in accordance with the approved NMP to determine the amount of manure, litter, or process wastewater to apply.
- The amount of manure, litter, and process wastewater applied to each field during the previous 12 months.
- For any CAFO that implements an NMP that addresses rates of application in accordance with the narrative rate approach:
  - The results of any soil testing for nitrogen and phosphorus conducted during the previous 12 months.
  - The data used in calculations conducted in accordance with the methodology in the approved NMP to determine rates of nitrogen and phosphorus application from manure, litter, and process wastewater.
  - The amount of any supplemental fertilizer applied during the previous 12 months.

Part 122.42(e)(4)(viii) requires all permitted CAFOs to include in their annual reports 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, and the amount of manure, litter, or process wastewater applied to each field during the previous 12 months. It is important for the permitting authority to obtain that information annually to ensure that the CAFO has been operating in compliance with the terms of its permit. The annual report will inform the Director and the public how the CAFO has operated, given the flexibility for the terms of the NMP incorporated into the permit.

CAFOs that follow the narrative rate approach for describing rates of application in the NMP must also submit as part of their annual report the results of all soil testing and concurrent calculations to account for residual nitrogen and phosphorus in the soil, all recalculations, and the new data from which they are derived. 40 CFR § 122.42(e)(5)(ii). The CAFO is required to report the amounts of manure and the amount of chemical fertilizer applied to each field during the preceding 12 months. Together with the total amount of plant-available nitrogen and phosphorus from all sources, the information that is required to be included in the annual report provides the

information necessary to determine that the CAFO was adhering to the terms of its permit when calculating amounts of manure to apply.

The narrative rate approach requires the CAFO to recalculate the projected amount of manure, to be land applied, using the methodology in the NMP, at least once a year, throughout the period of permit coverage. 40 CFR § 122.42(e)(5)(ii). To ensure that such recalculations are made available to the Director and the public, the recalculations and the new data from which they are derived are required to be reported in the CAFO's annual report, in which the recalculations and data for the previous 12 months must be reported.

The annual report requirements are for use only in addressing implementation of existing NMP provisions and changes to the NMP contemplated through flexibilities built into the NMP during the initial planning process or later modifications in accordance with 40 CFR part 122.42(e)(6). Because the terms of the NMP are incorporated as enforceable terms and conditions of the permit, any change that results in a change to the terms of the NMP constitutes a change to the permit and therefore must be processed in accordance with 40 CFR part 122.42(e)(6).

4.3. Special Conditions for All NPDES Permits for CAFOs

The NPDES regulations require every CAFO permittee to maintain permit coverage until the CAFO no longer discharges or is properly closed. 40 CFR § 122.22(g). In addition, NPDES permits issued to Large CAFOs must include a special condition that requires the operator to collect and maintain information concerning the transfer of manure to other persons (see Section 4.3.3). Permitting authorities have the discretion to add special conditions to NPDES permits to address site-specific conditions at the CAFO to minimize the discharge of nutrients to waters of the U.S. 40 CFR § 122.44(k).

4.3.1. Additional Special Conditions as Determined by the Permitting Authority

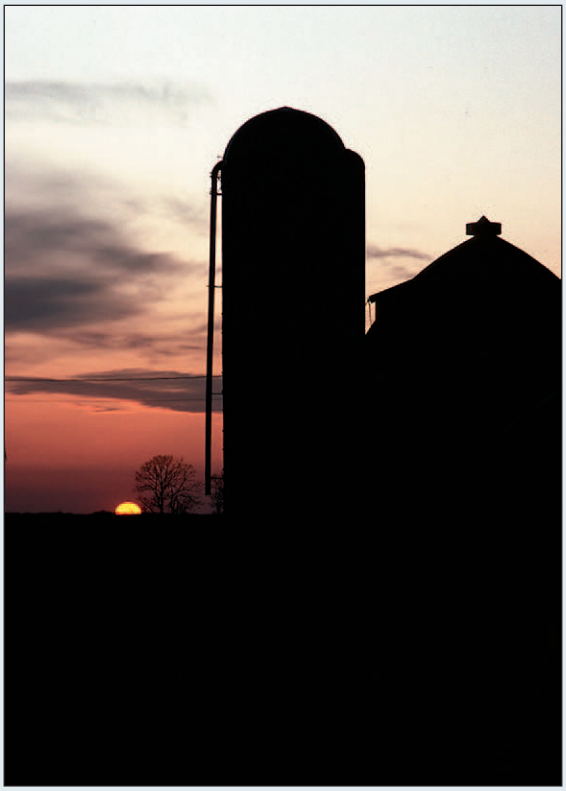
NPDES permits for CAFOs may include additional special conditions as determined necessary by the permitting authority.

The permitting authority has the discretion to include additional special conditions in NPDES permits for CAFOs beyond those required by the NPDES CAFO regulations where it has determined that they are necessary to achieve effluent limitations and standards under the CWA. 40 CFR § 22.44(k). For example, such additional requirements could address emergency discharge impact abatement, extended storage periods, irrigation control, spills, discharges from field drain tiles, measurement of rainfall, protection for endangered species and migratory birds, employee training, and groundwater that has a direct hydrologic connection to waters of the U.S. In addition, states concerned with groundwater may require monitoring, liners, or other requirements in accordance with appropriate state authority. CWA § 510.

4.3.2. Duty to Maintain Permit Coverage until the CAFO is Properly Closed

Under the revised regulations, permit coverage must be maintained until the facility has ceased operation or is no longer a CAFO or that the facility no longer discharges manure that was generated while the operation was a CAFO, other than agricultural stormwater from land application areas. 40 CFR § 122.23(g).

Once an operation is issued an NPDES permit, that permit remains in place for the entire life of the permit term, independent of the specific number of animals confined at any time. For example, a beef operation with 1,200 cattle meets the definition of a Large CAFO and is subject to regulation. It applies for and is issued an NPDES permit. After issuance of the permit, 400 cows are transported off the operation, leaving 800 cattle at the operation. The permit remains in place, and the operation must continue to comply with its requirements. If the operation has taken the steps to permanently reduce the number of animals confined to a number less than the regulatory threshold and it would not meet the definition of a Medium CAFO, it can request that the permitting authority terminate the permit, as long as the operation no longer discharges manure that was generated while the facility was operated as a CAFO.



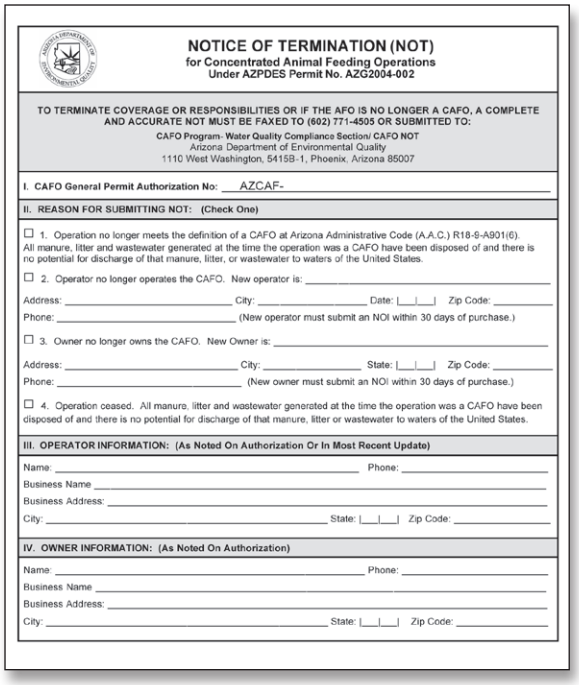
The sun goes down over a farm. (Photo courtesy of USDA/NRCS)

Closure Documentation

Specific information to be submitted to document proper closure would be established at the discretion of the permitting authority. Because of the variation in site management practices, it is unlikely that there will be a standard package of documentation that addresses whether an operation has been properly closed or no longer meets the definition of a CAFO and has no potential to discharge to waters of the U.S. any manure generated while it was a CAFO. The key information to be submitted by the permittee to document such change should focus on that which establishes a permanent change to the number of animals held in confinement and the necessary changes to the manure and wastewater storage and use practices. In those cases where a permitted CAFO has ceased operation, the documentation may include records of sale for the animals confined specifying the date at which no animals remained in confinement. In addition, the land application or transfer records should document the disposition of all the manure and wastewater associated with those animals, either in accordance with a site-specific NMP or transferred off-site, for the period up to and including the date at which the operation no longer met the definition of a CAFO.

That information could include the submission of a certification, prepared by a professional engineer licensed in the state, that any liquid storage structure has been properly closed and that pollutants associated with manure will not migrate from the closed structure to waters of the U.S. Permitting authorities should also be aware that NRCS has established a Conservation Practice Standard addressing the closure of such facilities. The standard is titled *Closure of Waste Impoundments* and is identified as Practice Code 360.

In cases where a permitted CAFO claims that it no longer meets the definition of a CAFO or has addressed the factors that resulted in its being designated as a CAFO, the permitting authority should request information that documents the permanent reduction in the number of animals confined and that the amount of wastewater being generated and stored at the operation is consistent with the reduction. Permitting authorities might wish to conduct an inspection of the operation to confirm that it has been properly closed. With respect to designated operations, the CAFO should submit documentation as to how the conditions were addressed and why the operation is no longer a significant contributor of pollutants to waters of the U.S. In those cases where there is a significant reduction in the number of animals being confined, the permitting authority should request records that document the proper disposition of any stored manure and wastewater on the basis of the permitted capacity of the operation.



NOTICE OF TERMINATION (NOT)
for Concentrated Animal Feeding Operations
Under AZPDES Permit No. AZG2004-002

TO TERMINATE COVERAGE OR RESPONSIBILITIES OR IF THE AFO IS NO LONGER A CAFO, A COMPLETE AND ACCURATE NOT MUST BE FAXED TO (602) 771-4505 OR SUBMITTED TO:
CAFO Program- Water Quality Compliance Section/ CAFO NOT
Arizona Department of Environmental Quality
1110 West Washington, 5415B-1, Phoenix, Arizona 85007

I. CAFO General Permit Authorization No: AZCAF-

II. REASON FOR SUBMITTING NOT: (Check One)

☐ 1. Operation no longer meets the definition of a CAFO at Arizona Administrative Code (A.A.C.) R18-9-A901(6). All manure, litter and wastewater generated at the time the operation was a CAFO have been disposed of and there is no potential for discharge of that manure, litter, or wastewater to waters of the United States.

☐ 2. Operator no longer operates the CAFO. New operator is: _____

Address: _____ City: _____ Date: |__|__| Zip Code: _____

Phone: _____ (New operator must submit an NOI within 30 days of purchase.)

☐ 3. Owner no longer owns the CAFO. New Owner is: _____

Address: _____ City: _____ State: |__|__| Zip Code: _____

Phone: _____ (New owner must submit an NOI within 30 days of purchase.)

☐ 4. Operation ceased. All manure, litter and wastewater generated at the time the operation was a CAFO have been disposed of and there is no potential for discharge of that manure, litter or wastewater to waters of the United States.

III. OPERATOR INFORMATION: (As Noted On Authorization Or In Most Recent Update)

Name: _____ Phone: _____

Business Name _____

Business Address: _____

City: _____ State: |__|__| Zip Code: _____

IV. OWNER INFORMATION: (As Noted On Authorization)

Name: _____ Phone: _____

Business Name _____

Business Address: _____

City: _____ State: |__|__| Zip Code: _____

4.3.3. Manure Transfer Requirements for Large CAFOs

NPDES permits for Large CAFOs must include specific requirements concerning the transfer of manure to other persons. The permit must require the operator to provide all recipients of manure and wastewater generated by the CAFO with the most current manure nutrient analysis. 40 CFR § 122.42(e)(3). The nutrient analysis must be consistent with the CAFO ELG. 40 CFR § 412. The ELG for Large CAFOs requires that manure be sampled for nitrogen and phosphorus at least annually. In addition, the permit must require Large CAFOs to retain records of the date of the transfer, the name and address of the recipient, and the approximate amount of manure, litter, or process wastewater transferred (tons/gallons). Those records are to be maintained for 5 years from the date the manure, litter, or process wastewater is transferred. As a result of the negative environmental impact of the improper use and disposal of manure, NPDES permit writers should use PBJ in determining whether to include these requirements in an NPDES permit issued to a small or medium CAFO. For examples of a manure, litter, and wastewater transfer record form,

see Appendix P, Sample Nutrient Management Plan Section 7 and Appendix D, Example Nutrient Management Plan Recordkeeping Forms.

4.4. Standard Conditions of a CAFO NPDES Permit

Standard conditions must be included in all NPDES permits. Standard conditions specified in 40 CFR parts 122.41 and 122.42 play an important supporting role to effluent limitations, monitoring and reporting requirements, and special conditions because they delineate various legal, administrative, and procedural requirements of the permit. Standard conditions cover various topics, including definitions, testing procedures, records retention, notification requirements, penalties for noncompliance, and other permittee responsibilities. The conditions provided in 40 CFR part 122.41 apply to all types and categories of NPDES permits and must be included in all permits (for applicability to state NPDES permits, see 40 CFR part 123.25). The conditions provided in 40 CFR part 122.42 apply to only certain categories of NPDES facilities. Any permit issued to a facility in one of the categories listed in 40 CFR part 122.42 must contain the additional conditions, as applicable.

The use of standard conditions helps ensure uniformity and consistency of NPDES permits issued by authorized states or the EPA Regional offices. Permit writers need to be aware of the contents of the standard conditions because it might be necessary to explain portions of the conditions to a discharger. The permit writer should keep abreast of any changes in EPA's standard conditions set out in 40 CFR parts 122.41 and 122.42. According to 40 CFR part 122.41, standard conditions may be incorporated into a permit either expressly (verbatim from the regulations) or by reference to the regulations. It generally is preferable for permit writers to attach the standard conditions expressly because permittees might not have easy access to the regulations. Some states have developed an attachment for NPDES permits that includes the federal standard conditions.

4.4.1. Types of Standard Conditions

A brief summary of the 40 CFR part 122.41 standard conditions that must be included in all types of NPDES permits follows:

- **Duty to Comply** 40 CFR part 122.41(a): The permittee must comply with all conditions of the permit. Noncompliance is a violation of the CWA and is grounds for enforcement action, changes to or termination of the permit, or denial of a permit renewal application.
- **Duty to Reapply** 40 CFR part 122.41(b): A permittee wishing to continue permitted activities after the permit expiration date must reapply for and obtain a new permit.
- **Need to Halt or Reduce Activity not a Defense** 40 CFR part 122.41(c): The permittee may not use as a defense in an enforcement action the reasoning that halting or reducing the permitted activity is the only way to maintain compliance.

- **Duty to Mitigate** 40 CFR part 122.41(d): The permittee is required to take all reasonable steps to prevent any discharge or sludge use or disposal in violation of the permit that has a reasonable likelihood of adversely affecting human health or the environment.
- **Proper Operation and Maintenance** 40 CFR part 122.41(e): The permittee must properly operate and maintain all equipment and treatment systems used for compliance with the terms of the permit. The permittee must provide appropriate laboratory controls and quality assurance procedures. Operation of backup systems is required only when needed to ensure compliance.
- **Permit Actions** 40 CFR part 122.41(f): The permit may be modified, revoked and reissued, or terminated for cause. A request by the permittee for a permit modification, revocation or reissuance, termination, or a notification of planned changes or anticipated noncompliance does not suspend the permittee's obligation to comply with all permit conditions.
- **Property Rights** 40 CFR part 122.41(g): The permit does not convey any property rights of any sort, or any exclusive privilege.
- **Duty to Provide Information** 40 CFR part 122.41(h): The permittee must furnish, within a reasonable time, any information needed to determine compliance with the permit or to determine whether there is cause to modify, revoke and reissue, or terminate the permit. The permittee also must furnish, on request, copies of records that must be kept as required by the permit.
- **Inspection and Entry** 40 CFR part 122.41(i): The permittee must, on presentation of valid credentials by the Director or his or her representative, allow entry into the premises where the regulated activity or records are present. The Director must have access to and be able to make copies of any required records; inspect facilities, practices, operations, and equipment; and sample or monitor at reasonable times.
- **Monitoring and Records** 40 CFR part 122.41(j): Samples must be representative of the monitored activity. The permittee must retain records for 3 years (5 years for sewage sludge activities) subject to extension by the Director. Monitoring records must identify the sampling dates and personnel, the sample location and time, and the analytical techniques used and corresponding results. Wastewater and sludge measurements must be conducted in accordance with Parts 136 or 503 or other specified procedures. Falsification of results is a violation under the CWA.
- **Signatory Requirement** 40 CFR part 122.41(k): The permittee must sign and certify applications, reports, or information submitted to the Director in accordance with the requirements in 40 CFR § 122.22. Knowingly making false statements, representations, or certifications is punishable by fines or imprisonment.
- **Planned Changes** 40 CFR part 122.41(l)(1): Notice must be given to the Director as soon as possible of planned physical alterations or additions to the facility (or both)

that could meet the criteria for determining whether the facility is a new source under 40 CFR part 122.29(b); result in changes in the nature or quantity of pollutants discharged; or significantly change sludge use or disposal practices.

- **Anticipated Noncompliance** 40 CFR part 122.41(l)(2): The permittee must give advance notice of any planned changes that could result in noncompliance.
- **Permit Transfers** 40 CFR part 122.41(l)(3): The permit is not transferable except after written notice to the Director. The Director may require modification or revocation and reissuance, as necessary.
- **Monitoring Reports** 40 CFR part 122.41(l)(4): [This standard condition is not applicable to CAFOs because CAFOs are not required to maintain and submit discharge monitoring reports (DMRs).]
- **Twenty-Four Hour Reporting** 40 CFR part 22.41(l)(6): The permittee must orally report any noncompliance that might endanger human health or the environment within 24 hours after becoming aware of the circumstances. Within 5 days of becoming aware of the circumstances, the permittee must provide a written submission including a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the anticipated time the noncompliance is expected to continue (if not already corrected); and steps taken to reduce, eliminate, or prevent reoccurrence unless the Director waives the requirement. In addition, 24-hour reporting is required for an unanticipated bypass exceeding effluent limits; an upset exceeding effluent limits; and a violation of a maximum daily effluent limitation for pollutants listed in the permit for 24-hour reporting.
- **Other Noncompliance** 40 CFR part 122.41(l)(7): The permittee must report all instances of noncompliance not reported under other specific reporting requirements at the time monitoring reports are submitted.
- **Other Information** 40 CFR part 122.41(l)(8): If the permittee becomes aware that it failed to submit any relevant facts in its application, or submitted incorrect information in its application or other reports, it must promptly submit such facts or information.
- **Bypass** 40 CFR part 122.41(m): The intentional diversion of wastestreams from any portion of a treatment facility. Bypass is prohibited unless the bypass does not cause the effluent to exceed limits and is for essential maintenance to ensure efficient operation (no notice or 24-hour reporting is required in such a case). All other bypasses are prohibited, and the Director of the NPDES program may take enforcement action against a permittee for a bypass, unless the bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; there was no feasible alternative; and the proper notification was submitted.
- **Upset** 40 CFR part 122.41(n): An upset (i.e., an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limits

because of factors beyond the permittee's control) can be used as an affirmative defense in actions brought against the permittee for noncompliance. An upset does not include noncompliance to the extent caused by operational error, improperly designed or inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation. The permittee (who has the burden of proof to demonstrate that an upset has occurred) must have operational logs or other evidence that shows

- When the upset occurred and its causes.
- The facility was being operated properly.
- Proper notification was made.
- Remedial measures were taken.

Reference

USEPA (U.S. Environmental Protection Agency). 1992. *NPDES Storm Water Program Question and Answer Document Volume 1*. EPA 833-F-93-002. U.S. Environmental Protection Agency, Washington, DC.

Endnotes

[1] Except that subpart B applies to operations with 5,000 or more ducks, and does not distinguish between dry and liquid manure handling systems.

[2] Appendix F, Voluntary Alternative Performance Standards for CAFOs presents an overview of the baseline requirements and the *voluntary performance* standards program, which includes a description of who can participate in the program and how participation in the program will affect existing NPDES CAFO permits, as well as a step-by-step description of the requirements associated with participation in the program.

[3] Including the additional measures and record-keeping requirements specified in 40 CFR parts 412.37(a) and (b).

[4] The discussion in this section does not address discharges that qualify as exempt agricultural stormwater. For a discussion of the agricultural stormwater exemption, see Section 4.1.8.

[5] See 40 CFR part 122.23(e), 68 FR 7176 at 7196 (February 12, 2003) and Revised NPDES Regulation and ELGs for CAFOs in Response to the Waterkeeper Decision, 73 FR 70418, 70434 (November 20, 2008).

[6] 73 FR 70434.