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States' Application Restrictions Statutes & Regulations: *Colorado*



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CO Rev Stat § 25-8-501.1
Rule 5 CCR 1002-61.13(4)(e)-(f)
CO Rev Stat § 25-8-205
Rule 5 CCR 1002-61.17(8)(f)(iv)
Rule 5 CCR 1002-81.6.(2)

The statutes and Constitution are current through the 2018 regular and special legislative sessions. The statutes are subject to changes by the Colorado Legislative Council.

CO Rev Stat § 25-8-501.1. Permit required for point source water pollution control – definitions – housed commercial swine feeding operations – legislative declaration.

(1) The people of the state of Colorado hereby find, determine, and declare that the advent of large housed commercial swine feeding operations in Colorado has presented new challenges to ensuring that the quality of the state's environment is preserved and protected. As distinguished from more traditional operations that historically have characterized Colorado's livestock industry, large housed swine feeding operations use significant amounts of process water for flushing and disposing of swine waste, commonly store this waste in large impoundments, and dispose of it through land application. The waste storage, handling and disposal by such operations are particularly odorous and offensive. The people further find that it is necessary to ensure that the storage and land application of waste by housed commercial swine feeding operations is done in a responsible manner, so as not to adversely impact Colorado's valuable air, land and water resources.

(2) As used in this section, unless the context otherwise requires:

(a) "Agronomic rate of application" means the rate of application of nutrients to plants that is necessary to satisfy the plants' nutritional requirements while strictly minimizing the amount of nutrients that run off to surface waters or which pass below the root zone of the plants, as specified by the most current published fertilizer suggestions of the Colorado state university cooperative extension



service for the plants, or most closely related plant type, to which the nutrients are applied.

(b) "Housed commercial swine feeding operation" means a housed swine feeding operation that is capable of housing eight hundred thousand pounds or more of live animal weight of swine at any one time or is deemed a commercial operation under local zoning or land use regulations. Two or more housed swine confined feeding operations shall be considered to comprise a single housed commercial swine feeding operation if they are under common or affiliated ownership or management, and are adjacent to or utilize a common area or system for manure disposal, are integrated in any way, are located or discharge within the same watershed or into watersheds that are hydrologically connected, or are located on or discharge onto land overlying the same groundwater aquifer.

(c) "Housed swine feeding operation" means the practice of raising swine in buildings, or other enclosed structures wherein swine of any size are fed for forty-five days or longer in any twelve-month period, and crop or forage growth or production is not sustained in the area of confinement.

(d) "Process wastewater" means any process-generated wastewater used in a housed commercial swine feeding operation, including water used for feeding, flushing, or washing, and any water or precipitation that comes into contact with any manure, urine, or any product used in or resulting from the production of swine.

(3) No person shall operate, construct, or expand a housed commercial swine feeding operation without first having obtained an individual discharge permit from the division.

(4) On or before March 31, 1999, the commission shall promulgate rules necessary to ensure the issuance and effective administration and enforcement of permits under this section by July 1, 1999. Such rules shall incorporate the preceding subsection (3) and shall, at a minimum, require:

(a) That the owner or operator of a housed commercial swine feeding operation must obtain division approval of construction, operations and swine waste management plans that, for any land waste application, includes a detailed agronomic analysis. Said plans shall employ the best available waste management practices, provide for remediation of residual soil and groundwater contamination, and ensure that



disposal of solid or liquid waste to the soil not exceed agronomic rates of application.

(b) That appropriate setbacks for maintaining water quality be established for land waste application areas and waste impoundments;

(c) That waste impoundments or manure stock piles shall not be located within a one-hundred-year floodplain unless proper flood proofing measures are designed and constructed;

(d) That the owner or operator of the housed commercial swine feeding operation shall provide financial assurances for the final closure of the housed commercial swine feeding operation, the conduct of any necessary post closure activities, the undertaking of any corrective action made necessary by migration of contaminants from the housed commercial swine feeding operation into the soil and groundwater, or cleanup of any spill or breach;

(e) That the owner or operator of a housed commercial swine feeding operation shall ensure that no solid or liquid waste generated by it shall be applied to land by any person at a rate that exceeds, in amount or duration, the agronomic rate of application; and

(f) That, because waste storage and disposal by housed commercial swine feeding operations pose particular jeopardy for state trust lands, in light of the mandate in the Colorado constitution, article IX, section 10, that state land board trust lands be held in trust and be protected and enhanced to promote long-term productivity and sound stewardship, the construction, operations and waste management plans approved for housed commercial swine feeding operations on such lands, shall not permit the degradation of the physical attributes or value of any state trust lands.

(5) Any spill or contamination by a housed commercial swine feeding operation shall be reported immediately to the division and the county or district public health agency for the county in which the housed commercial swine feeding operation is conducted, and, within twenty-four hours after the spill or contamination, a written report shall be filed with the division and the county or district public health agency for the county in which the housed commercial swine feeding operation is conducted.

(6) Housed commercial swine feeding operations shall submit to the division and the county or district public health agency quarterly, comprehensive monitoring reports and agronomic analyses that demonstrate that the operation has land-applied solid and liquid waste at no greater than



agronomic rates. The division shall require the sampling and monitoring of chemical and appropriate biological parameters to protect the quality and existing and future beneficial uses of groundwater including, at a minimum, nitrogen, phosphorus, heavy metals, and salts. At a minimum, the monitoring program shall include quarterly samples, analysis, and reporting of the groundwater, soils within the root zone, and soils beneath the root zone within each waste application site, and shall also include monitoring to ensure that no excessive seepage occurs from any waste impoundments.

(7) Repealed.

(8) The division shall enforce the provisions of this section and shall take immediate enforcement action against any housed commercial swine feeding operation that has exceeded the agronomic rate limit of this section. In addition, any person who may be adversely affected by a housed commercial swine feeding operation may enforce these provisions directly against the operation by filing a civil action in the district court in the county in which the person resides.

(9) These provisions shall not preclude any local government from imposing requirements more restrictive than those contained in this section.

Rule 5 CCR 1002-61.13(4). Requirements for Housed Commercial Swine Feeding Operations.

(a) Plan Submission and Compliance Requirements for Existing, New Existing Source, and New Source Facilities - Existing, new existing source, and new source housed commercial swine feeding operations shall submit the following information to the Division, by the dates identified below, for approval:

(i) A complete operations plan, as described in subsection 61.13 , shall be submitted no later than July 1, 1999;

(ii) Except for non-land application facilities, a complete swine waste management plan, as described in subsection 61.13 , shall be submitted no later than September 30, 1999. By December 31, 2006 the owner or operator of an existing source housed commercial swine feeding operation, which includes an operation that existed as of June 30, 2004, shall develop and implement a complete swine waste management plan in accordance with subsection 61.13 , as revised effective June 30, 2004. A new source operation, and an animal feeding operation that becomes a housed commercial swine feeding operation after June 30, 2004, shall develop and implement a complete swine waste management plan as of the date of permit coverage. A housed commercial swine feeding operation that was issued a permit by June 30, 2004, including



non-land application operations, shall submit to the Division for approval by May 30, 2006 a swine waste management plan that meets the requirements of subsection 61.13 , including the elements of subsections 61.13 , which were either revised or added effective June 30, 2004. Until such a plan is approved, an operation that was issued a permit by June 30, 2004 shall comply with its currently approved swine waste management plan.

(iii) A complete monitoring plan, as described in subsection 61.13 , shall be submitted no later than December 31, 1999; and

(vi) A complete financial assurance plan, as described in subsection 61.13, shall be submitted no later than December 31, 1999.

The Division may, with accompanying justification, request additional information from the permittee for any of these plans. Failure to provide such information, or justification acceptable to the Division as to why the plan meets the requirement of the respective section, will be grounds for revocation of the permit.

(b) Review and Approval of Plans for Existing Facilities.

(i) Plans submitted pursuant to subsection 61.13 shall be available for public review. Any person may submit written comments regarding the submitted plans within 30 days following the deadlines set forth in that subsection.

(ii) The permittee shall comply with the provisions of the plans submitted and approved under subsection 61.13 . The Division may amend or reissue the permit to include all or part of any approved plan as a condition of the permit.

(c) Facility Design and Construction Requirements.

(i) Evaporation impoundments shall be of sufficient capacity to retain any planned volume of liquid residual solids and the maximum design volume of swine feeding process wastewater produced during the continuous ten (10) year period of minimum net evaporation based on the entire period of record. Such impoundments shall also be capable of containing any planned volume of liquid residual solids and swine feeding process wastewater, including the runoff resulting from a 25-year, 24-hour storm, or if a new source facility, be capable of meeting the requirements set forth in 61.13(4)(d)(xvi)(B) below. The permittee shall confirm that these conditions have been met by conducting a water budget analysis and submitting that analysis with the design



calculations. For purposes of the water budget analysis, pan evaporation rates should be utilized.

(ii) Open surface impoundments and tanks which are used to treat, store, or evaporate swine feeding process wastewater shall have at least two feet of freeboard above the working liquid level.

(iii) Swine feeding process wastewater collection systems in housed units, swine feeding process wastewater conveyance systems, and impoundments and tanks which are used to treat, store, or evaporate swine feeding process wastewater shall be constructed and maintained such that the seepage rate from any such system, tank, or impoundment does not exceed 1×10^{-6} cm/sec.

(iv) Facilities for storage of swine feeding process wastewater and liquid residual solids shall be provided to account for periods during which land application cannot occur in accordance with subsection 61.13 , and to be capable of containing liquid residual solids and swine feeding process wastewater, including the runoff resulting from a 25-year, 24-hour storm or, if a new source facility, be capable of meeting the requirements set forth in 61.13(4)(d)(xvi)(B) below. For existing source facilities, the volume of storage to be provided may be based on a site-specific analysis. This analysis shall account for: the peak volume and concentration of swine feeding process wastewater that will be generated during the identified period; seasonal plant uptake rates; and on-site climatic data or off-site published climatic data. In lieu of such analysis, the permittee shall provide capacity to store the peak volume of swine feeding process wastewater that will be generated during a six-month period.

(v) Facility designs for new housed commercial swine feeding operations shall be prepared under the supervision of a professional engineer registered in the State of Colorado.

(I) Any reduction in swine feeding process wastewater pollutant concentrations as a result of treatment shall be supported by site-specific data or applicable published engineering or agricultural waste management principles and shall include consideration of any applicable odor control requirements.

(vi) Depth markers shall be installed in all open-surface impoundments and tanks to indicate the design volume (pursuant to subsection 61.13 and clearly indicate the two-foot freeboard elevation, and the minimum capacity necessary to contain the runoff and direct



precipitation of the 25-year, 24-hour storm event. At a minimum, depth markers should be clearly marked in one (1) foot increments.

(d) Operation and Maintenance Requirements

(i) Accumulations of solids shall be removed from the swine feeding process wastewater treatment, storage, and evaporation impoundments and tanks as necessary to ensure sufficient capacity to retain all swine feeding process wastewater produced during periods when land application or disposal operations cannot be conducted due to conditions which may preclude land application in accordance with subsection 61.13(4)(e).

(ii) Residual solids stockpile areas shall be constructed to ensure that all precipitation which comes in contact with the stockpiles is captured and diverted to appropriate swine feeding process wastewater treatment or evaporation facilities.

(iii) Swine feeding process wastewater collection systems in housed units and swine feeding process wastewater conveyance systems shall be operated and maintained to collect and convey peak flows without overflowing.

(iv) No land application of residual solids or swine feeding process wastewater shall occur on lands which are saturated or on land with a snow depth of greater than one inch.

(v) No land application of residual solids or swine feeding process wastewater shall occur on lands which are frozen unless a site-specific analysis demonstrates that runoff will not occur.

(vi) Land application of residual solids and swine feeding process wastewater shall not occur:

(A) More than 30 days prior to or subsequent to the normal growing season for the crop to which the wastewater is being applied; or

(B) Outside of the period March 1 through October 31; whichever is less restrictive, except pursuant to approved odor management, swine waste management, and monitoring plans.

(vii) Removal of solids or swine feeding process wastewater from an impoundment shall be accomplished in a manner that does not damage the integrity of the liner.



(viii) Operations shall be conducted in a manner that does not result in contamination of ground water or a discharge to surface water not specifically authorized by the permit.

(ix) Non-land-application facilities must identify a method of disposal of residual solids and swine feeding process wastewater other than by on-site or off-site land application. Such facilities shall also demonstrate that no discharge to surface waters shall occur.

(x) Weekly inspections shall be made in the production area of all freshwater run-on diversion devices, devices channeling contaminated stormwater to impoundments or tanks, runoff diversion structures, and impoundments and tanks. Such inspections of impoundments and tanks shall note the level of swine feeding process wastewater as indicated by the depth marker required under subsection 61.13(4)(c)(vi), above.

(xi) Daily inspections shall be made of water lines in the production area, including drinking water or cooling lines.

(xii) Any deficiencies found as a result of the daily and weekly inspections identified in subsections 61.13 , above, shall be corrected as soon as possible, but no later than 30 days of such a deficiency having been identified, unless factors preventing correction within 30 days have been documented.

(xiii) The owner or operator shall periodically inspect equipment used for land application of residual solids or swine feeding process wastewater.

(xiv) Mortality Handling - Mortalities must not be disposed of in any liquid residual solids or swine feeding process wastewater system, and must be handled in such a way as to prevent the discharge of pollutants to surface water, unless an alternative performance standard is approved by the Division that includes a technology designed to handle mortalities.

(xv) General Pretreatment Standards - Operations that introduce swine feeding process wastewater pollutants into publicly owned treatment works (POTW) must comply with 40 CFR 403.

(xvi) Effluent Limitations for housed commercial swine feeding operations (HCSFOs)

(A) Existing source operations



(I) Production areas - Except as provided in subsections 61.13 below, there shall be no discharge of residual solids or swine feeding process wastewater into surface water from the production area. Operations shall attain the limitations and requirements of this subsection 61.13 as of the date of permit coverage.

(1) Whenever precipitation causes an overflow of residual solids or swine feeding process wastewater, pollutants in the overflow may be discharged into surface water provided:

1) the production area is designed, constructed, operated, and maintained to contain all residual solids and swine feeding process wastewater, including the runoff and direct precipitation from a 25-year, 24-hour storm, at minimum;

2) the production area is operated in accordance with the production area best management practices specified in subsections 61.13 and 61.13 , and (xii), and the records specified in subsections 61.13(4)(j)(i), (ii), and (iii); and

3) the production area is operated and maintained in accordance with the provisions of subsection 61.13 not pertaining to land application.

(2) Where an operation has requested and the Division has approved effluent limitation based upon a site-specific alternative technology, pursuant to section 61.13(4)(d)(xvii)(A), below.

(II) Land application areas - Discharges from land application areas are subject to the following requirements.

(1) Develop and implement the swine waste management plan specified in section 61.13 and in accordance with the provisions of subsection 61.13 , and the best management practices specified in subsections 61.13(3)(f), 61.13(4)(e), and



61.13(4)(f).

(2) Maintain a complete copy of the information for the best management practices required at subsections 61.13 (ii)(B), (e)(ii)(C), and (e)(ii)(D), subsections 61.13 and 61.13 , and the records specified at subsections 61.13(4)(j), (j)(i), and (j)(iv).

(3) Comply with the land application provisions of subsection 61.13 . Operations shall attain the limitations and requirements of this subsection 61.13 as of the date of permit coverage.

(B) New source operations

(I) Production areas - Except as provided in subsections 61.13 of this section, there shall be no discharge of residual solids or swine feeding process wastewater into surface water from the production area. Operations shall attain the limitations and requirements of this section 61.13 as of the date of permit coverage.

(1) Best management practice effluent limitations included in the permit must address the HCSFO's entire production area. In the case of any HCSFO using open surface impoundments or tanks that are used to treat, store or evaporate swine feeding process wastewater for which the Division establishes such effluent limitations, "no discharge of manure, litter, or process wastewater pollutants," as used in this section, means that the storage structure is designed, operated, and maintained in accordance with best management practices established by the Division on a site-specific basis after a technical evaluation of the storage structure. The technical evaluation must address the following elements:

a. Information to be used in the design of the open surface impoundments or tanks including, but not limited to, the following: 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 HCSFO's Swine Waste Management Plan, additional storage capacity for swine feeding process wastewater intended to be transferred to another recipient at a later time, and any other factors that would affect the sizing of the open surface impoundments or tanks.

b. Open surface impoundments or tanks must be designed using procedures and/or software approved by the Division.

c. All inputs used in the open surface impoundment or tank design including actual climate data for the previous 30 years consisting of historical average monthly precipitation and evaporation values, the number and types of animals, anticipated animal sizes or weights, any added water and residuals, any other process wastewater, and the size and condition of outside areas exposed to rainfall and contributing runoff to the open surface impoundments or tanks. If actual climate data is not available, the best available data from the most proximate weather station(s), such as those utilized by the Colorado State University Colorado Climate Center or the National Oceanic and Atmospheric Administration should be used.

d. The planned minimum period of storage in months including, but not limited to, the factors for designing an open surface impoundment or tank as listed in paragraph (I)(1)(a) of this section. Alternatively the HCSFO may determine the minimum period storage by specifying times the storage pond will be emptied consistent with the



CSFO's Swine Waste Management Plan.

e. Site-specific predicted design specifications including dimensions of the storage facility, residual solids and daily swine feeding process wastewater additions, the size and characteristics of the land application areas, and the total calculated storage period in months.

f. Evaluation of the adequacy of the designed open surface impoundments or tanks must use evaluations and simulations approved by the Division. The evaluation must include all simulation inputs including, but not limited to, daily precipitation, temperature, and evaporation data for the previous 100 years, user-specified soil profiles representative of the HCSFO's land application areas, planned crop rotations consistent with the HCSFO's Swine Waste Management Plan, and the final modeled result of no overflows from the designed open surface impoundments or tanks. For those HCSFOs where 100 years of local weather data for the HCSFO's location is not available, HCSFOs may use a simulation with a confidence interval analysis conducted over a period of 100 years. The Division may approve equivalent evaluation and simulation procedures.

g. The Division may waive the requirement of (I)(1)(f) for a site-specific evaluation of the designed open surface impoundments or tanks and instead authorize a HCSFO to use a technical evaluation developed for a class of specific facilities within a specified geographical area.

h. Waste management and storage facilities designed, constructed, operated, and maintained consistent with the analysis conducted in paragraphs (I)(1)(a)



through (I)(1)(g) of this section and operated in accordance with the additional measures and records required in section 61.13 and 61.13, will fulfill the requirements of this section.

i. The Division has the discretion to request additional information to support a request for effluent limitations based on a site-specific open surface impoundment or tank.

(2) The production area must be operated in accordance with the additional measures and recordkeeping required in section 61.13(4)(d) and 61.13(4)(e).

(3) Provisions for upset/bypass, as provided in 61.8(3)(i) & (j), apply to a new source subject to this provision.

(II) Land application areas - Discharges from land application areas are subject to the following requirements.

(1) Develop and implement the swine waste management plan specified in subsection 61.13 and in accordance with the provisions of subsection 61.13, and the best management practices required in subsections 61.13 , 61.13 , and 61.13(4)(f). Operations shall attain the limitations and requirements of this subsection 61.13 as of the date of permit coverage.

(2) Maintain a complete copy of the information for the best management practices required by subsections 61.13 , and (e)(ii)(B), (e)(ii)(C), and (e)(ii)(D), subsections 61.13 and 61.13 , and the records specified at subsections 61.13 (i), and (j)(iv). Operations shall attain the limitations and requirements of this subsection 61.13 as of the date of permit coverage.

(3) Comply with the land application provisions of subsection 61.13 . Operations shall attain the limitations and requirements of this subsection 61.13 (d)(xvi)(B)(II)(3) as of the date of permit coverage.

(xvii) Voluntary Alternative Performance Standards.



The owner or operator of a housed commercial swine feeding operation may voluntarily request the Division to establish alternative Colorado Discharge Permit System effluent limitations based upon the operation's proposed use of site-specific alternative technologies. The request shall include the information specified below. The operator shall attain the limitations and requirements of subsection 61.13 , as of the date of permit coverage.

(A) Existing Source Housed Commercial Swine Feeding Operations - A supporting technical analysis and any other relevant information and data that would support such site-specific effluent limitations within the time frame provided by the Division. The supporting technical analysis and other relevant information and data shall consist of, but not be limited to, the following.

(I) Information about the proposed innovative technology that includes, but is not limited to, the following:

(1) A description of the technology, manufacturer's name and contact information;

(2) How swine feeding process wastewater and residual solids will be treated using the proposed innovative technology;

(3) The reason for and goal of using the technology;

(4) A summary and supporting documents of any research and non-research results that document the performance of the technology;

(5) Information about any deviation from research and non-research conditions, and the anticipated impacts of such deviations on the performance of the proposed innovative technology;

(II) Results from use of an appropriate technical analysis that calculates the following for discharges from the existing facility, unless an alternative evaluation method is approved by the Division. The calculations shall be based on a site-specific analysis of a storage system designed, constructed, operated, and maintained to contain all residual solids and swine feeding process wastewater, including runoff from a 25-year, 24hour



storm. The calculations shall also be based on all daily inputs to the storage system, including residual solids, all swine feeding process wastewater, direct precipitation, and runoff, and all daily outputs from the storage system, including losses due to evaporation, sludge removal, and the removal of swine feeding process wastewater for use on cropland at the operation or transported off site.

(1) A calculation determining the predicted median annual overflow volume from the production area based on a 25-year period of actual rainfall data applicable to the site.

(2) Site-specific pollutant data for the housed commercial swine feeding operation, including colonies of fecal coliform and Escherichia coli, and the mass of ammonia, phosphorus, biological oxygen demand (BOD 5), total suspended solids (TSS), chemical oxygen demand (COD), total organic carbon (TOC), temperature, pH, total dissolved solids (for discharges to the Colorado River System only), and other constituents required by the Division. The pollutant data shall be the result of representative sampling and analysis of all sources of input to the storage system, or other appropriate pollutant data.

(3) A predicted annual average discharge of the pollutants identified in subsection 61.13 above, expressed where appropriate as a mass discharge on a daily basis (lbs/day), and calculated considering paragraphs 61.13 and 61.13(4)(d)(xvii)(A)(II) (1) and (2), above.

(III) Results from an appropriate analysis that provides the following for the proposed innovative technology:

(1) A prediction of the median annual discharge volume of swine feeding process wastewater that will occur over the same 25-year period identified in subsection 61.13(4)(d)(xvii)(A)(II), above.

(2) A prediction of the annual average discharge of pollutants identified in



subsection 61.13 above that will be associated with the discharges specified in subsection 61.13(4)(d)(xvii)(A)(III)(1), above.

(3) A demonstration that the proposed innovative technology will achieve a quantity of pollutants discharged from the production area equal to or less than the quantity of pollutants calculated pursuant to subsection 61.13(4)(d)(xvii)(A)(II)(3), above.

(IV) Documentation that provides the rationale and justification for the models and analysis that were used to address subsections 61.13 above, and for conclusions made. The Division may, with accompanying justification, request additional information from the operation for the proposed innovative technology, which may include an on-site inspection.

(V) A plan for implementing the innovative technology, including quality assurance practices that the permittee will use to ensure the proper functioning of the innovative technology, and an approach for monitoring performance.

(B) Where the frequency of discharges to surface waters under alternative performance standards is greater than that from a 25-year, 24-hour storm, as applicable, water quality standards-based effluent limits for pollutants in such discharges shall be set pursuant to the requirements of subsection 61.8(2)(b).

(C) Where the frequency of discharges to surface waters under alternative performance standards is greater than that from a 25-year, 24-hour storm, as applicable, discharges shall be monitored, recorded, and reported pursuant to the requirements of subsection 61.8(4).

(e) Swine Waste Management Land Application Requirements

(i) The disposal or land application of all residual solids and swine feeding process wastewater produced at the facility, whether put to beneficial use on-site or transported off-site, must minimize phosphorus and nitrogen transport from the land application sites to surface waters and shall be in accordance with the approved swine waste management plan.



(ii) The owner or operator of a housed commercial swine feeding operation shall ensure that no residual solids or swine feeding process wastewater generated by it shall be applied to land by any person at a rate that exceeds, in amount or duration, the agronomic rate of application. The agronomic rate of application shall be as specified by the most current published fertilizer suggestions of Colorado State University Cooperative Extension for the plants, or most closely related plant type, to which the nutrients are applied and:

(A) No application of residual solids or swine feeding process wastewater shall be made to lands if the soil nitrate level and other appropriate nitrogen credits (as specified by Colorado State University Cooperative Extension) in the agronomic root zone exceed the agronomic rate of nitrogen application for the crop to be grown;

(B) Application rates of residual solids and swine feeding process wastewater shall be based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic yield goals, while minimizing nitrogen and phosphorus movement to surface waters.

(C) Residual solids, swine feeding process wastewater, and soils shall be sampled and analyzed quarterly for nitrogen and phosphorus content, in accordance with the monitoring requirements specified in subsection 61.13 . The results of these analyses are to be used in determining application rates for residual solids and swine feeding process wastewater.

(D) Assessments shall be made for each land application site of the potential for phosphorus and nitrogen transport from the site to surface waters and that address the form, source, amount, timing, and method of application of nitrogen and phosphorus to achieve realistic yield goals, while minimizing nitrogen and phosphorus movement to surface water. Phosphorus transport risk assessments shall be made using a transport risk-screening tool approved by the Division and that is current, readily available, peer-reviewed, and appropriate for use in Colorado. The screening tool shall provide for off-site transport risk scores of either low, medium, high, or very high. An initial assessment of the potential for nitrogen transport to



surface water shall be made prior to residual solids or swine feeding process wastewater being applied to an application site after the operator implements the swine waste management plan that meets the requirements of subsection 61.13, as revised effective June 30, 2004.

(I) After an initial assessment is made of the potential for phosphorus an/or nitrogen transport from a land application site to surface water, additional assessments shall be made at the following frequency, whichever is sooner:

(1) Of both phosphorus and nitrogen transport risk, every five (5) years; or

(2) Where a crop management change has occurred, assess phosphorus transport risk within one (1) year after a crop management change would reasonably result in an increase in the phosphorus transport risk assessment score, and assess nitrogen transport risk within one (1) year after such a change would reasonably result in the nitrogen transport to surface water not being minimized; or

(3) Where the top one foot of soil on an application site exceeds 80 mg/kg of sodium bicarbonate extractable phosphorus and the phosphorus transport risk assessment score was very high, assess phosphorus transport risk within six (6) months of intending to apply residual solids or swine feeding process wastewater.

(4) Where a nitrogen transport risk assessment reveals that nitrogen transport to surface waters is not minimized, assess nitrogen transport risk within six (6) months of intending to apply residual solids or swine feeding process wastewater.

(II) No application of swine feeding process wastewater or residual solids shall be made to a land application site if the sodium bicarbonate extractable phosphorus in the top one-foot of soil exceeds 80 mg/kg, unless the off-site phosphorus transport risk score for the site is high or less.



(III) No application of residual solids or swine feeding process wastewater shall be made to a land application site where the risk of off-site nitrogen transport is high or very high.

(IV) Where a multi-year phosphorus application was made to a land application site, no additional residual solids or swine feeding process wastewater shall be applied to the same site in subsequent years until the applied phosphorus has been removed from the site via harvest and crop removal.

(E) If the soil nitrate-nitrogen level in the four- to six-foot or six- to eight-foot increment within the monitoring zone exceeds the comparative concentration, established in accordance with subsection 61.13 , by greater than ten milligrams per kilogram, the permittee will be presumed to have exceeded the agronomic rate of application and shall notify the Division in writing of this exceedance within 30 days of discovering it.

(I) The permittee shall, in consultation with the Division, develop and submit to the Division within ninety (90) days of discovering the exceedance an approvable intervention protocol, unless an extension of time is granted by the Division. The intervention protocol shall describe adjustments to the swine waste management plan that provide for strict minimization of future nitrogen loading within the monitoring zone. The Division may specify that appropriate measures for the purpose of remediating excessive nitrogen within the monitoring zone be included in the protocol.

(II) The protocol shall be implemented by the permittee within 30 days of it being approved by the Division. If remediation measures in an approved intervention protocol are not being implemented in accordance with the protocol, application of swine feeding process wastewater and/or residual solids to the applicable land application site shall immediately cease.

(III) The agronomic rate of application shall not be presumed to have been exceeded and the intervention protocol shall not be required if the results of confirmation sampling pursuant to a procedure



approved by the Division demonstrate that the comparative concentration has not been exceeded by greater than ten milligrams per kilogram, or if the permittee submits to the Division a report that adequately documents that a force majeure was the cause of the nitrate-nitrogen exceedance. This report shall be submitted for approval no later than 30 days after discovering an exceedance caused by a force majeure event.

(IV) Status of intervention protocol activities shall be documented in quarterly monitoring reports.

(iii) All land application activities at housed commercial swine feeding operations shall be conducted in a manner that does not result in impairment of existing beneficial uses of state waters or exceedances of applicable water quality standards for surface water or ground water.

(iv) Where land application sites are not supporting active plant growth:

(A) Applications of swine feeding process wastewater and residual solids shall not at any time cause soil nitrate levels and other appropriate nitrogen credits in the agronomic root zone to exceed the agronomic rate for the upcoming growing season for the crop for which the solids or wastewater is applied.

(B) Swine feeding process wastewater and residual solids shall not be applied to land not supporting active plant growth except as provided under an approved Swine Waste Management Plan that includes appropriate best management practices for such applications. Best management practices shall be specified in a guidance document cooperatively developed by the Division and stakeholders, and presented in a public hearing before the Water Quality Control Commission.

(v) Swine feeding process wastewater and residual solids produced at housed commercial swine feeding operations which are applied to land shall not exceed the cumulative pollutant loading limits for heavy metals as set forth in Table 1, below. Cumulative metal loading limits shall be calculated as the product of the total elemental analysis (concentration) of the residual solids and swine feeding process wastewater and the quantity of residual solids and volume of swine feeding process wastewater applied, respectively. Compliance with cumulative pollutant loading limits shall be documented by the permittee in reports submitted in accordance with subsection 61.13 . Documentation



shall consist of data which quantifies cumulative loadings of the heavy metals to each land application site. If the cumulative loading limit specified in Table 1 is reached, no further residual solids or swine feeding process wastewater will be applied to the application site.

TABLE 1. CUMULATIVE POLLUTANT LOADING LIMITS, kg/ha (lbs/ac)

Arsenic	41 (37)
Cadmium	39 (35)
Copper	1500 (1339)
Lead	300 (268)
Mercury	17 (15)
Nickel	420 (375)
Selenium	100 (89)
Zinc	2800 (2499)

(vi) Any reduction in swine feeding process wastewater concentrations as a result of losses subsequent to swine feeding process wastewater treatment and prior to land application shall be supported by site-specific data or applicable published engineering or agricultural waste management principles and shall be in accordance with the approved odor management plan.

(vii) Land application practices shall be managed to ensure that no residual solids or swine feeding process wastewater are discharged to waters of the state or beyond the property boundary of the application site.

(f) Water Quality Setbacks - Water quality setbacks shall be established for housed commercial swine feeding operations such that swine feeding process wastewater collection systems in housed units, swine feeding process wastewater conveyance, treatment, storage, and evaporation structures, land application sites, and residual solids stockpiles and impoundments, shall not be located:

(i) Within ten feet vertically of the seasonally high ground water level as determined in the monitoring plan;

(ii) Up-gradient and within 300 feet of a reservoir classified for Class I Recreational Use by the Water Quality Control Commission;

(iii) For land application systems only, within 200 feet of any body of surface water, including intermittent streambeds when



standing or running water is present in the streambed, unless land application is made by either subsurface injection, or by surface application which is followed by incorporation within 48 hours, weather permitting, or the swine waste management plan describes measures which will be implemented to prevent runoff from the application site into the water body;

(iv) Within 50 feet of any body of surface water, including intermittent streambeds when standing or running water is present in the streambed;

(v) Within 150 feet of a private domestic water supply well or within 300 feet of a community domestic water supply well; and

(vi) For treatment, storage, and evaporation impoundments and residual solids stockpiles, only, within a 100-year floodplain as identified in accordance with subsection 61.13 , unless proper flood proofing measures (structures) are designed and constructed.

(vii) An existing housed commercial swine feeding operation may obtain a variance from one or more of these setback requirements for aspects of the operation that were constructed as of March 10, 1999, other than land application sites, if the permittee demonstrates to the satisfaction of the Division that its facilities or structures do not pose a risk to the quality of waters of the state that bears a reasonable relationship to the cost of compliance with the setbacks requirements.

(g) State Trust Lands

(i) In accordance with the mandate in the Colorado Constitution, Article IX, Section 10, that state land board trust lands be held in trust and be protected and enhanced to promote long-term productivity and sound stewardship, the construction, operation and waste management plans approved for housed commercial swine feeding operations on such lands shall not permit the degradation of the physical attributes or value of any state trust lands.

(ii) In order to prevent degradation of the physical attributes or value of any state trust lands relating to water quality:

(A) For new facilities and for new land application sites at existing operations that have never received swine feeding process wastewater or residual solids concentrations of nitrogen, phosphorus, heavy metals and salts in the soil within the agronomic root zone and monitoring zone, and the ground water below state trust lands shall not exceed levels



identified as background conditions pursuant to subsection 61.13(3)(g)(iii)(A);

(B) For existing facilities where the permit has expired, lapsed, or otherwise has not been valid for two years or more, or where housed commercial swine feeding operation activities have not occurred for two years or more, concentrations of nitrogen, phosphorus, heavy metals and salts in the soil within the agronomic root zone and monitoring zone, and the ground water beneath state trust lands shall not exceed levels identified as baseline conditions pursuant to subsections 61.13(4)(j)(i) and 61.13(3)(g)(ii)(E), respectively;

(C) Swine feeding process wastewater collection systems in housed units, swine feeding process wastewater conveyance systems, and impoundments which are used to treat, store, or evaporate swine feeding process wastewater shall be constructed and maintained such that the seepage rate from any such system or impoundment does not exceed 1×10^{-7} cm/sec;

(D) Closure of operations on state trust lands shall include revegetation of the site in a manner that prevents erosion; and

(E) Monitoring conducted shall be sufficient to demonstrate compliance with subparagraphs (A) and (B), above.

(iii) The Division shall provide an adequate opportunity for the State Land Board to review and comment upon all construction, operations, swine waste management, monitoring, and financial assurance plans submitted for housed commercial swine feeding operations on state trust lands.

(iv) The Division shall consider any comments received from the State Land Board in its review and consideration of these plans. The Division shall not approve any plan if the State Land Board determines that the plan would permit the degradation of the physical attributes or value of any state trust lands.

(h) Financial Assurance Requirements - Valid financial assurance shall be a condition of conducting a housed commercial swine feeding operation. However, nothing in these regulations shall relieve the permittee of liability for closure, post-closure, and corrective action costs. Violation of any of the financial assurance requirements of these regulations shall be cause for the denial or revocation of the permit.



(i) The applicant or permittee shall provide financial assurances for the final closure of the housed commercial swine feeding operation and the conduct of any necessary post-closure activities, such that any contamination resulting from actions after the effective date of this regulation is remediated and future contamination is avoided.

(ii) If required by the Division, based on evidence that conditions create a reasonable potential for the housed commercial swine feeding operation to cause contamination, the applicant or permittee shall provide financial assurances for any corrective action made necessary by such contamination.

(iii) The financial assurance instruments shall be in the amounts determined in the approved financial assurance plan, or as otherwise required by the Division in accordance with subsection 61.13(4)(h)(vi)(B-C).

(iv) A financial assurance instrument shall meet the requirements of subsection 61.13 and of Regulation No. 66, as applicable to the instrument.

(v) Financial assurance instruments for new housed commercial swine feeding operations must be approved by the Division before the permit will be issued, and shall meet the requirements of subsections 61.13(4)(h)(iii-iv).

(vi) The permittee of an existing housed commercial swine feeding operation shall provide a financial assurance instrument(s) within 90 days following the Division's approval of a new or revised financial assurance plan as described in subsection 61.13 within 90 days following the Division's approval of a new or revised financial assurance plan as described in subsection 61.13 . Such a financial assurance instrument(s) shall meet the requirements of subsections 61.13(4)(h)(iii-iv).

(A) Failure to provide the approved amount of financial assurance shall be a violation of the permit and may be cause for revocation of the permit.

(B) Where the Division has found a financial assurance plan to be incomplete, and the permittee is either not working in good faith to submit an approvable plan or does not respond to the Division's comments regarding the plan within a reasonable time, the Division may require that interim financial assurance be provided until such time as the financial assurance plan is approved.



(C) Before requiring interim financial assurance, the Division shall provide the permittee written notice of the deficiencies and an opportunity to cure those deficiencies within ninety (90) days of the written notice. If the period to cure expires without the permittee resolving the deficiencies, and an extension of time has not been granted by the Division, the amount of interim financial assurance required shall be established by the Division, based on relevant information related to the permittee.

(vii) The permittee shall review and update its approved financial assurance instruments each year in accordance with a schedule established in the permit. The amount of the financial assurance for closure and post-closure, and for any applicable corrective action, shall be recalculated annually by the permittee, as required in the permit, and shall account for inflation or deflation by using the most recent Implicit Price Deflator for Gross Domestic Product or its successor as published by the U.S. Department of Commerce. The recalculated amount shall also reflect any changes in the operation pertinent to the cost of closure, post-closure or required corrective action to address contamination. Provided, that for any year in which there have been no changes in the operation pertinent to the cost of closure, post-closure, or required corrective action and cumulative inflation as calculated above does not exceed 5% since the last update of the financial assurance instruments, no further update of the financial assurance instruments is required.

(A) In accordance with the schedule established in the permit, the permittee shall submit to the Division a report that, at minimum, documents that the review and update required above was conducted, explains how the review and update was done, informs who conducted the review and update, informs what the calculated cumulative inflation value is, and informs whether calculated cumulative inflation value exceeded 5% since the last update of the financial assurance instruments.

(B) The permittee shall have 90 days to provide a financial assurance instrument(s) for any increased amount of financial assurance, as required, after receipt of notification that the revised cost estimates have been approved by the Division. Such a financial assurance instrument(s) shall meet the requirements of subsections 61.13(4)(h)(iv).



(C) Failure to provide any increased amount of financial assurance, as required, shall be a violation of the permit and may be cause for revocation of the permit.

(viii) If at any time the Division determines that a permittee has insufficient financial assurance it shall notify the permittee.

(A) The permittee shall have 90 days, after receipt of the notification by the Division, to recalculate its financial assurance and provide a financial assurance instrument(s) for any increased amount of financial assurance, as required. Such a financial assurance instrument(s) shall meet the requirements of subsections 61.13(4)(h)(iii-iv).

(B) Failure to provide any increased amount of financial assurance, as required, shall be a violation of the permit and may be cause for revocation of the permit.

(ix) All financial assurance instruments shall be approved by the Division before being accepted.

(x) Subject to approval by the Division, the applicant or permittee shall use one or more of the following financial instruments to satisfy assurance requirements:

(A) One or more of the following instruments that meet the provisions of Regulation No. 66: irrevocable standby letter of credit; trust fund; surety bond; insurance; financial test; and/or written guarantee.

(B) Other instruments approved by the Division that meet the following requirements, except where the Division determines that the requirements of subsections (I) and/or (IV) are not applicable:

(I) An alternative instrument provides for the establishment of a standby trust that meets the requirements of Regulation No. 66.

(II) The issuing institution of an alternative instrument must have the authority to issue that instrument, and its operations shall be regulated and examined by a federal or state agency.



(III) The issuing institution of an alternative instrument must waive all rights and set off or liens against that instrument.

(IV) An alternative financial assurance instrument must contain a term that provides that the instrument cannot be cancelled by the issuer of the instrument, unless 90 days prior written notice is given to the Division and the Division gives written consent.

(V) Uses wording approved by the Division.

(xi) The permittee shall immediately notify the Division of any notice received or action filed alleging the insolvency or bankruptcy of an institution that issued to the permittee a financial assurance instrument, or alleging any violations of regulatory requirements that could result in suspension or revocation of the issuing institution's charter or license to do business.

(A) In the event the permittee becomes aware that an issuing institution is unable to fulfill its obligations under a financial assurance instrument for any reason, notice shall immediately be given to the Division.

(B) The permittee shall have 90 days from the date of providing notice to the Division as required under subsection 61.13 to submit a financial assurance instrument(s) that replaces the required amount of financial assurance.

(C) Failure to provide any substitute or replacement financial assurance, as required, shall be a violation of the permit and may be cause for revocation of the permit.

(xii) Release of an approved financial assurance instrument - The Division will give written consent that a permittee or an institution that issued an instrument may, prior to closure, post-closure, and corrective action activities beginning at a permitted facility(ies), terminate an approved financial assurance instrument(s) when subsections (A) and (B) below have been satisfied, and/or the applicable provisions of Regulation No. 66 for the instrument(s) have been satisfied:

(A) A permittee or institution that issued an instrument gives to the Division 90 days prior written notice of its request that a financial assurance instrument(s) be released.



(B) The permittee has provided a substitute financial assurance instrument(s) for the same amount of financial assurance that was provided by the instrument(s) requested to be released. Such a substitute instrument(s) must meet the requirements of subsections 61.13(4)(h)(iii)-(iv).

(xiii) Release of the Permittee from the Requirements for Financial Assurance - When closure, post-closure, and corrective actions required by a permit are complete or partially complete, financial assurance shall be released by the Division as follows:

(A) When the Division determines that initial closure activities have been completed for an operation, financial assurance, less identified retainages, shall be released.

(B) A sufficient amount of financial assurance shall be retained to pay for estimated costs of post-closure remediation activities. This portion of the financial assurance shall be held for a period of at least three (3) years after initial housed commercial swine feeding operation closure activities are completed, unless the Division determines that a shorter period of time is appropriate.

(C) The Division may release portions of the corrective action financial assurance for remediation of residual soil contamination, remediation of ground water contamination, or clean-up of any spill or breach when it determines that identified phases of required corrective action have been satisfactorily completed, less any retainages for completion of remaining requirements, such as confirmatory monitoring. Any amount remaining following final satisfactory completion of corrective action shall be released to the permittee.

(D) Release of any amounts of financial assurance shall not release the permittee or other responsible person from any responsibility for meeting closure or corrective action requirements.

(E) When the Division determines that the provisions of Regulation No. 66 that address reimbursement of financial assurance have been satisfied, as applicable to the permittee's approved financial assurance instrument(s).

(xiv) Forfeiture of Bond or Other Form of Financial Assurance.



(A) The Division may initiate financial assurance forfeiture after notice to the permittee and any surety that the permit has been violated and that there is a reasonable likelihood that the closure, post-closure, or corrective action obligations of the permittee will not be met.

(B) The Division will direct the expenditure of forfeited funds to remedy and abate the circumstances for which any financial assurance was required.

(C) Use of all financial assurance shall not relieve the permittee or other responsible parties from responsibility and liability for closure, post-closure, and corrective action costs. The Colorado Attorney General may bring suit to recover any costs incurred by the state for closure, post-closure or corrective actions not covered by collected financial assurance monies.

(i) Spills and Contamination

(i) Any spill or contamination by a housed commercial swine feeding operation shall be reported immediately by the permittee to the Division and the county health department for the county in which the housed commercial swine feeding operation is conducted, by telephone, electronic facsimile or other means as specified by the Division in the permit.

(ii) A written report shall be submitted by the permittee so that it is received by the Division and the county health department for the county in which the housed commercial swine feeding operation is conducted within 24 hours after the spill or contamination occurs.

(iii) The permittee shall take immediate action to clean-up all spills so that impacts to soils, surface water or ground water are minimized to the greatest extent practicable. The permittee shall submit a report to the Division which describes the nature of the spill, any initial action taken to clean-up the spill, and any additional action that may be necessary to ensure that the spill does not result in permanent contamination of soils, surface water, or ground water. This report shall be submitted to the Division for approval no later than five working days after the spill occurs.

(iv) If it is determined that remediation of any spill or contamination by a housed commercial swine feeding operation cannot be completed within sixty days, the permittee may be required to undertake corrective action as specified by the Division. In such an instance,



the Division may require adjustment of financial assurance as required in subsection 61.13(4)(h)(ii).

(v) The requirements of this subsection 61.13 shall not apply to spills that qualify as "de minimis" relative to the site-specific conditions, in accordance with a site-specific interpretation of "de minimis" proposed by the permittee and approved by the Division.

(j) Recordkeeping

Housed commercial swine feeding operations shall maintain on-site a copy of its most current swine waste management plan and make it available to the Division or its designee, upon request. In addition, the operation shall create, and maintain on-site for five years from the date they are created, and make available to the Division or its designee, upon request, the following complete records:

(i) All applicable records identified in the swine waste management plan, pursuant to subsection 61.13(3)(f)(xvi);

(ii) The completed permit application required pursuant to subsection 61.13(3);

(iii) The following complete records for the production area:

(A) Records documenting the visual inspections required under subsections 61.13(4)(d)(x) and (xi);

(B) Weekly records of the depth of residual solids and swine feeding process wastewater in liquid impoundments and terminal storage tanks as indicated by the depth marker required under subsection 61.13(4)(c)(vi);

(C) Records documenting any actions taken to correct deficiencies required under subsection 61.13. Deficiencies not corrected within 30 days shall be accompanied by an explanation of the factors preventing immediate correction;

(D) Records of mortalities management and practices used to meet the requirements of subsection 61.13(4)(d)(xiv);

(E) Records documenting the current design of any residual solids or swine feeding process wastewater storage structure, including volume of residual solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity; and



(F) Records of date, time, and estimated volume of any overflow.

(iv) The following complete records for land application sites:

(A) Expected crop yields;

(B) The date(s) residual solids or swine feeding process wastewater is applied to each field;

(C) Weather conditions at the time of land application and for 24 hours prior to and following land application;

(D) Test methods used to sample and analyze residual solids, soils, and swine feeding process wastewater;

(E) Results from residual solids, swine feeding process wastewater, and soil sampling and analysis;

(F) Explanation of the basis for determining residual solids and swine feeding process wastewater application rates, as provided in the swine waste management plan required under subsection 61.13(3)(f);

(G) Calculations showing the total nitrogen and phosphorus that will be applied to each land application site, including sources other than residual solids or swine feeding process wastewater;

(H) Total amount of nitrogen and phosphorus actually applied to each field, including documentation of calculations for the total amount applied;

(I) The method used to apply the residual solids or swine feeding process wastewater; and

(J) Date(s) of inspections of residual solids and swine feeding process wastewater land application equipment.

(k) Monitoring and Reporting for Impoundments and Land Application Activities

(i) Housed commercial swine feeding operations shall provide baseline information which establishes concentrations of nitrate-nitrogen and ammonium-nitrogen in the soils within the agronomic root zone and monitoring zone in each land application site identified in the swine waste management plan. Information shall also be provided which establishes the concentrations of phosphorus in the top one-foot increment of soil in each land application area identified in the swine waste management plan. Baseline concentrations shall be



reestablished by an existing operation where the permit has expired, lapsed, or otherwise has not been valid for two years or more, or where housed commercial swine feed operation activities have not occurred for two years or more.

(ii) For the purposes of subsection 61.13 , the comparative concentration shall be equal to the lesser nitrate-nitrogen concentration value of the following:

1) the baseline concentration determined pursuant to subsection (i), above; or,

2) the concentration found within the respective four- to six-foot or six- to eight-foot soil increment, as applicable, in the soil sample just prior to the most recent soil sample that was taken from below the land application site. Where the nitrate-nitrogen concentration in the most recent soil sample exceeds the comparative concentration by greater than ten milligrams per kilogram (as provided in subsection 61.13) as the result of the agronomic rate of application having been exceeded, the succeeding comparative concentration for the applicable land application site shall be equal to the most recent comparative concentration plus 10 milligrams per kilogram, or the baseline nitrate-nitrogen concentration, whichever is less.

(iii) Housed commercial swine feeding operations shall provide baseline information representative of normal operating conditions which establishes concentrations of specific constituents including, but not limited to, nitrogen species, phosphorus, heavy metals, and salts present in the residual solids or swine feeding process wastewater as a result of the housed commercial swine feeding operation. Existing operations shall provide this information as a part of their initial swine waste management plan. New operations shall provide this information in accordance with a schedule of compliance established in their permit. The permittee shall provide a new assessment of these constituents whenever changes to the operation occur that could significantly change the concentrations of these constituents in the residual solids or swine feeding process wastewater;

(iv) Housed commercial swine feeding operations are subject to the monitoring, recording, and reporting conditions found at subsections 61.8(4)(a)-(d), (f)-(m) and (p).



(v) Housed commercial swine feeding operations shall submit, to the Division and the county health department, the following reports:

(A) Quarterly comprehensive monitoring reports and agronomic analyses that demonstrate that the operation has land applied residual solids and swine feeding process wastewater at no greater than agronomic rates. The reports shall include, but not limited to, the results and underlying data for all soil, residual solids, swine feeding process wastewater, ground water quality, and vegetative nutrient analyses as required by the permit or Monitoring Plan. The report shall include results and underlying data for impoundment seepage monitoring and soil nitrogen intervention protocol activities as required by the Division. The reports, except for intervention protocol activity information, shall be prepared on the latest version of forms supplied by the Division.

(B) Annually, one of the quarterly reports, as specified by the Division, shall include the following additional information:

(I) The maximum number of swine that have been housed at each site during the previous twelve (12) months;

(II) The estimated amount of total residual solids and swine feeding process wastewater generated in the previous twelve (12) months (tons/gallons);

(III) The estimated amount of total residual solids and swine feeding process wastewater permittee transferred to third parties in the previous twelve (12) months (tons/gallons);

(IV) The total number of acres for land application covered by the current swine waste management plan;

(V) The total number of acres of land application sites that were used for application of residual solids and swine feeding process wastewater in the previous twelve (12) months;

(VI) A summary of all residual solids and swine feeding process wastewater discharges from the production area that have occurred in the previous twelve (12) months, including date, time, and approximate volume;



(VII) A statement indicating whether the current version of the swine waste management plan was developed or approved by a certified nutrient management planner.

(vi) The permittee shall sample and monitor chemical and appropriate biological parameters identified by the Division as necessary to protect the quality and existing and future beneficial uses of ground water including, at a minimum, nitrogen species, phosphorus, heavy metals, and salts. At a minimum, the monitoring program shall include analysis and reporting of parameters in the ground water, soils within the agronomic root zone and monitoring zone within each land application site, swine feeding process wastewater, and residual solids. The nitrogen species monitored in soils shall be nitrate-nitrogen and ammonium-nitrogen within the agronomic root zone and nitrate-nitrogen within the monitoring zone.

(A) Monitoring of soils shall be on a quarterly basis, except when this frequency is not practicable due to:

- 1) physical conditions (e.g., frozen or saturated ground);
- 2) the potential for excessive damage to crops; or
- 3) when applications of swine feeding process wastewater or residual solids to specific land sites will not be made for at least three consecutive quarters. If a quarterly soil sample was not taken of a land application site for any of these three reasons, the permittee shall inform the Division of this fact in their quarterly report, and specify the reason for the sample not having been taken. When application of swine feeding process wastewater or residual solids has not been conducted for three consecutive quarters, soil monitoring shall occur within 90 days after the crop to which applications were made is harvested or goes dormant, and for subsequent quarters as required by the Division, based on the nitrogen values observed in the post-harvest soil tests. The permittee shall timely notify the Division in their quarterly reports of their intention not to apply solids or wastewater to specific land application sites for at least three consecutive quarters.

(B) The Division may waive monitoring requirements for salts and sodium bicarbonate extractable phosphorus below the one foot soil depth and in ground water if it is demonstrated by



the permittee, based upon such information as requested by the Division, that there is no reasonable potential of contamination from such constituents at the permitted facility.

(C) The Division may waive monitoring requirements for any of the constituents identified in Table 1 in subsection 61.13 if it is demonstrated by the permittee, based upon such information as requested by the Division, that there is no reasonable potential of contamination from such constituents at the permitted facility.

(D) The program shall also include monitoring to ensure that no seepage occurs from any waste impoundments in excess of those rates established in subsection 61.13(4)(c)(iii) or 61.13(4)(g)(ii)(C), as applicable.

(E) Monitoring of ground water beneath each land application site shall be accomplished by sampling and analyzing on a quarterly basis the ground water in monitoring wells that are in locations identified in the monitoring plan, subsection 61.13. Such monitoring shall not be required for land application sites for which the permittee submits, and the Division approves:

- 1) information documenting that ground water does not exist beneath a land application site;
- 2) information documenting that an impermeable geological layer exists beneath a land application site, and above the shallowest aquifer located beneath the land application site; or
- 3) a completed analysis of one-dimensional transport of water within the vadose zone of the land application site, using a transport model, mathematical calculation, or other Division-approved methods. The mathematical analysis shall be prepared by, or certified by, a professional engineer registered in the State of Colorado, a qualified professional geologist, or groundwater hydrologist. In addition, the analysis must conclude that water that annually passes below the root zone of the land application site will not reach ground water within one hundred years. Approval of the analysis does not remove the Division's authority to require at any time, as the result of soil monitoring information or for other reasons, the installation of new or additional wells for the



purpose of monitoring ground water beneath a land application site. Immediately upon approval of the analysis, the permittee shall proactively protect ground water by implementing the following requirements:

I. Quarterly sample the two one-foot increments of soil below the monitoring zone for each land application site, in addition to other soil sampling requirements indicated in subsection 61.13 , except when this frequency is not practicable due to one of the three scenarios presented in subsection 61.13 . The Division may require quarterly monitoring of soils at depths beneath two feet below the monitoring zone based on a nitrogen loading trend analysis of the monitoring zone or below the monitoring zone.

II. Analyze the two one-foot increments of soil for nitrate-nitrogen.

III. Notify the Division in writing within 30 days of discovering that the cumulative soil nitrate-nitrogen concentration level in any two foot increment within the monitoring zone, or in any one foot increment below the monitoring zone, exceeded the comparative concentration by greater than ten milligrams per kilogram.

IV. In consultation with the Division, develop and submit an approvable intervention protocol within ninety (90) days of the permittee discovering that the cumulative soil nitrate-nitrogen concentration level in any two foot increment within the monitoring zone, or in any one foot increment below the monitoring zone, exceeds the comparative concentration by greater than ten milligrams per kilogram, unless an extension of time is granted by the Division. The intervention protocol shall provide for strict minimization of future nitrate-nitrogen loading within the monitoring zone and below the monitoring zone. The Division may specify that appropriate measures be included in the protocol for the purpose of remediating



excessive nitrogen within the monitoring zone and below the monitoring zone.

V. The protocol shall be implemented by the permittee within 30 days of it being approved by the Division. If remediation measures in an approved intervention protocol are not being implemented in accordance with the protocol, application of swine feeding process wastewater and/or residual solids to the applicable land application site shall immediately cease.

VI. The intervention protocol shall not be implemented if the permittee submits to the Division a report that adequately documents that a force majeure was the cause of soil nitrate-nitrogen concentrations exceeding the comparative concentration by greater than ten milligrams per kilogram.

VII. Document the status of intervention protocol activities in applicable quarterly monitoring reports.

(vii) Where the permittee has installed double liners with leak detection mechanisms, ground water monitoring around all such impoundments shall not be required.

(viii) The provisions of subsections 61.13 , and (v), above, shall not apply to non-land-application facilities.

CO Rev Stat § 25-8-205. Control regulations.

(1) The commission may promulgate control regulations for the following purposes:

(a) To describe prohibitions, standards, concentrations, and effluent limitations on the extent of specifically identified pollutants, including, but not limited to, those mentioned in section 25-8-204, that any person may discharge into any specified class of state waters;

(b) To describe pretreatment requirements, prohibitions, standards, concentrations, and effluent limitations on wastes any person may discharge into any specified class of state water from any specified type of facility, process, activity, or waste pile including, but not limited to, all types specified in section 306 (b)(1)(A) of the federal act;



(c) To describe precautionary measures, both mandatory and prohibitory, that must be taken by any person owning, operating, conducting, or maintaining any facility, process, activity, or waste pile that does cause or could reasonably be expected to cause pollution of any state waters in violation of control regulations or that does cause the quality of any state waters to be in violation of any applicable water quality standard;

(d) To adopt toxic effluent standards and pretreatment standards for pollutants which interfere with, pass through, or are otherwise incompatible with sewage treatment works;

(e) To describe requirements, prohibitions, standards, and concentration limitations on the use and disposal of biosolids to protect public health and to prevent the discharge of pollutants into state waters, except as authorized by permit. The commission requirements described pursuant to this paragraph (e) shall be no more restrictive than the requirements adopted for solid wastes disposal sites and facilities pursuant to part 1 of article 20 of title 30, C.R.S., except as necessary to be consistent with section 405 of the federal act. Fees shall be established as set forth in section 30-20-110.5, C.R.S., and the commission shall have no authority to levy additional or duplicative fees.

(f) In accordance with sections 25-8-205.7, 25-8-205.8, and 25-8-205.9, to describe requirements, prohibitions, standards, and concentration limitations on the reuse of reclaimed domestic wastewater for purposes other than drinking that will protect public health and encourage the reuse of reclaimed domestic wastewater;

(g)

(I) To describe requirements, prohibitions, and standards for the use of graywater for nondrinking purposes, to encourage the use of graywater, and to protect public health and water quality.

(II) Except as authorized in section 25-8-205.3, graywater may be used only in areas where the local city, city and county, or county has adopted an ordinance or resolution approving the use of graywater pursuant to section 30-11-107 (1)(kk) or 31-15-601 (1)(m). The city, city and county, or county that has adopted an ordinance or resolution approving the use of graywater pursuant to section 30-11-107 (1)(kk) or 31-15-601 (1)(m) has exclusive enforcement authority regarding compliance with the ordinance or resolution.



(III) Use of graywater shall be allowed only in accordance with the terms and conditions of the decrees, contracts, and well permits applicable to the use of the source water rights or source water and any return flows therefrom, and no use of graywater shall be allowed that would not be allowed under such decrees, contracts, or permits if the graywater ordinance or resolution did not exist.

(IV) A local city, city and county, or county may only authorize the use of graywater in accordance with federal, state, and local requirements.

(2) In the formulation of each control regulation, the commission shall consider the following:

(a) The need for regulations that control discharges of specified pollutants that are the subject of water quality standards for the receiving state waters;

(b) The need for regulations that specify treatment requirements for various types of discharges;

(c) The degree to which any particular type of discharge is subject to treatment, the availability, practicality, and technical and economic feasibility of treatment techniques, and the extent to which the discharge to be controlled is significant;

(d) Control requirements promulgated by agencies of the federal government;

(e) The continuous, intermittent, or seasonal nature of the discharge to be controlled;

(f) Whether a regulation that is to be applicable to discharges into flowing water should be written in such a way that the degree of pollution tolerated or treatment required will be dependent upon the volume of flow of the receiving water or the extent to which the discharge is diluted therein, or the capacity of the receiving water to assimilate the discharge; and

(g) The need for specification of safety precautions that should be taken to protect water quality including, but not limited to, requirements for the keeping of logs and other records, requirements to protect subsurface waters in connection with mining and the drilling and operation of wells, and requirements as to settling ponds, holding tanks, and other treatment facilities for water that will or might enter state waters.



(3) Control regulations may be promulgated for use in connection with any one or more of the classes of state waters authorized pursuant to section 25-8-203 and may be made applicable with respect to any designated portion of state waters or to all state waters.

(4) The commission shall coordinate and cooperate with the state engineer, the Colorado water conservation board, the oil and gas conservation commission, the state board of health, and other state agencies having regulatory powers in order to avoid adopting control regulations that would be either redundant or unnecessary.

(5) The commission shall not adopt control regulations that require agricultural nonpoint source dischargers to utilize treatment techniques that require additional consumptive or evaporative use which would cause material injury to water rights. With regard to nonpoint source water pollution control related to agricultural practices, the commission and division shall pursue incentive, grant, and cooperative programs in preference to the promulgation of control regulations. When interested water conservation districts, water conservancy districts, and conservation districts recommend nonpoint source control activities related to agricultural practices to the division and commission, the division and commission, after consultation with such districts, shall give substantial weight to the recommendations of such districts into the approved program. Except as provided by section 25-8-205.5, control regulations related to agricultural practices shall be promulgated only if incentive, grant, and cooperative programs are determined by the commission to be inadequate and such regulations are necessary to meet state law or the federal act. This subsection (5) does not allocate wasteloads or relieve any source from participation in wasteload allocations determined necessary under any duly promulgated regulations established by the water quality control commission under this section.

(6) The division may issue a variance from a control regulation of general applicability, based upon a determination that the benefits derived from meeting the control regulation do not bear a reasonable relationship to the economic, environmental, or energy impacts or other factors which are particular to the applicant in complying with the control regulation; except that such variance shall be consistent with the purposes of this article including the protection of existing beneficial uses. No variance shall be issued for longer than five years. Variances shall be granted or renewed according to the procedure established in section 25-8-401 (5).

Rule 5 CCR 1002-61.17(8)(f)(iv). Additional Requirements for Concentrated Animal Feeding Operations.



(a) Production Area Design and Construction Requirements.

(i) Process wastewater Storage Capacity Requirements - Concentrated animal feeding operations, except existing dry lot and wet lot duck CAFOs with 5,000 or more ducks, shall meet one of the following design and construction standards regarding process wastewater storage capacity. Precipitation data used to comply with design and construction requirements for storage capacity shall be from a document approved by the Division.

(A) Small and Medium CAFOs - Process wastewater storage capacity requirements shall be determined by the Division using Best Professional Judgment.

(B) Baseline Impoundment and Tank Storage Capacity Requirement for Large CAFOs - Impoundments and tanks for production areas of Large CAFOs (except existing duck CAFOs with 5,000 or more ducks) shall be designed and constructed so that they are capable of storing, at minimum, the volume of all liquid manure and process wastewater, including the runoff resulting from a 25-year, 24-hour Storm, or the runoff volume resulting from a Chronic Storm whichever is larger. Prior to rebuilding or constructing a new impoundment or tank, the operator or owner is strongly advised to contact the Division for the purpose of determining the required storage capacity standard for permitting purposes.

(I) New Source Swine, Poultry, or Veal Calf Operations - Impoundments and tanks for production areas of these new source CAFOs shall be designed and constructed so that these structures meet the requirements set forth in 61.17(6)(b)(iv).

(II) Other New Sources, including Duck CAFOs with 5,000 or More Ducks - New source CAFOs that are not swine, poultry, or veal calf operations shall meet the same baseline storage capacity requirement as specified in subsection 61.17(8)(a)(i)(B) above.

(C) Evaporation Storage System Standard - Evaporation impoundment systems shall be designed and constructed to withstand a consecutive 10-year period of maximum recorded rainfall, as determined by a water budget analysis process which includes manure and process wastewater loading



during that period and provides sufficient capacity to retain all rainfall and process wastewater from the applicable design storm event without overflow. For purposes of determining the consecutive 10-year period of maximum recorded rainfall, the entire period of record shall be utilized. Such impoundments shall also be capable of containing any planned volume of liquid manure and process wastewater, including the runoff resulting from a 25-year, 24-hour storm. If a new source Swine, Poultry or Veal Calf Operation, such impoundments shall be capable of meeting the requirements set forth in 61.17(6)(b)(iv).

(ii) Spillways - An impoundment shall have a spillway that is designed and maintained to prevent erosion of the structural integrity of the impoundment, except where the operator requests and the Division approves that a spillway is not required.

(A) An impoundment that holds a depth of process wastewater that is five feet or less, retains process wastewater for 48 hours or less and, from which any overflow will be captured by a down gradient impoundment or tank, shall be exempt from this requirement.

(B) An operator may request approval from the Division that no spillway is required for an impoundment where the operator demonstrates that structural integrity of the impoundment will be maintained without a spillway in the event of an overflow.

(iii) For new source Large CAFOs and newly constructed CAFOs - designs of diversion structures and impoundments for process wastewater, and of structures that divert clean water from running onto production areas, manure stockpiles, and composting areas shall be prepared and certified by a professional engineer registered in the State of Colorado.

(iv) Clean water shall be diverted, as appropriate, from running onto feedlots, holding pens, manure and process wastewater storage systems, manure stockpiles, composting areas, and the like. Structures used to divert clean water from running onto new source Large Swine, Poultry, and Veal Calf CAFOs, shall be capable of meeting the requirements set forth in 61.17(6)(b)(iv).

(v) Structures used to divert process wastewater from production areas to impoundments or tanks shall be sized such that they can carry the flow expected from a 25-year, 24-hour storm. For new source



Large Swine, Poultry, and Veal Calf operations, such structures shall be capable of meeting the requirements set forth in 61.17(6)(b)(iv).

(b) Nutrient Management Plan Requirements

(i) Any permit issued to a CAFO must include a requirement to implement a nutrient management plan that, at a minimum, contains best management practices and procedures necessary to meet the requirements of this section and applicable effluent limitations and standards.

(ii) The permittee shall develop and implement a nutrient management plan upon the date of permit coverage for existing and new source CAFOs.

(iii) Ensure adequate storage of manure and process wastewater, including procedures to ensure proper operation and maintenance of the impoundments and tanks. The procedures shall include, but not be limited to:

(A) Except during the designed storm event, manure and process wastewater stored in impoundments and terminal tanks shall be removed as necessary to maintain a minimum of two (2) feet of freeboard, except where the operator requests and the Division approves an alternative freeboard level. The request shall include documentation that the alternative level will protect structural integrity of impoundments and terminal tanks and be functionally equivalent to two feet of freeboard in preventing overflows caused by factors such as wind and receiving direct precipitation.

(B) For operations that land apply process wastewater, whenever the design capacity of impoundments and tanks is less than the volume required to store runoff from the designed storm event, the structures shall be dewatered to a level that restores the required capacity once soils on a land application site has the water holding capacity to receive process wastewater.

(iv) Ensure proper management of animal mortalities (that is, dead animals) to prevent discharge of pollutants to surface waters. Mortalities shall remain on the production area until disposal and shall be managed to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage system that is not specifically designed to treat animal mortalities;



- (v) Ensure that clean water is diverted, as appropriate, from the production area;
- (vi) Prevent direct contact of confined animals with surface waters;
- (vii) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, storm water, or process wastewater storage system unless specifically designed to treat such chemicals and other contaminants;
- (viii) Site-specific conservation practices that have been identified and will be implemented, including as appropriate, buffers or equivalent practices, to control runoff of pollutants to surface water. Such practices shall include, but are not limited to:
 - (A) Solid manure shall be incorporated as soon as possible after application, unless the application site has perennial vegetation or is no-till cropped, or except where the nutrient management plan adequately demonstrates that surface water quality will be protected where manure is not so incorporated.
 - (B) Process wastewater to furrow- or flood-irrigated land application sites shall be applied in a manner that prevents any process wastewater runoff into surface waters.
 - (C) When process wastewater is sprinkler-applied, the soil water holding capacity of the soil shall not be exceeded.
 - (D) Process wastewater shall not be applied to either frozen or flooded land application sites.
 - (E) Manure or process wastewater shall not be land-applied within 150 feet of domestic water supply wells, and within 300 feet of community domestic water supply wells.
- (ix) Identify protocols for appropriate sampling and testing of manure, process wastewater, and soil;
- (x) Establish protocols to land apply manure or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or process wastewater. Such protocols shall include, but are not limited to:
 - (A) No application of manure or process wastewater shall be made to a land application site at a rate that will exceed the capacity of the soil and the planned crops to assimilate nitrate-



nitrogen within twelve (12) months of the manure or process wastewater being applied.

(B) Manure and process wastewater shall be applied as uniformly as possible with properly calibrated equipment.

(xi) Identify specific records that will be maintained to document the implementation and management of the minimum nutrient management plan elements described in subsections 61.17(8)(b)(i) through (x), above.

(xii) Terms of the Nutrient Management Plan

(A) Any permit issued to a CAFO must require compliance with the terms of the CAFO's site-specific nutrient management plan. The terms of the nutrient management plan are the information, protocols, best management practices, and other conditions in the nutrient management plan requested by the Division for clarification or justification in order to meet the requirements of paragraph 61.17(8)(b) of this section.

(B) The terms of the nutrient management plan, with respect to protocols for land application of manure, litter, or process wastewater required by paragraph 61.17(8)(b)(x) of this section and, as applicable, 61.17(8), must include:

(I) The fields available for land application;

(II) Field-specific rates of application properly developed, as specified in paragraph 61.17(8)(b)(xii)(B)(IV) below, to ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and

(III) Any timing limitations identified in the nutrient management plan concerning land application on the fields available for land application;

(IV) Description of the rates of application of manure, litter, and process wastewater to be land applied, according to the following specifications:

(1) Maximum amounts of nitrogen and phosphorus derived from all sources of nutrients, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Division, in pounds per acre, for each field;



- (2) The outcome of field-specific assessment of potential for nitrogen and phosphorus transport to surface water for each field, using the USDA, NRCS Colorado Phosphorus Index Risk Assessment tool or other Division-approved method;
- (3) 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 paragraph 61.17(8)(b)(xii)(B)(IV)(7) of the section);
- (4) The realistic yield goal for each crop or use identified for each field;
- (5) The nitrogen and phosphorus recommendation for each crop or use identified for each field from a method approved by the Division. Such methods may include, but are not limited to, the most current published fertilizer suggestions of the Cooperative Extension in Colorado or adjacent states, or the most current nutrient management planning guidelines for Colorado as published by the USDA, NRCS.
- (6) The methodology by which the nutrient management plan accounts for the following factors when calculating the amounts of manure, litter, and process wastewater to be land applied:
 - a) Results of soil tests conducted in accordance with protocols identified in the nutrient management plan, as required by paragraph 61.17(8)(b)(ix) of this section;
 - b) Credits for all nitrogen in the field that will be plant available;
 - c) The amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied;
 - d) Consideration of multi-year phosphorus application;



- e) Accounting for all other additions of plant available nitrogen and phosphorus to the field;
- f) The form and source of manure, litter and process wastewater;
- g) The timing and method of land application; and
- h) Volatilization of nitrogen and mineralization of organic nitrogen.

(7) For alternative crops identified in the CAFO's nutrient management plan that are not in the planned crop rotation:

- a) The crops must be listed by field, in addition to the crops identified in the planned crop rotation for that field;
- b) The nutrient management plan must include realistic crop yield goals and the nitrogen and phosphorus recommendations from sources specified in 61.17(8)(b)(xii)(B)(IV)(5) above;
- c) Maximum amounts of nitrogen and phosphorus from all sources of nutrients and the amounts of manure, litter, and process wastewater to be applied must be determined in accordance with the methodology described in paragraph 61.17(8)(b)(xii)(B)(IV)(6) of this section.

(C) If approved by the Division, nutrient management plan terms that meet the requirements of 40 CFR 122.42(e)(5)(i) may also be used to satisfy the requirements of 61.17(8)(b)(xiii).

(xiii) The following projections must be included in the nutrient management plan submitted to the Division, but are not terms of the nutrient management plan:

- (A) The CAFO's planned crop rotations for each field for the period of permit coverage;



(B) The projected amount of manure, litter, or process wastewater to be applied;

(C) Projected credits for all nitrogen in the field that will be plant available;

(D) Consideration of multi-year phosphorus application;

(E) Accounting for all other additions of plant available nitrogen and phosphorus to the field;

(F) The predicted form, source, and method of application of manure, litter, and process wastewater for each crop.

(xiv) CAFOs must calculate maximum amounts of manure, litter, and process wastewater to be land applied at least once each year using the methodology required in paragraph 61.17(8)(b)(xii)(B)(IV)(6) of this section before land applying manure, litter, and process wastewater and must rely on the following data:

(A) A field-specific determination of soil levels of nitrogen and phosphorus, including, for nitrogen, a concurrent determination of nitrogen that will be plant available consistent with the methodology required by paragraph 61.17(8)(b)(xii)(B)(IV)(6) of this section, and for phosphorus, the results of the most recent soil test conducted in accordance with soil testing requirements approved by the Division; and

(B) The results of most recent representative manure, litter, and process wastewater tests for nitrogen and phosphorus taken within 12 months of the date of land application, in order to determine the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

(xv) Changes to a Nutrient Management Plan

(A) Any permit issued to a CAFO must require the following procedures when a CAFO owner or operator makes changes to the CAFO's nutrient management plan previously submitted to the Division.

(I) The CAFO owner or operator must provide the Division with the most current version of the CAFO's nutrient management plan and identify changes from the previous version, except that the results of calculations made in accordance with the requirements of paragraph



61.17(8)(b)(xiv) of this section are not subject to the requirements of paragraph 61.17(8)(b)(xv) of this section.

(II) The Division must review the revised nutrient management plan to ensure that it meets the requirements of this section and applicable effluent limitations and standards, including those specified in 61.17(6) above, and must determine whether the changes to the nutrient management plan necessitate revision to the terms of the nutrient management plan incorporated into the permit issued to the CAFO. If revision to the terms of the nutrient management plan is not necessary, the Division must notify the CAFO owner or operator and upon such notification the CAFO may implement the revised nutrient management plan. If revision to the terms of the nutrient management plan is necessary, the Division must determine whether such changes are substantial changes as described in paragraph 61.17(8)(b)(xv)(A)(III) of this section.

(1) If the Division determines that the changes to the terms of the nutrient management plan are not substantial, the Division must make the revised nutrient management plan publicly available and include it in the permit record, revise the terms of the nutrient management plan incorporated into the permit, and notify the owner or operator and inform the public of any changes to the terms of the nutrient management plan that are incorporated into the permit.

(2) If the Division determines that the changes to the terms of the nutrient management plan are substantial, the Division must notify the public and make the proposed changes and the information submitted by the CAFO owner or operator available for public review and comment. The process for public comments, hearing requests, and the hearing process if a hearing is held must follow the procedures applicable to draft permits set forth in 61.5. Once the Division incorporates the changes to the terms of the nutrient management plan into the permit, the Division must notify the



owner or operator and inform the public of the final decision concerning changes to the terms and conditions of the permit.

(III) Substantial changes to the terms of a nutrient management plan incorporated as terms and conditions of a permit include:

(1) Addition of new land application areas not previously included in the CAFO's nutrient management plan. Except that if the land application area that is being added to the nutrient management plan is covered by terms of a nutrient management plan incorporated into an existing permit in accordance with the requirements of paragraph 61.17(8)(b)(xii) of this section, and the CAFO owner or operator applies manure, litter, or process wastewater on the newly added land application area in accordance with the existing field-specific permit terms applicable to the newly added land application area, such addition of new land would be a change to the new CAFO owner or operator's nutrient management plan but not a substantial change for purposes of this section;

(2) Any changes to the maximum amounts of nitrogen and phosphorus derived from all sources for each crop, as set forth in paragraph 61.17(8)(b)(xii)(B)(IV) of this section;

(3) Addition of any crop or other uses not included in the terms of the CAFO's nutrient management plan and corresponding field-specific rates of application expressed in accordance with paragraph 61.17(8)(b)(xii) of this section; and

(4) Changes to site-specific components of the CAFO's nutrient management plan, where such changes are likely to increase the risk of nitrogen and phosphorus transport to surface water based on the USDA, NRCS Colorado Phosphorus Index Risk Assessment tool or other Division-approved method.



(c) Recordkeeping Requirements

The permittee shall maintain on site a copy of its most current nutrient management plan and make it available to the Division or its designee, upon request. In addition, the permittee must create, maintain on-site for five years from the date they are created, and make available to the Division or its designee, upon request, the following records:

(i) All applicable records identified in the nutrient management plan, pursuant to subsection 61.17(8)(b)(xi) above.

(ii) The completed permit application required pursuant to subsection 61.17(5)(c), above.

(iii) The following complete records:

(A) Records documenting the visual inspections of the production area required under subsection 61.17(8)(f)(ii)(A) and (B);

(B) Weekly records of the depth of the manure and process wastewater in the liquid impoundment and terminal storage tank as indicated by the depth marker required under subsection 61.17(8)(f)(ii)(D);

(C) Records documenting any actions taken to correct deficiencies required under subsection 61.17. Deficiencies not corrected within 30 days shall be accompanied by an explanation of the factors preventing immediate correction;

(D) Records of mortalities management and practices used by the large CAFO to meet the requirements of subsection 61.17(8)(b)(iv);

(E) Records documenting the current design of any manure storage structures, including volume of solids accumulation, design treatment volume, total design volume, and approximate number of days of storage capacity;

(F) Records of date, time, and estimated volume of any overflow.

(iv) For permitted Large Dairy, Beef, Cattle, Swine, Poultry, and Veal Calf CAFOs, the following complete records for land application sites:

(A) Expected crop yields;

(B) The date(s) manure or process wastewater is applied to each land application site;



- (C) Weather conditions at the time of land application and for 24 hours prior to and following application;
- (D) Test methods used to sample and analyze manure, process wastewater, and soil;
- (E) Results from manure, process wastewater, and soil sampling and analysis;
- (F) Explanations of the basis for determining manure and process wastewater application rates, in accordance with the nutrient management plan;
- (G) Calculations showing the total nitrogen and phosphorus that will be applied to each land application site, including sources other than manure or process wastewater;
- (H) The total amount of nitrogen and phosphorus actually applied to each land application site, including documentation of calculations for the total amount applied;
- (I) The method used to apply the manure and process wastewater;
- (J) Date(s) of manure application equipment inspection.

(d) Transfer of Manure or Process Wastewater to Third Parties

Prior to transferring manure or process wastewater to other persons, Large CAFOs must provide the recipient of the manure or process wastewater with the most current nutrient analysis. The analysis provided must be consistent with the requirements of the nutrient management plan (subsection 61.17 . Large CAFOs must retain for five years records of the date, recipient name and address, and approximate amount of manure or process wastewater transferred to another person.

(e) Annual Reporting Requirements

The permittee must submit an annual report to the Division that shall include the following:

- (i) The number and type of animals, whether in open confinement or housed under roof;
- (ii) The estimated amount of total manure and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);



(iii) Estimated amount of total manure and process wastewater transferred to other persons by the CAFO in the previous 12 months (tons/gallons);

(iv) The total number of acres for land application covered by the nutrient management plan developed pursuant to subsection 61.17(8)(b);

(v) The total number of acres of land application sites that were used for application of manure and process wastewater in the previous 12 months;

(vi) A summary of all manure and process wastewater discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume;

(vii) A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner;

(viii) The actual crop(s) planted and actual yield(s) for each field, the actual nitrogen and phosphorus content of the manure, litter, and process wastewater, the results of calculations conducted in accordance with paragraph 61.17(8)(b)(xii) of this section, and the amount of manure, litter, and process wastewater applied to each field during the previous 12 months; and

(ix) The results of any soil testing for nitrogen and phosphorus taken during the preceding 12 months, the data used in calculations conducted in accordance with paragraph 61.17(8)(b)(xii) of this section, and the amount of any supplemental fertilizer applied during the previous 12 months.

(f) Operation and Maintenance Requirements.

(i) Accumulations of manure shall be removed from impoundments and tanks as necessary to maintain the capacity of the structures to retain the storage volume from the designed storm event.

(ii) Production Area Best Management Practices - The following best management practices shall be established and properly maintained by permitted Large Dairy, Beef Cattle, Swine, Poultry, and Veal Calf CAFOs:

(A) Perform weekly inspections of all stormwater run-on diversion devices, runoff diversion structures, animal waste



storage structures, and devices channeling process wastewater to impoundments or tanks.

(B) Perform daily inspections of water lines, including drinking water or cooling water lines.

(C) Perform weekly inspections of impoundments and tanks and record the process wastewater level in open surface impoundments and terminal storage tanks as indicated by the depth marker required under section 61.17(8)(f)(ii)(D), below.

(D) Install depth markers in all open surface impoundments and terminal storage tanks to indicate the design volume and to clearly indicate the minimum capacity necessary to contain a "25-year, 24-hour", storm event, as applicable, and to clearly indicate the two-foot freeboard elevation, or other approved freeboard elevation. At minimum, depth markers should be clearly marked in one (1) foot increments.

(E) Correct any deficiencies found as a result of daily and weekly inspections as soon as possible, but no later than 30 days of such a deficiency having been identified, unless factors preventing correction within 30 days have been documented.

(iii) Inspect Land Application Equipment - The permittee must periodically inspect for leaks from equipment used for land application of manure or process wastewater. At minimum, such inspection shall be made annually and within the six month period prior to the first application of manure or process wastewater, and at least once daily when process wastewater is being applied.

(iv) Setback Requirements - Unless the permittee exercises one of the alternatives provided for in 61.17(8)(f)(iv)(A) and (B) below, manure and process wastewater shall not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface waters.

(A) As a setback alternative, the permittee may substitute the 100-foot setback with a 35-foot wide vegetated buffer where applications of manure or process wastewater are prohibited.

(B) As a setback alternative, the permittee may demonstrate that a setback or buffer is not necessary because implementation of alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or



better than the reductions that would be achieved by the 100-foot setback.

(g) Closure Requirements – A permittee shall demonstrate to the satisfaction of the Division that there is no remaining potential for a discharge of manure or process wastewater that was generated while the operation was a CAFO.

Rule 5 CCR 1002-81.6. Facility Management Plan: Non-Permitted CAFOs.

The operator of a non-permitted CAFO shall compile and maintain on-site a facility management plan (FMP) that includes, to the extent applicable, the information specified in sections 81.6(1), 81.6(2), 81.6(3) and 81.6(4).

(1) Surface water protection elements – Production Area. The operator of a non-permitted CAFO must develop, document in the FMP and implement the following design, construction and performance requirements for the production area by no later than May 30, 2011 or upon being defined as a CAFO.

(a) Use of the following structures, methods and procedures to control wastewater:

(i) Impoundments

(A) All impoundments must be designed, constructed, and maintained to be capable of storing, the volume of all manure and wastewater, including the runoff resulting from a 25-year, 24-hour storm or Chronic Storm, whichever is greater, plus two feet of freeboard, except where the operator requests, and the Division approves, an alternative freeboard level.

(B) All requests for an alternative freeboard level shall include documentation that the alternative freeboard level will protect the structural integrity of the impoundments and terminal tanks, and will be functionally equivalent to two feet of freeboard to prevent overflows caused by factors such as wind and receipt of direct precipitation.

(ii) Conveyance Structures

(A) All conveyance structures must be designed, constructed, and maintained to be capable of carrying the flow expected from a 25-year, 24-hour storm or Chronic Storm, whichever is greater.



(iii) For open-lot wastewater only; a solid/liquid waste separation facility used in conjunction with a wastewater treatment strip

(A) The solid/liquid waste separation facility in conjunction with a wastewater treatment strip shall be designed, constructed, and maintained so that it is capable of managing the flow expected from a 25-year, 24-hour storm or Chronic Storm, whichever is greater.

(B) The system described in subsection (A) above shall also be designed in accordance with United States Department of Agriculture - Natural Resources Conservation Service standards, or other standards approved by the Division.

(iv) For process-generated wastewater, the operator may use the wastewater control system described in section 81.6 where the Division approves a plan submitted by the operator demonstrating that the system will be sustainable, including that wastewater released into the treatment strip will be properly assimilated by the vegetation.

(v) A method approved by the Division.

(b) Install a depth marker in all impoundments indicated in the facility design calculations as being necessary to contain a 25-year, 24-hour storm or Chronic Storm, whichever is greater. Depth markers must be clearly marked, at minimum, in one foot increments and shall clearly indicate the minimum capacity necessary to contain the greater storm event.

(i) Perform weekly inspections of depth markers and record the wastewater level in each impoundment containing a depth marker.

(c) Design, construct, and maintain structures that are sized to divert stormwater from running onto a production area as appropriate.

(d) Procedures to ensure proper operation and maintenance of the impoundments, including the following:

(i) Whenever the storage capacity of impoundments and tanks is less than the volume required to store runoff from the designed storm event, the structures shall be dewatered to a level that restores the required capacity once soils on a land application site have the water holding capacity to receive the wastewater, or in accordance with section 81.6(2)(a)(i)(C).



(2) Surface water protection elements - Land Application Sites. The operator of a non-permitted CAFO shall develop, document in the FMP and implement the following practices and procedures for land application sites by no later than February 27, 2009 or upon being defined as a CAFO.

(a) Apply manure and wastewater to a land application site in accordance with the following practices and procedures:

(i) Conservation Practices - Site-specific conservation practices that have been identified and implemented, including as appropriate, buffers or equivalent practices, to control runoff of pollutants to surface water. Such practices shall include, but are not limited to:

(A) Solid manure shall be incorporated as soon as possible after application, unless the application site has perennial vegetation or is no-till cropped, or except where the operator adequately demonstrates that surface water quality will be protected where manure is not so incorporated.

(B) Where wastewater is applied to a land application site via furrow- or flood-irrigation, it shall be applied in a manner that prevents any wastewater runoff into surface water.

(C) There shall be no discharge to surface water from land application activities when the ground is frozen or saturated.

(D) Manure or wastewater shall not be land-applied within 150 feet of domestic water supply wells, and within 300 feet of community domestic water supply wells.

(ii) Sampling and Analysis - Manure, wastewater, and soil shall be sampled and analyzed with the following frequency. The results of the analyses shall be used in determining application rates for manure and wastewater.

(A) Manure and wastewater shall be sampled and analyzed a minimum of once annually for nitrogen and phosphorus content.

(B) The soil of land application sites shall be sampled and analyzed a minimum of once annually for available nutrients, including nitrate-nitrogen.



(C) The top one foot of soil of land application sites shall be sampled and analyzed for available phosphorus a minimum of once every five years, or as specified in section 81.6(2)(b)(v), below.

(iii) Protocols established by the operator for land applying manure or wastewater in accordance with site specific nutrient management practices that ensure appropriate utilization of the nutrients in the manure or wastewater. Such protocols shall include, but are not limited to:

(A) No application of manure or wastewater shall be made to a land application site at a rate that will exceed the capacity of the soil and the planned crops to assimilate plant available nitrogen within 12 months of the manure or wastewater being applied.

(B) Manure and wastewater shall be applied as uniformly as possible with properly calibrated equipment.

(C) Application rates of manure and wastewater shall be calculated using one of the following methods: the most current published fertilizer suggestions of Cooperative Extension in Colorado or adjacent states; the most current nutrient management planning guidelines for Colorado as published by the USDA, NRCS; or an alternative method approved by the Division.

(b) Nutrient Transport Minimization – Application rates for manure and wastewater applied to a land application site must minimize phosphorus and nitrogen transport from the sites to surface water and shall be in accordance with the following standards:

(i) Assessments shall be made for each land application site of the potential for phosphorus and nitrogen transport from the site to surface water and that address the form, source, amount, timing, and method of application of nitrogen and phosphorus to achieve realistic yield goals, while minimizing nitrogen and phosphorus movement to surface water.

(A) Phosphorus transport risk assessments shall be made using the most current USDA, NRCS Colorado Phosphorus Index Risk Assessment tool or other Division-approved method. The approved risk assessment tool shall



provide for off-site transport risk scores of either 'low', 'medium', 'high', or 'very high'.

(B) An initial assessment of the potential for phosphorus and nitrogen transport risk to surface water shall be made prior to manure or wastewater being applied to an application site after the operator's FMP is implemented.

(ii) Where the assessed risk of off-site phosphorus transport for a land application site is rated as 'high', phosphorus-based manure and wastewater application rates may be applied at crop phosphorus removal rates only if a phosphorus draw-down strategy is implemented for the crop rotation (i.e. rotational phosphorus application rate is less than the rotational crop removal).

(iii) No application of manure or wastewater shall be made to a land application site where the assessed risk of off-site phosphorus transport is rated as 'very high' until the risk of phosphorus movement off-site has been decreased to a phosphorus transport risk assessment rating of 'high' or less.

(iv) No application of manure or wastewater shall be made to a land application site where the risk of off-site nitrogen transport to surface water is not minimized.

(v) After an initial assessment is made of the potential for phosphorus and/or nitrogen transport from a land application site to surface water, additional assessments shall be made at the following frequency, whichever is sooner:

(A) Of both phosphorus and nitrogen transport risk, every five years; or,

(B) Where a crop management change has occurred, assess phosphorus transport risk within one year after such change would reasonably result in an increase in the phosphorus transport risk assessment score, and assess nitrogen transport risk within one year after such a change would reasonably result in the nitrogen transport to surface water not being minimized; or,

(C) Where a phosphorus transport risk assessment score was 'very high', assess phosphorus transport risk within six months of intending to apply manure or



wastewater, except as provided in section 81.6(2)(b)(iv), above.

(D) Where a nitrogen transport risk assessment reveals that nitrogen transport to surface water is not minimized, assess nitrogen transport risk within six months of intending to apply manure or wastewater.

(vi) Where a multi-year phosphorus application was made to a land application site, no additional manure or wastewater shall be applied to the same site in subsequent years until the applied phosphorus has been removed from the site via harvest and crop removal.

(c) Inspect Land Application Equipment - Periodically inspect for leaks from equipment used for land application of manure or wastewater. At minimum, such inspection shall be made annually and within the six month period prior to the first application of manure or wastewater, and at least once daily when wastewater is being applied.

(d) Setback Requirements - Unless the operator exercises one of the alternatives provided below, manure and wastewater shall not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface water.

(i) As a setback alternative, the operator may substitute the 100-foot setback with a 35-foot wide vegetated buffer where applications of manure or wastewater are prohibited.

(ii) The Division may approve an alternative setback or buffer based on a demonstration by the operator that a required setback or buffer is not necessary because implementation of alternative conservation practices or land application site conditions will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100-foot setback.

(e) Mortalities - Mortalities shall remain on the production area until disposal and shall be managed to ensure that they are not disposed of in a wastewater storage system that is not specifically designed to treat animal mortalities.

(f) Prevent direct contact of confined animals with surface water.

(g) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure or wastewater storage system



unless specifically designed to treat such chemicals and other contaminants.

(3) Ground water protection elements - Production Area. The operator of a non-permitted CAFO shall include in the FMP the following information by no later than February 27, 2009 or upon being defined as a CAFO. The FMP shall be updated as necessary to meet the requirements of the sections of this regulation cited below.

(a) The impoundment liner records and certifications specified in sections 81.7(2)(b) and (c).

(b) The current approved Standard Operating Procedure (SOP) specified in section 81.7, and manure/sludge removal certifications specified in section 81.7(3)(d).

(c) Information demonstrating that the facility is in compliance with the depth marker, conveyance structure, and setback requirements specified in sections 81.7(4),(5) and (6).

(4) Recordkeeping - The operator shall create, maintain at the facility for five years from the date they are created, and make available to the Division or its designee, upon request, the following records:

(a) Records identified by the operator that will be maintained to document the implementation and management of the surface water protection elements described in sections 81.6(2)(a) through (g).

(b) Weekly records of the depth of the manure and wastewater as indicated by the depth markers in the impoundments required to be inspected by section 81.6 , or as indicated by an alternative method approved by the Division.

(c) A copy of the current FMP shall be compiled and maintained in one discrete place at the facility, such as an office or filing cabinet.

