COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Water Quality Control Commission

REGULATION NO. 81

ANIMAL FEEDING OPERATIONS CONTROL REGULATION

5 CCR 1002-81

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Throughout these regulations, standards and requirements by outside organizations have been adopted and incorporated by reference. The materials incorporated by reference cited herein include only those versions that were in effect as of November 30, 2013, and not later amendments to the incorporated material.

Materials incorporated by reference are available for public inspection during regular business hours from the Water Quality Control Division, 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530. Copies may be purchased from the source organization.

81.0 AUTHORITY

Section 25-8-205, C.R.S. as amended of the Colorado Water Quality Control Act.

81.1 APPLICABILITY

The provisions of this control regulation are applicable to all animal feeding operations and concentrated animal feeding operations, except those defined as housed commercial swine feeding operations in section 61.2 of the Colorado Discharge Permit System Regulations, Regulation No. 61. Housed commercial swine feeding operations are subject to permitting requirements as set forth in Regulation No. 61 and financial assurance requirements in Regulation No. 66. A concentrated animal feeding operation is also subject to permitting requirements under Regulation No. 61 where it discharges to waters of the U.S.

81.2 PURPOSE

The purpose of this control regulation is:

(1) To ensure that discharges to ground water from permitted and non-permitted concentrated animal feeding operations are controlled in a manner consistent with the performance standards as set forth in this regulation.

(2) To ensure that non-permitted concentrated animal feeding operations protect surface waters of the state.

(3) To ensure that non-permitted large concentrated animal feeding operations register with the Division.

(4) To ensure that animal feeding operations that are not defined as concentrated animal feeding operations protect waters of the state through proper application of "best management practices" that consider existing physical conditions and constraints at the facility site.

This regulation is not intended to address public health nuisance conditions or land use controls such as zoning requirements.

81.3 DEFINITIONS

As used in this regulation, the following definitions of terms apply.

(1) "25-YEAR, 24-HOUR STORM" means a storm of a 24-hour duration which yields a total rainfall of a magnitude which has a probability of recurring once every twenty-five years.

(2) "AGRONOMIC RATE" means the rate of application of nitrogen to plants that is necessary to satisfy the plants' nutritional requirements while accounting for applicable nitrogen credits.

(3) "ANIMAL FEEDING OPERATION" (AFO) means a lot or facility (other than an aquatic animal production facility) where the following conditions are met:

(a) Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and

(b) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

(4) "BEST MANAGEMENT PRACTICE" means an activity, procedure, or practice necessary for the reduction of impacts from animal feeding operations on surface or ground water, as described in section 81.8.

(5) "CHRONIC STORM" means a series of storms that occur during a 10-day period which yield a total precipitation of a magnitude that has a probability of recurring once every 10 years.

(6) "CONCENTRATED ANIMAL FEEDING OPERATIONS" (CAFO) means an AFO that is defined as a Large or Medium CAFO, or that is designated by the Division as a CAFO pursuant to Section 81.4. Two or more AFOs under common ownership are deemed to be a single AFO for the purposes of determining whether they qualify as a Large or Medium CAFO, if they are adjacent to each other or if they use a common area or system for land application of manure or wastewater.

(7) "CONVEYANCE STRUCTURE" means a natural or constructed conduit (e.g., berm, channel, ditch, pipe, or culvert) that carries process-generated wastewater and/or open-lot wastewater from production areas, and diverts the wastewater to an impoundment or between impoundments.

(8) "DISCHARGE" means the introduction or addition of a pollutant into waters of the state.

(9) "DIVISION" means the Division of Administration of which the Water Quality Control Division of the Department of Public Health and Environment is a part. The Environmental Agriculture Program (Ag Program) implements this regulation on behalf of the Division.

(10) "FACILITY" means the production area and land application sites of an animal feeding operation or concentrated animal feeding operation.

(11) "FREEBOARD" means the vertical distance measured from the liquid surface level (elevation) in an impoundment or tank to the top elevation of the impoundment or tank (for example, berm or wall).

(12) "GROUND WATER" means subsurface waters in a zone of saturation which are or can be brought to the surface of the ground or to surface waters through wells, springs, seeps, or other discharge areas.

(13) "GROUND WATER RECHARGE" means the entry into the saturated zone of water made available at the water-table surface, together with the associated flow away from the water table within the saturated zone.

(14) "IMPOUNDMENT" means a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials or other seepage control materials), or any other structure which is used for the storage, treatment, evaporation or discharge of pollutant-containing waters, sludge or associated sediment.

(15) "LAND APPLICATION SITE" means:

(a) Land owned by an AFO or CAFO, to which manure or wastewater from the production area is or may be applied; or

(b) Land under the control of an AFO or CAFO, whether it is owned, rented, or leased, to which manure or wastewater from the production area may be applied, or where cropping or nutrient budget decisions for the site are made by the AFO or CAFO.

(16) "LARGE CONCENTRATED ANIMAL FEEDING OPERATION" (Large CAFO) means an AFO that stables or confines as many as or more than the numbers of animals specified in any of the following categories:

(a) 700 mature dairy cows, whether milked or dry;

(b) 1,000 veal calves

(c) 1,000 cattle other than mature dairy cows or veal calves. Cattle includes, but is not limited to, heifers, steers, bulls and cow/calf pairs;

(d) 2,500 swine each weighing 55 pounds or more;

(e) 10,000 swine each weighing less than 55 pounds;

(f) 500 horses;

(g) 10,000 sheep or lambs;

(h) 55,000 turkeys;

(i) 30,000 laying hens or broilers, if the AFO uses a liquid manure handling system;

(j) 125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;

(k) 82,000 laying hens, if the AFO uses other than a liquid manure handling system;

(l) 30,000 ducks (if the AFO uses other than a liquid manure handling system) or

(m) 5,000 ducks (if the AFO uses a liquid manure handling system).

(17) "MAN-MADE DRAINAGE SYSTEM" means a drainage ditch, flushing system, or other drainage device which was constructed by man and is used for the purpose of transporting manure or wastewater.

(18) "MANURE" means feces, litter, and/or urine and materials, such as bedding, sludge, compost, feed waste, dry harvested forage, and any raw material used in or resulting from the operation of an animal feeding operation, that have been commingled with feces, litter, and/or urine.

(19) "MEDIUM ANIMAL FEEDING OPERATION" (Medium AFO) means an AFO with the type and number of animals that fall within any of the ranges listed in section 81.3(A)(20), and which has not been defined or designated as a CAFO.

(20) "MEDIUM CONCENTRATED ANIMAL FEEDING OPERATION" (Medium CAFO) means an AFO with the type and number of animals that fall within any of the ranges listed in (a) below and which has been defined or designated as a CAFO. An AFO is defined as a Medium CAFO if:

(a) The type and number of animals that it stables or confines falls within any of the following ranges:

(I) 200 to 699 mature dairy cows, whether milked or dry;

(II) 300 to 999 veal calves;

(III) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls, and cow/calf pairs.

(IV) 750 to 2,499 swine each weighing 55 pounds or more;

(V) 3,000 to 9,999 swine each weighing less than 55 pounds;

(VI) 150 to 499 horses;

(VIII) 3,000 to 9,999 sheep or lambs;

(IX) 16,500 to 54,999 turkeys;

(X) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;

(XI) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;

(XII) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;

(XIII) 10,000 to 29,999 ducks (if the AFO uses other than a liquid manure handling system); or

(XIV) 1,500 to 4,999 ducks (if the AFO uses a liquid manure handling system); and

(b) Either one of the following conditions are met:

(I) Pollutants are discharged into surface waters of the state through a man-made drainage system; or

(II) Pollutants are discharged directly into surface waters of the state which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

(21) "NEW SOURCE" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the promulgation of standards of performance for the particular source, pursuant to section 306 of the Clean Water Act. The term also applies where a standard of performance has been proposed, provided that the standard is promulgated within 120 days of its proposal. Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets this definition of "new source", and:

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

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

(c) Its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Division shall consider such factors as the extent to which the new facility is integrated with the existing source; and the extent to which the new facility is engaged in the same general type of activity as the existing source.

(22) "OPEN-LOT WASTEWATER" means any precipitation that comes into contact with manure or feed, any spillage or overflow from animal or poultry watering systems in production area facilities that are not roof-covered (except livestock drinking water in constant-flow watering troughs that overflow into in-trough drain pipes and is retained separately from wastewater storage), or, spray-cooling water used in open-sided pole sheds that are not flushed.

(23) "OPERATOR" means any person who owns, leases, operates, controls, or supervises an animal feeding operation or concentrated animal feeding operation.

(24) "PERMIT" means a permit issued pursuant to Colorado Water Quality Control Commission Regulation No. 61.

(25) "PERSON" means an individual, corporation, partnership, association, state or political subdivision thereof, federal agency, state agency, municipality, commission, or interstate body.

(26) "POLLUTANT" means dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal, or agricultural waste.

(27) "PROCESS-GENERATED WASTEWATER" means wastewater resulting from water being directly or indirectly used in the operation of an animal feeding operation for any or all of the following:

(a) Spillage or overflow from animal or poultry watering systems in roof-covered production area facilities (except livestock drinking water in constant-flow watering troughs that overflows into in-trough drain pipes and is retained separately from wastewater storage);

(b) Washing, cleaning or flushing pens, barns, manure pits, or other roof-covered production area facilities;

(c) Direct contact swimming, washing or spray cooling of animals (except in open-sided pole barns in open lots);

(d) Dust control; or

(e) Water which comes into contact with any products or byproducts including manure litter, feed, milk, eggs, or bedding that is not defined as open-lot wastewater.

(28) "PRODUCTION AREA" means that part of an AFO or CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and wastewater containment areas. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities.

The animal confinement area includes but is not limited to:

(a) Open lots, housed lots and feedlots;

(b) Confinement houses;

(c) Stall barns and free stall barns;

(d) Milkrooms and milking centers;

(e) Cowyards, barnyards and stables;

(f) Medication and hospital pens;

(g) Walkers and animal walkways.

The manure and residual solids storage area includes but is not limited to:

(a) Lagoons, runoff ponds, liquid impoundments and tanks;

(b) Storage sheds, under house or pit storages;

(c) Stockpiles, static piles and composting piles.

The raw materials storage area includes but is not limited to:

(a) Feed silos, silage bunkers and bedding materials.

The waste containment area includes but is not limited to:

(a) Settling basins; and

(b) Areas within berms and diversions which separate uncontaminated stormwater.

(29) "PUBLIC DRINKING WATER SYSTEM" means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or serves an average of at least 25 persons daily at least 60 days out of the year. A public drinking water system includes both community and non-community systems.

(30) "SETBACK" means a specified distance from waters of the state, or potential conduits to waters of the state.

(31) "SMALL CONCENTRATED ANIMAL FEEDING OPERATION" (Small CAFO) means an AFO that is designated by the Division as a CAFO, and is not a Medium CAFO.

(32) "SOLID/LIQUID WASTE SEPARATION FACILITY" means a filtration or screening device, settling tank, or settling channel used to separate a portion of solids from a liquid wastewater stream.

(33) "STOCK WATERING POINT" means a fenced area with a hardened surface that limits access to surface water for a very small number of animals (typically one or two at a time) for the purpose of the animals obtaining drinking water.

(34) "STORMWATER" means precipitation induced surface runoff from land, except that defined as wastewater.

(35) "SURFACE WATER" means all waters of the state, except ground water, but includes ground water that may be hydrologically connected to non-subsurface water.

(36) "TANK" means a stationary device designed to contain an accumulation of pollutant-containing water, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

(37) "WASTEWATER" means water defined as process-generated wastewater and/or open-lot wastewater.

(38) "WASTEWATER TREATMENT STRIP" means a treatment component of an agricultural waste management system consisting of a strip or area of herbaceous vegetation that assimilates pollutants and within which wastewater runs via sheet flow.

(39) "WATERS OF THE STATE" means any and all surface and subsurface waters which are contained in or flow in or through this state, except waters in sewage systems, waters in treatment works of disposal systems, waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.

(40) "WATERS OF THE U.S." means waters of the United States as defined in 40 C.F.R. Part 122.2.

(41) "WATER QUALITY STANDARD" means any standard promulgated pursuant to section 25-8-204, C.R.S.

81.4 DESIGNATION OF AN ANIMAL FEEDING OPERATION AS A CONCENTRATED ANIMAL FEEDING OPERATION

The Division may designate any AFO as a CAFO upon performing an on-site inspection and determining that it reasonably could be a significant contributor of pollutants to waters of the U.S.

(1) The following criteria shall be considered to determine if an AFO will be designated as a CAFO:

(a) The size of the AFO and the amount of manure and wastewater reaching waters of the U.S;

(b) The location of the AFO relative to waters of the U.S.;

(c) The means of conveyance of manure and wastewater into waters of the U.S.;

(d) The slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge of manure and wastewater into waters of the U.S.; and

(e) Other relevant factors.

(2) No AFO with animal numbers below those established for a Medium CAFO shall be designated as a CAFO unless:

(a) Pollutants are discharged into waters of the U.S. through a manmade ditch, flushing system, or other similar manmade device from the animal feeding operation; or

(b) Pollutants from the animal feeding operation are discharged directly into waters of the U.S. that originate outside of the facility and pass over, across, or through the facility or otherwise come into contact with the animals confined in the operation.

(3) Where an AFO is at risk of being designated a CAFO, the AFO operator shall submit to the Division, within 60 days of receiving written notice by the Division of such a risk, one of the following:

(a) In consultation with the Division, an approvable work plan and associated timeline for reducing actual or potential environmental impacts such that the Division would not designate the AFO as a CAFO. The operator shall implement the plan within 30 days of it being approved by the Division; or

(b) A written statement signed by the operator indicating the operator's intention to do one of the following:

(i) Operate as a CAFO and submit a complete application to be covered under a CAFO discharge permit within 180 days of the date of the written statement; or,

(ii) Comply with all of the CAFO surface water and ground water protection provisions of this control regulation.

(4) Where an operator does not complete and implement a work plan pursuant to section 81.4(3)(a), does not submit a written statement pursuant to section 81.4(3)(b), or evidence exists of a discharge from the facility to waters of the U.S., the AFO may be designated a CAFO by the Division and be required to submit a complete application to be covered under a CAFO discharge permit within 90 days of receiving written notice by the Division of such a designation and permit application requirement.

81.5 <u>REQUIREMENTS – NON-PERMITTED LARGE CAFOs</u>

(1) Performance Standards – Surface Water Protection

(a) There shall be no discharge of manure or wastewater from the production area to waters of the U.S. without a discharge permit.

(b) There shall be no discharge of manure or wastewater from the production area to surface water, except whenever precipitation causes a discharge and the production area is designed, constructed, operated, and maintained to contain all manure and wastewater, including the runoff and direct precipitation from a 25-year, 24-hour storm or Chronic Storm, whichever is greater.

(c) The discharge of manure and wastewater to waters of the U.S. from a CAFO as the result of the application of that manure or wastewater by the CAFO to a land application site is a discharge from that CAFO subject to permit requirements, except where it is an agricultural stormwater discharge. Where the manure or wastewater has been applied in accordance with the requirements of sections 81.6(2)(a-d), a precipitation-related

discharge of manure or wastewater from the site to waters of the U.S. is an agricultural stormwater discharge.

(d) Manure and wastewater shall not be applied directly to surface water.

(2) Requirement to Register With The Division - The operator of a non-permitted Large CAFO shall register the facility with the Division by no later than February 27, 2009 or upon being defined as such a CAFO.

(a) The registration shall be submitted to the Division and include the following information about the facility:

(i) Legal name;

(ii) Names of legal owner and current operator;

(iii) Facility phone number;

(iv) Physical address;

(v) Mailing address;

(vi) County in which the facility exists;

(vii) Latitude/longitude coordinates at the entrance of the facility and source of the datum;

(viii) Maximum number and type of all animals the facility will confine in the production area;

(ix) A Standard Operating Procedure (SOP) for removal of manure from impoundments in accordance with section 81.7(3), unless the facility has previously submitted a SOP; and

(x) Evidence of impoundment liner certification, unless previously submitted.

(b) At such time that any of the above information changes, the operator shall submit to the Division a revised registration by no later than 30 days after a change occurs.

(3) Discharge Reporting – The operator shall notify the Colorado Release and Incident Reporting Line at 1-877-518-5608 of a discharge of manure or wastewater to surface water.

(a) Such notification shall be made within 24-hours after the operator becomes aware of the discharge.

(b) The notification shall describe, at minimum, the date, time, cause of the discharge, approximate volume of the discharge, the estimated length of time of the discharge, the level of wastewater in the discharging impoundment(s), and whether the discharge entered, or could enter, waters of the U.S.

(4) Fees – Non-permitted Large CAFOs shall pay fees in accordance with the schedule set forth in section 25-8-502(1)(g), C.R.S.

(a) All annual fees must be paid within 30 days of receipt of the Division's billing statement.

(b) All fees collected under this regulation shall be made payable to the Colorado Department of Public Health and Environment.

(c) The annual fee for non-permitted Large CAFOs shall be prorated if the following occur during a fiscal year in which a fee has been paid:

(i) Issuance of a concentrated animal feeding operation discharge permit; or

(ii) Termination of a registration at the registrant's request with Division approval.

The prorated fee for terminations shall be based on the period of time the registration is in effect for the fiscal year during which the termination is requested, except that the period of time shall not exceed 90 days from the date the registration termination request is received by the Division. Prorated amounts less than $75 will not be refunded.

(d) The administrative fee shall be applicable to all non-permitted Large CAFOs as of July 1, 2009, regardless of the date upon which registration with the Division is made.

81.6 FACILITY MANAGEMENT PLAN: NON-PERMITTED LARGE CAFOs

The operator of a non-permitted Large 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 Large 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 Large 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(1)(a)(iii) 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 Large 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 Large 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 Large CAFO shall include in the FMP the following information by no later than February 27, 2009 or upon being defined as a large 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(3)(a), 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)(i) through (iii).

(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(1)(b)(i), 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.

81.7 GROUND WATER PROTECTION REQUIREMENTS - CONCENTRATED ANIMAL FEEDING OPERATIONS (PERMITTED AND NON-PERMITTED)

(1) Tanks at concentrated animal feeding operations shall be operated and maintained so as not to discharge wastewater to ground water.

(2) Impoundment liners

(a) An impoundment at a concentrated animal feeding operation shall be constructed and maintained to comply with one of the following standards, as applicable:

(i) The seepage rate from an impoundment shall not exceed 1×10^{-6} cm/sec; or

(ii) Where approved by the Division for an impoundment with an earthen liner that collects only open-lot runoff, the seepage rate from the impoundment shall not exceed 7.35×10^{-6} cm/sec. The operator of the impoundment shall submit to the Division a request that the impoundment be approved to meet this seepage standard. Such a request shall include, but not be limited to, information documenting that only open-lot wastewater will be diverted to the impoundment, that the impoundment is not designed as an evaporation impoundment, and that the ten foot soil depth zone immediately beneath the impoundment has a cation exchange capacity of at least 15 meq/100 g of soil. Demonstration of compliance with the cation exchange capacity criteria requires the following:

(A) At least seven soil samples shall be acquired from below the entire surface area of the impoundment and analyzed for cation exchange capacity.

(B) The soil samples shall be reasonably equidistant from each other, with five locations being within ten feet of, and downslope of, the two-foot freeboard elevation of the impoundment, and two locations from the middle of the impoundment.

(C) The operator shall have available a map of the impoundment and soil sampling locations.

(D) Where soil samples were taken below existing impoundments, the operator shall have available documentation from a professional engineer registered in the State of Colorado of how the core locations were sealed to meet a 1×10^{-6} cm/sec maximum seepage rate.

(b) CAFO operators shall have available documentation, including the supporting information required by section 81.7(2)(b)(i), prepared by a professional engineer registered in

Colorado certifying that the provisions of section 81.7(2) have been met, and stating what constitutes each constructed liner (e.g., synthetic, clay).

The liner certification and, where applicable (i.e., for impoundments constructed after February 27, 2009), the seepage rate calculations using Darcy's Law shall be available prior to wastewater entering the impoundment.

(i) Copies of the liner certification and supporting information shall be made available to the Division or its designee, upon request.

For a newly constructed impoundment, submit the documents to the Division by no later than 30 days after construction of the impoundment is complete.

(c) A CAFO operator shall visually inspect the exposed liner of an impoundment weekly to identify physical changes or deficiencies that may affect the integrity of the liner. Such deficiencies and physical changes shall be corrected 30 days of having been identified.

(i) The operator shall record the date of the inspection, deficiencies identified, corrective actions taken, and dates that corrective action was completed.

(ii) Deficiencies not corrected within 30 days shall be accompanied by an explanation of the factors preventing completion of corrective actions within this time period.

(iii) The records shall be maintained on-site for five years from the date of creation and shall be made available to the Division upon request.

(3) Removal of manure or wastewater from an impoundment shall be accomplished in a manner that does not damage the integrity of the liner. The operator shall submit to the Division for approval a Standard Operating Procedure (SOP) that demonstrates how manure, including sludge, will be removed such that the liner integrity of impoundments is not damaged. The SOP also shall indicate the expected frequency with which manure will be removed from impoundments.

(a) The approved SOP must be available on-site and be submitted to the Division upon request.

(b) The operator shall follow the approved SOP whenever manure, including sludge, is removed. Where the SOP was not followed, the Division may require that the operator make the liner available for inspection. Where the Division has just cause as a result of the inspection, the Division may require re-certification of the liner by a professional engineer registered in Colorado.

(c) A CAFO shall submit the SOP no later than 120 days after animals are placed on the production area.

(i) The operator shall submit a revised SOP for approval within 30 days of a change having been made to the impoundment(s) at the facility that requires a revision of the SOP, such as a new impoundment or different liner having been constructed.

(d) The operator shall certify after each manure, or sludge removal event that the manure or sludge was removed in accordance with the approved SOP.

(i) The certifications must be available on-site and be submitted to the Division upon request.

(ii) For a concrete-lined impoundment, where a certification for each removal event is not completed, at least once every five years the operator shall:

(A) Drain and clean the impoundment. The operator shall use best professional judgment to determine whether the liner integrity is capable of having a maximum seepage rate of 1×10^{-6} cm/sec.

(B) Where the operator determines that the impoundment remains capable of having a maximum seepage rate of 1×10^{-6} cm/sec, the operator shall document the determination within five days of the liner inspection. The documentation shall include photographs supporting the determination.

(C) Where the operator determines the liner integrity is damaged such that the impoundment is no longer capable of having a maximum seepage rate of 1×10^{-6} cm/sec, the operator shall:

(I) Repair the impoundment within 30 days of the liner inspection so that the impoundment is capable of having a maximum seepage rate of 1×10^{-6} cm/sec.

(II) Within 14 days of repairing the impoundment, submit evidence of the properly completed repair to the Division. The evidence shall consist either of photographs with accompanying written documentation or of other evidence approved by the Division.

(e) Where the SOP is not followed, the operator shall provide notice to the Division within 30 days of the date of manure removal.

(4) Any depth marker in an impoundment shall be installed in a manner that maintains the integrity of the liner and maintains the required seepage rate standard.

(5) Wastewater Conveyance Structures - Conveyance structures shall be designed and maintained to convey but not store any manure or wastewater.

(a) Conveyance structures that carry process-generated wastewater continuously (48 hours or less between conveyance events) shall be constructed and maintained to have a maximum seepage rate of 1×10^{-6} cm/sec.

(b) Where upon inspection the Division has just cause to determine that the required liner is not in place, the Division may require that the operator submit to the Division a certification that the conveyance structure meets the requirements of section 81.7(5)(a). The certification shall be made by a professional engineer registered in the State of Colorado.

(6) Setbacks for New and Expanded Impoundments – A new impoundment constructed after June 30, 2008, or an existing impoundment that is expanded by 50 percent or more of existing storage capacity after June 30, 2008, shall not be located:

(a) Except as provided below, where the seasonally high ground water level is located within four feet of the bottom of the impoundment liner; and

(i) Where the seasonally high ground water level is located within four feet of the bottom of the impoundment liner, the impoundment shall be constructed and maintained in accordance with the design by a professional engineer registered

in the state of Colorado that accounts for hydrostatic pressure adversely affecting the integrity of the impoundment's liner.

(b) Within 150 feet of a private domestic water supply well or within 300 feet of a community domestic water supply well.

(7) Ground Water Monitoring - Where an impoundment is not in compliance with section 81.7(2), or where the Division determines that an impoundment liner is not being properly maintained, the Division may require the operator to conduct site-specific ground water quality monitoring of, but not limited to, total nitrogen, ammonia-nitrogen, nitrate-nitrogen, and fecal coliform. In making a determination of whether ground water monitoring is required, the Division shall consider all pertinent factors, including but not limited to: whether the impoundment poses a significant potential risk to beneficial uses of ground water, whether there is suspected contamination of ground water attributable to the facility, whether early detection of ground water contamination is essential to protect valuable drinking water sources, and whether there has been a significant failure on the part of the operator to comply with sections 81.7(2), (3), (4), (6), or (7).

(8) Ground Water Remediation - When the Division determines that non-compliance with sections 81.7(2), (3), (4), (6), or (7) has caused, or contributed to, the exceedance of established ground water quality standards, the operator shall:

(a) Submit, in consultation with the Division, an approvable investigation plan within 60 days of being notified by the Division of the exceedance, unless an extension of time is granted by the Division based on good faith efforts made by the operator.

(i) The investigation plan must indicate how the nature and extent of the contamination will be delineated and shall include the following, at minimum:

(A) A plan to determine the full vertical and horizontal extent of ground water contamination.

(B) All potential human and environmental receptors, including: 1) all surface water features including springs, streams, and lakes that could be impacted; and 2) all municipal, agricultural, and domestic ground water users.

(C) A plan to obtain other site-specific hydrogeologic data necessary to fully determine the nature and extent of the contamination. These shall include, as appropriate, but not be limited to, the hydraulic conductivity of all hydrogeologic units, associated porosity values, ground water flow directions, regional and local hydraulic gradients, and pumping rates associated with all wells. The Division may require that the operator install additional monitoring wells for the purpose of fully determining the nature and extent of the contamination.

(D) A reasonable timeline for completing the investigation.

(ii) The operator shall implement the investigation plan within 30 days of it being approved by the Division.

(b) The operator shall submit the following information by no later than 60 days after completion of the approved investigation plan, unless an extension of time is granted by the Division based on good faith efforts made by the operator:

(i) A summary report of the findings of the investigation conducted pursuant to section 81.7(8)(a).

(ii) A comparison of all appropriate and applicable remediation alternatives, including innovative technologies, the associated performance and costs of each alternative, the estimated timelines to achieve the required remediation goals and the monitoring that will be done until the remediation goal(s) is reached. The Division shall review remediation alternatives based on technological, economic and environmental risk factors. In determining economic reasonableness, the Division shall take into account such factors as costs of the various alternatives, the potential impact of the alternatives on a project's profitability or competitive position and any long-term energy impacts. In determining environmental risk factors the Division will include potential exposures of sensitive human and environmental receptors. In cases where sensitive human and environmental impacts could occur, the Division may require interim, or emergency, remedial activities.

(c) The operator shall submit an approvable remediation plan by no later than 60 days of being notified of the Division's preferred remediation alternative, unless an extension of time is granted by the Division based on good faith efforts made by the operator. The remediation plan shall contain designs and plans for implementation of the preferred alternative.

(i) The operator shall implement the remediation plan within 30 days of it being approved by the Division.

(9) Impoundment Closure – The operator of a facility shall remove manure and wastewater from a closed impoundment, to the fullest extent practicable within 60 days of the impoundment being closed, unless an alternative timeline is approved by the Division. Within 120 days of an impoundment being closed, an impoundment shall be backfilled with soil that is graded to blend with surface topography and prevent ponding, unless an alternative procedure and timeline is approved by the Division.

81.8 ANIMAL FEEDING OPERATIONS - BEST MANAGEMENT PRACTICES

The following Best Management Practices (BMPs) shall be utilized by animal feeding operations, as appropriate, based upon existing physical conditions and site constraints. Best management practices means, for purposes of this regulation, activities, procedures, or practices necessary for the reduction of impacts from animal feeding operations on surface or ground water, as described in this section.

The following practices, designed to decrease runoff volume from animal feeding operations, are BMPs within the meaning of this regulation:

(1) Divert runoff from uncontaminated areas away from animal confinement areas, and manure and wastewater control facilities to the extent practicable through:

(a) Construction of ditches, terraces or other waterways

(b) Installation of gutters, downspouts and buried conduits to divert roof drainage;

(c) Construction of roofed areas over animal confinement areas everywhere it is practicable.

(2) Decrease open lot surface area, where practicable by:

(a) Reducing lot size;

(b) Improving lot surfacing to support increased animal density;

(c) Providing roofed area to the maximum extent practicable; and

(d) Eliminating animal confinement areas, and manure and wastewater control facilities in areas that slope in directions such that wastewater/rainfall cannot be collected.

(3) Decrease water volume by:

(a) Repairing or adjusting waterers and water systems to minimize water wastage.

(b) Using lowest practical amounts of water for manure and wastewater flushing.

(c) Recycling water used to flush manure from paved surfaces or housed confinement areas, if practical.

(4) Decrease wastewater discharges to surface water by:

(a) Collecting and allowing process-generated wastewater to evaporate, or by collecting and evenly applying wastewater to land application sites at agronomic rates.

(b) In addition, Medium AFOs must design, construct and maintain an impoundment(s) that is capable of storing wastewater as described in 81.8(4)(b)(i) and (ii) below:

(i) For Medium AFOs that do not apply wastewater to land application sites (i.e. evaporative impoundments only), the impoundment(s) must be capable of storing the volume of all process-generated wastewater for 180 days, at a minimum.

(ii) For Medium AFOs that apply wastewater to land application sites, the impoundment(s) must be capable of storing the volume of all open-lot runoff and process-generated wastewater for 120 days, at a minimum.

(iii) For Medium AFOs that land apply wastewater, the operator shall keep records demonstrating that wastewater has been applied to each land application site at an agronomic rate.

(A) Such records shall be maintained on-site for five years from the date they are created.

(B) Such records shall be made available to the Division or its designee, upon request.

(c) Treating open-lot wastewater through use of one of the following:

(i) A wastewater treatment strip; or,

(A) Inflow to a wastewater treatment strip shall be pretreated by a solid/liquid waste separation facility, as appropriate based upon site constraints and to have the wastewater treatment strip adequately assimilate pollutants.

(ii) A method approved by the Division.

(d) Preventing animals from having direct contact with surface water. A stock watering point may be used where animals have access to no other source of drinking water. A stock watering point shall be cleaned frequently of manure and have wastewater diverted at the watering point entry.

(e) Locating wastewater retention structures or collection sites away from areas where stormwater run-off or seasonally high stream flow may carry the waste into waters of the state.

(f) Not locating wastewater retention structures located within a mapped 100 year flood plain as designated by the Colorado Water Conservation Board (CWCB) unless proper flood proofing measures (structures) are designed and constructed.

(g) Managing animal mortalities in a manner that prevents a discharge of pollutants to surface water.

(5) Minimize manure transport to surface water by:

(a) Locating manure stockpiles away from surface water, and above the 100 year flood plain as designated and approved by CWCB, unless adequate flood proofing structures are provided, and bermed to minimize runoff.

(b) Locating manure stockpiles away from areas where stormwater run-off or normally high stream flow will carry the waste manure into the waters of the state, unless the area is bermed to minimize runoff.

(c) Providing adequate manure storage capacity based upon manure and wastewater production.

(d) Removing settleable solids by using solids-settling basins, terraces, diversions, or other solid removal methods approved by the Division. Construction of solids-settling facilities shall not be required where the Division determines existing site conditions provide adequate settleable solids removal. Sufficient capacity shall be provided in the solids-settling facilities to store settled solids between periods of manure and wastewater disposal.

(e) Applying manure to land application sites at an agronomic rate.

(i) For Medium AFOs that land apply manure, the operator shall keep records demonstrating that manure has been applied to each land application site at an agronomic rate.

(A) Such records shall be maintained on-site for five years from the date they are created.

(B) Such records shall be made available to the Division or its designee, upon request.

(f) Avoid applications on saturated soils and lands subject to excessive erosion.

(g) Operators of animal feeding operations shall use edge-of-field, grassed strips, filter fences or straw bales to separate eroded soil and manure particles from the field runoff.

(h) Collect manure frequently.

(6) Practices to Protect Groundwater.

(a) Operators of animal feeding operations shall locate manure and wastewater management facilities hydrologically downgradient and a minimum horizontal distance of 150 feet from all water supply wells.

(b) When applying manure and wastewater to land, operators of animal feeding operations shall utilize a buffer area around water wells sufficient to prevent the possibility of waste transport to groundwater via the well or well casing.

(c) An impoundment at a Medium AFO shall have a liner that is constructed and maintained such that the seepage rate from the impoundment does not exceed 1×10^{-6} cm/sec.

(i) The operator of such a facility shall have documentation prepared by a professional engineer registered in Colorado certifying that each impoundment has a liner that does not allow a seepage rate in excess of 1×10^{-6} cm/sec. Such documentation shall be available prior to wastewater entering the impoundment.

(ii) The operator shall make a copy of such documentation available to the Division or its designee, upon request.

(d) Where the Division determines that an animal feeding operation, other than a Medium AFO, could adversely affect ground water quality, the operator of such an AFO shall install a liner in all impoundments such that the seepage rate from each impoundment does not exceed 1×10^{-6} cm/sec.

(i) The Division shall determine that such an AFO could adversely affect ground water quality by demonstrating that it is in a location where:

(A) Significant ground water recharge occurs as determined using the United States Department of Agriculture, Natural Resources Conservation Service's current "Agricultural Waste Management Field Handbook, Part 651, Chapter 7, Geologic and Ground Water Considerations"; or,

(B) Contamination from the AFO could cause ground water to exceed the standards adopted by the Colorado Water Quality Control Commission; or,

(C) A water source susceptibility analysis results in the AFO having a "medium-high" or "high" potential for contaminating existing or reasonably likely future public drinking water system withdrawals. Such an analysis shall examine the physical setting of ground water and the contaminant threat that the AFO poses to the ground water source. Factors that shall be considered in examining the physical setting include aquifer sensitivity at the water source intake location, depth to the water source, structural integrity of the water system at the withdrawal point, flow of the water source and first draw of the water source. Factors that shall be considered in examining the contaminant threat are migration potential, contaminant hazard, potential volume and likelihood of contaminant release.

(ii) A liner, where required, shall be installed according to a work plan approved by the Division.

(A) The operator shall, in consultation with the Division, develop and submit an approvable work plan that includes a timeline for installing each liner within 60 days of receiving the written request from the Division.

(B) The operator shall implement the plan within 30 days of it being approved by the Division.

(C) The operator shall submit to the Division, within 30 days of each liner having been properly constructed, documentation prepared by a professional engineer registered in the State of Colorado certifying that the seepage rate from each impoundment does not exceed 1×10^{-6} cm/sec.

81.9 SEVERABILITY

The provisions of this regulation are severable, and if any provisions or the application of the provisions to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this regulation, shall not be affected thereby.

81.10 – 81.14 RESERVED

81.15 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE (1992 Confined Animal Feeding Operation Control Regulation Revisions)

The provisions of sections 25-8-202(7), 25-8-205, 25-8-206, and 25-8-308, C.R.S. 1973, as amended provide the specific statutory authority for adoption of this regulation. The Commission also adopted, in accordance with section 24-4-103(4), C.R.S. the following Statement of Basis and Purpose.

Overview

The original Feedlot Control Regulation, 5 C.C.R. 1002-5 et. seq. was adopted by the Commission in 1974. The format of the regulation was changed in 1976 and there have been no further changes to it since then. Several recent developments have indicated the need for the Commission to modify the regulation both in terms of substance and format. Such developments include the establishment of the Basic Standards for Groundwater and the adoption of the groundwater discharge amendments to the Permit Regulations.

A strict interpretation of the previously adopted Feedlot Control Regulation would indicate that discharges of process wastewater from any operation that meets the definition of a feedlot are prohibited. That definition encompasses a wide variety of operations of all sizes. The Commission has determined that it is desirable to improve the focus of the regulation upon water quality in terms of protecting beneficial uses and insuring applicable standards are not violated, while maintaining consistency with federal regulations. Therefore the regulation presently being adopted addresses two different categories of confined animal feeding operations: concentrated animal feeding operations and other animal feeding operations.

Purpose of the Regulation

Based upon the information received into the record during this rulemaking hearing, the Commission has determined that the purposes of this control regulation are to prevent the discharge of manure or process wastewater from concentrated animal feeding operations into waters of the state and to encourage that these materials be retained and utilized beneficially on agricultural land. The Commission recognizes that livestock produce manure and process wastewater which when properly used, supply nutrients and organic matter to soils. The mere presence of livestock manure and process wastewater in a given location does not denote pollution, but may, when improperly stored, transported or disposed of,

createadverse impacts upon public health and the environment. A primary concern of the Commission is to ensure that manure and process wastewater associated with confined animal feeding operations is handled in a manner which does not cause exceedances of applicable standards or harm to existing or classified uses of state waters. While the Commission has drawn a distinction between the regulatory requirements pertaining to concentrated animal feeding operations and other animal feeding operations, it intends that the latter types of operations nevertheless protect surface water, ground water and soil resources, through proper application of “best management practices“ based upon existing physical conditions and constraints at the facility site.

The Commission, in adopting this regulation does not intend to address public health nuisance conditions or land use controls such as zoning requirements or policies.

Concentrated Animal Feeding Operations

The Commission has defined concentrated animal feeding operations as those facilities with a larger capacity or which are located in areas where the potential adverse impacts associated with a discharge are particularly severe. For these facilities, the adopted rule establishes specific manure and process wastewater retention and disposal requirements which focus on proper design, construction and operation as the primary means to prevent discharges of pollutants into surface and ground waters.

Concentrated animal feeding operations are confined operations that fall under one of three specific criteria. The first criterion is based on the number and type of animals confined. The second criterion is a case-by-case designation based on certain discharges to surface waters. The last criterion is based on the facility's location in a hydrologically sensitive area. In the noticed proposal, these sensitive areas were described as sensitive environmental areas. The rule adopted by the Commission renames these areas to more accurately reflect the types of potential impacts the regulation addresses (i.e., water quality and human health impacts).

The Commission finds that prevention of process wastewater and manure discharges is particularly important when such discharges may impact areas of significant groundwater recharge, waters which are currently used for drinking water purposes or which could be used for drinking water purposes in the future, and waters subject to antidegradation review. Therefore, operations located within these hydrologically sensitive areas are considered to be concentrated animal feeding operations.

Some parties have expressed concern with the inclusion of facilities in the Concentrated Animal Feeding Operation category, based on their potential impacts on reasonably likely future drinking water supplies. It is the Commission's intent, through this regulation, to protect classified as well as existing but unclassified drinking water uses from the potential impacts of animal feeding operations. In addition, the Commission intends this regulation to preserve existing drinking water supplies which are not currently used but which may be used for public consumption in the future. For that reason, the rule adopted by the Commission includes within the definition of hydrologically sensitive areas, areas where contamination from animal feeding operations could impact reasonably likely future public drinking water system withdrawals. In order to determine whether these future withdrawals are reasonably likely, the Division must take into account the background quality as well as the decreed or permitted use of the water. A definition of public drinking water systems, consistent with the definition found in the state's safe drinking water regulations, is adopted by the Commission as part of this regulation.

Animal Feeding Operations

For those confined animal feeding operations not included in the concentrated animal feeding operations category the Commission has prescribed best management practices (BMPs) which are aimed at reducing the water quality impacts from these operations. The BMPs provide guidance to the small operations for solids removal, runoff and process water reduction and groundwater protection. The goal of these requirements is the same as that for concentrated animal feeding operations-i.e., preventing discharge of pollutants to ground and surface water. However, considering the lesser likelihood of

adverse impacts from these facilities, and the goal of economic reasonableness, the Commission has determined that the establishment of BMPs is the most appropriate control mechanism for these facilities at this time.

Surface and Ground Water Protection Requirements for Concentrated Animal Feeding Operations

The adopted rule preserves the general performance, design, and operation requirements for the protection of surface waters established in the feedlot regulation which it amends. Facilities are required to operate as no-discharge operations by designing and constructing structures to retain contaminated storm and wastewater within an applicable storm event. The adopted rule adds specificity to these requirements.

While the existing feedlot regulation requires no discharge to state waters, including groundwater, from confined animal feeding operations, it provides no direction regarding what is expected from a facility in order to achieve the no discharge to groundwater requirement. The amendment adopted by the Commission fills that void by specifying design and construction requirements for manure and process wastewater retention and conveyance structures. The Commission recognizes that existing facilities may find it difficult to demonstrate that retention structures which have been constructed prior to the effective date of this rule are in compliance with these specific design and construction requirements. It is not the Commission's intent in adopting this rule to cause operators to be automatically in noncompliance. For this reason, the adopted rule does not require operators to demonstrate that manure and process wastewater retention structures in existence at the time the rule becomes effective meet design and construction requirements. If, however, the Division determines that seepage at a rate greater than allowed is occurring, the operator may be required to redesign and reconstruct existing structures in order to meet the seepage rates required.

The evidence presented at the hearing indicates that process-generated wastewater from animal feeding operations may contain levels of nitrates and other pollutants equivalent to those contained in domestic wastewater treatment facilities. The Commission finds that, in order to comply with the no discharge requirement, structures which retain process-generated wastewater, whether in combination with stormwater or not, must be lined so as not to exceed a seepage rate of 1/32" per day. This approach is consistent with the approach adopted by the Commission in the groundwater amendments to the Regulations for the State Discharge Permit System, (5 CCR1002-2, Section 6.10).

The Commission recognizes that structures which retain runoff from open animal feeding operations for a short term, which runoff is not combined with process-generated wastewater, do not pose the same potential impacts to groundwater as full-time process-generated wastewater retention structures. The runoff retained in the former type of structures comes into contact with manure or raw, intermediate, or final products of operation and is, therefore, process wastewater. However, given the dilute nature of the waste retained and the short retention time allowed (i.e., they must kept in a dewatered status as defined in subsection 4(B)), these structures are subject to a more lenient maximum seepage rate requirement The rule adopted by the Commission requires that these structures be designed, constructed, and maintained, so as not to exceed a seepage rate of 1/4" per day. The Commission also understands that these runoff retention structures often retain, in addition to runoff sources of process wastewater, raw water, such as boiler cooling water and flow-through livestock drinking water. These raw water sources are isolated from areas where manure or raw, intermediate or final products are found. Therefore, while not considered process wastewaters while diverted, they become process wastewaters when commingled with the runoff contained in the retention structures. Structures which retain commingled process wastewater runoff and these raw water sources are subject to the 1/4" per day maximum seepage rate requirement.

Beneficial Use and Disposal of Manure and Process Wastewater

Two primary means of disposal of manure and process wastewater are addressed in the adopted rule: land application and treatment and discharge. Innovative methods of disposal are encouraged and

require the Division's approval. Treatment and discharge of manure and process wastewater into state waters requires a CDPS permit.

The Commission recognizes that proper land application of manure and process wastewater from animal feeding operations may be quite beneficial to agricultural land. The Commission also recognizes, however, that improper land application or land application at a rate greater than that which plants can utilize, may result in adverse impacts to the state's waters. In order to ensure that the maximum benefits of land application are obtained, without impacting the quality of ground and surface waters, the rule adopted specifies land application practices requirements and a tiered approach to maximum land application rates to be allowed.

The adopted rule specifies three alternative methods of calculation of appropriate land application rates. The first two methods contemplate the use of manure and/or process wastewater to supply plant nutrients. Accordingly, land application rates under either method is limited to the amount of nutrients which are plant available at any given time. The first method contemplates a text-book approach to rate calculation, based on a number of preestablished conditions. Because they are preestablished, these conditions are conservative and may result in application rates which are more restrictive than necessary to ensure that all nutrients are plant available at any given site. Operators who want to avoid the cost of site-specific conditions analysis may use this first method, provided that commercial fertilizers are not used in addition to manure and or process wastewater at the land application site. Operators who want to land apply at a rate that takes into account site-specific conditions may do so after performing site-specific agronomic analyses as specified under the second method provided in the adopted rule. The Commission finds that all the elements specified under the second method are necessary to derive an appropriate site-specific application rate. Operators who rely on either method need not obtain the Division's prior approval, but an operator relying on the second method must keep copies of all agronomic analyses and make them available for inspection.

The second method of calculating manure and/or process wastewater application rates requires an agronomic analysis comparable to that which is performed by farmers and ranchers in order to determine appropriate levels of nutrients which must be added to growing crops in a given growing season. This analysis requires a determination of the residual nutrient content of the soil in order to determine the amount of nutrients that can be added through land application or any other nutrient sources, including commercial fertilizers, in order to supply the necessary crop requirements. An operator who utilizes this method may also rely on commonly accepted mineralization rates, i.e., the rates at which organic nitrogen in manure and process wastewater converts to inorganic forms, such as nitrates, which are available to plants, but which pose a risk of ground water contamination.

The third land application rate calculation method provided in the adopted rule contemplates not only the supply of plant nutrients, but also the disposal of excess manure and process wastewater beyond that which is available for plant uptake. For example, other potential mechanisms for nutrient losses, such as volatilization and denitrification, may be considered. The Commission finds that the combination of plant uptake and land treatment techniques could be an adequate method to remove pollutants in the context of concentrated animal feeding operations. The Commission also finds, however, that reliance on the third method of land application rates calculation poses a significantly increased risk of adverse impacts to state waters. Therefore, an operator who wishes to land apply manure and/or process wastewater at rates allowed under the third calculation method must incur the expense of comprehensive studies and, if deemed necessary by the Division, of monitoring, to ensure that applicable water quality standards and protection levels are not exceeded. In addition, operators relying on the third rate calculation method must obtain interim and/or final approval from the Division prior to land application.

Operators who choose to exceed the rates of application allowed under the second method of calculating application rates must perform a comprehensive analyses required under Section 5(A)(5)(c). Operators who land apply manure and/or process wastewater on a ”continuous or near continuous basis” must also comply with those provisions. The phrase “on a continuous or near continuous basis“ is designed to

include those facilities which, due to their size and intensity, land apply waste on a regular, year-round basis, rather than on a seasonal or sporadic basis utilized in more common farming operations.

Manure and Process Wastewater Management Plans

The Commission intends this regulation, including the amendment hereby adopted, to be a self-implementing control regulation which requires no permit as a condition for operation of a confined animal feeding facility, whether concentrated or not. The Commission finds, however, that planning is necessary in order to ensure that concentrated animal feeding facilities meet the regulation's requirements. Such planning is necessary whenever an improvement to an existing facility or the construction of a new facility will take place. Planning is also crucial when an existing facility is not performing in accordance with the no discharge parameters established in the regulation, and may be in need of improvement. The Commission further finds that in order to better monitor compliance with this self-implementing regulation, and in order to be more responsive to public inquiries, the Division needs to be informed of the existence and operation of concentrated animal feeding operations. Therefore, the adopted rule requires new, reactivated, reconstructed, and expanded concentrated animal feeding operations, as well as existing operations which are in significant noncompliance, to submit to the Division a Manure and Process Wastewater Management Plan.

Such plan need not be approved by the Division unless it includes the land application plan which may be required pursuant to section 5. If a land application plan is included, only the land application plan must be approved. However, the Division will review the plan submitted and may provide comments to the operator within 45 days of receipt. The Commission does not intend the Division's comments to be binding on the operator, nor does the Commission intend the Division's comments or lack thereof to be relied upon as an approval or a denial of the matters addressed in the plan. The Commission finds, however, that the Division's input early in the planning process may help to prevent noncompliance after construction has taken place.

Monitoring

The Commission, in its notice for this rulemaking hearing, specifically requested input from the public regarding the need for water quality monitoring at concentrated animal feeding operations. There was a great deal of concern expressed by the regulated community about the possible imposition of monitoring requirements on top of the mandatory management practices set forth in this regulation. Some parties expressed the view that monitoring is appropriate and should be required by the Division.

The Commission recognizes that this regulation consists, for the most part, of stringent technology-based requirements aimed at achieving no discharge of manure and process wastewater to waters; of the state. Where these are complied with, further monitoring is not required. The Commission feels, however, that there are circumstances where the potential risk to beneficial uses of state waters, as reflected, for example, by potential violations of water quality standards and numerical protection levels, posed by a concentrated animal feeding operation may warrant monitoring. Such circumstances and some of the factors which must be considered prior to requiring a facility to monitor are outlined in the adopted rule.

Because there is a potentially significant cost associated with groundwater monitoring, the Commission has decided that it should be involved in each decision to require monitoring from a concentrated animal feeding operation, except as provided in subsection 5(A)(5)(c) of the regulation. Therefore, except as provided in subsection 5(A)(5)(c), the Division will be required to bring cases to the Commission where it feels monitoring is needed. Then, upon the request of the Commission, the Division may require monitoring to be conducted by an operator.

An exception to the stringent no discharge requirements set forth in this regulation is the manure and process wastewater land application rate allowed under subsection 5(A)(5)(c). Given the potential risk of groundwater contamination associated with such practices, the Commission has determined that monitoring may be required directly by the Division when such practices are proposed by the operator.

Statutory Considerations

In adopting this amendment the Commission has considered several additional statutory provisions beyond the authorities underlying this regulation. Section 25-3-205(5) restricts the Commission from adopting control regulations which require agricultural ”nonpoint source dischargers" to utilize treatment techniques which require additional consumptive or evaporative use which would cause material injury to water rights. This section also provides that 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. The Commission has determined, that discharges from Confined Animal Feeding Operations are point sources under federal and state law. Moreover, no grant or incentive programs are currently in place to address the water quality impacts which may be associated with confined animal feeding operations. The Commission heard testimony from the Colorado Cattle Feeders Association, to the effect that efforts are under way to develop a program which would offer technical assistance to its membership. The Commission feels that while such program, if developed may proved to be of valuable assistance to the Division in furtherance of the purposes of the amended regulation, such program alone would be inadequate to achieve the regulation's purposes. Given the limited scope of the program and the nature of the regulation and sources affected, the Commission has determined that the self-implementing regulations, as adopted, is the appropriate means to address potential impacts from confined animal feeding operations.

Section 25-8-504(2) restricts the Division from issuing a permit for animal or agricultural waste on farms and ranches except as may be required by the federal act or regulations. The Commission has chosen to regulate the discharge of process wastewater and manure through a control regulation which is “self implementing” rather than through a permit mechanism. The Commission has not made any findings with respect to the question of whether the discharges of pollutants associated with confined animal feeding operations may be subject to permitting requirements.

Section 25-8-202(8) provides that the Commission may promulgate rules more stringent than corresponding enforceable federal requirements only if based on sound scientific evidence in the record and the Commission determines that such rules are necessary to protect the public health, beneficial use of water, or the environment of the state. The Commission recognizes that certain elements of this regulation go beyond corresponding enforceable federal requirements. For example, the class of facilities which belong to the concentrated animal feeding operation category under this regulation is somewhat broader than would meet the federal criteria for determining a concentrated animal feeding operation. Evidence in the record demonstrates that significant quantities of nitrogenous wastes and oxygen demanding wastes are potentially associated with animal feeding operations which are smaller than 1,000 animal units. Unless proper measures such as best management practices are implemented, these operations may have significant impacts on the quality of ground waters. These potential impacts to the state's groundwater are not addressed by the federal regulations; therefore, there are no corresponding enforceable federal requirements with respect to ground water. The Commission has included facilities located in significant groundwater recharge areas, or where drinking water withdrawals are currently taking place, or where public drinking water system withdrawals are reasonably likely, within the definition of concentrated animal feeding operations, in order to provide such protection.

The Commission adopted requirements affecting animal feeding operations which do not meet the definition of concentrated animal feeding operations. While these requirements also go beyond corresponding enforceable federal requirements for surface water protection, the Commission was persuaded by the written and oral testimony which indicated that given the runoff associated with thunderstorms and large snowmelt events which occur in Colorado and the significant quantities of nitrogen compounds and biochemical oxygen demanding compounds which can accumulate at animal feeding operations, even small facilities should be controlled with accepted best management practices. Given the tendency of most streams in the state to exhibit extremely low flows from late summer to early spring each year, the Commission determined that the mandatory application of best management practices was necessary to protect the beneficial uses of state waters from runoff containing animal wastes. The Commission was also concerned with the need to prevent groundwater pollution, especially

where existing or reasonably likely withdrawals for drinking water may occur. As indicated above, there are no corresponding enforceable federal ground water requirements.

81.16 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: JULY, 1997 RULEMAKING

The provisions of sections 25-8-202 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission has adopted a revised numbering system for this regulation, as a part of an overall renumbering of all Water Quality Control Commission rules and regulations. The goals of the renumbering are: (1) to achieve a more logical organization and numbering of the regulations, with a system that provides flexibility for future modifications, and (2) to make the Commission's internal numbering system and that of the Colorado Code of Regulations (CCR) consistent. The CCR references for the regulations will also be revised as a result of this hearing.

81.17 FINDINGS REGARDING BASIS FOR EMERGENCY RULE AMENDMENTS ADOPTED ON OCTOBER 6, 1997

The Commission has previously included incorporation by reference provisions in both the Pretreatment Rules, Regulation #63 (5 CCR 1002-63) and the Confined Animal Feeding Operations Control Regulation, Regulation #81 (5 CCR 1002-81). As a part of its statutorily required review of regulations adopted by state agencies, staff in the Office of Legislative Legal Services brought to the Commission's attention an inconsistency between the incorporation by reference language in these two regulations and the requirements of the State Administrative Procedure Act, 24-4-103(12.5) C.R.S. To eliminate this inconsistency, the Commission is adding a statement to each rule that all material incorporated by reference may be examined at any state publications depository library. Both of these regulations are an important part of Colorado's overall water quality management system. Therefore, in order to avoid any interruption in the applicability of these regulations and to avoid the time and expense that would be required for the Committee on Legal Services to conduct a formal hearing to consider this matter, the Commission finds that adoption of these amendments is imperatively necessary to preserve public health, safety and welfare.

81.18 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: FEBRUARY, 1998 RULEMAKING

The provisions of sections 25-8-202 and 25-8-01, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission held this rulemaking hearing to make permanent changes adopted in an Emergency Rulemaking Hearing that was held on October 6, 1997.

These changes add incorporation by reference language to assure compliance with the requirements of the State Administrative Procedure Act, 24-4-103(12.5) C.R.S.

81.19 FINDINGS REGARDING BASIS FOR EMERGENCY RULE FOR AMENDMENTS ADOPTED ON MARCH 9, 1999

The Commission adopted identical revisions to this Regulation #81 on both a permanent and emergency basis at its meeting on March 9, 1999. Amendment 14 requires the Commission to promulgate rules by March 31, 1999 to ensure the issuance and effective administration of permits by July 1, 1999. The Commission heard approximately fourteen hours of testimony at its February, 1999 meeting regarding implementation of Amendment 14, but was unable to complete deliberations in the time available. The permanent rule adopted on March 9, 1999 will become effective in the normal course of business on April 30, 1999. The provisions of that rule, however, require that housed commercial swine feeding operations submit permit applications by April 15, 1999. This date cannot practically be delayed without potentially delaying issuance of permits beyond the July 1, 1999 deadline for issuance of permits under Amendment 14. In order to provide continuous regulatory coverage so that the implementation can begin promptly, an emergency rule is necessary to cover the period until April 30, 1999. Accordingly, the Commission finds that immediate adoption of the temporary rule is imperatively necessary in order to comply with the mandates and deadlines of Amendment 14. Adoption of the permanent rule implementing Amendment 14 complied with the requirements of section 24-4-103, C.R.S. (1998). The permanent and temporary rules are substantively identical. The Commission therefore further concludes that compliance with the provisions of section 24-4-103, C.R.S. (1998) in adoption of a rule for the period March 30, 1999 to April 30, 1999 would be contrary to the public interest. The Commission designates the effective period for this emergency rule as March 30, 1999 through April 30, 1999.

81.20 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: MARCH, 1999 RULEMAKING

The provisions of sections 25-8-202(1)(c) and (2), 25-8-205, 25-8-401, 25-8-501.1, and 25-8-504, C.R.S. provide the specific statutory authority for the amendments to this regulation adopted by the Commission. The Commission has also adopted, in compliance with section 24-4-103(4), C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE:

Amendment 14, approved by the Colorado voters on November 3, 1998, adds a new section 25-8-501.1 to the Colorado Water Quality Control Act. These provisions establish a new requirement that an individual discharge permit be obtained by any person who operates, constructs, or expands a “housed commercial swine feeding operation.” In this rulemaking hearing, the Commission adopted revisions to the Colorado Discharge Permit System Regulations to implement these new requirements. Regulation #61 (5 CCR 1002-61). In addition, corresponding revisions were adopted for the Confined Animal Feeding Operations Control Regulation, Regulation #81 (5 CCR 1002-81) to avoid regulatory overlap. In particular, the Commission has added a new section 81.9 to this regulation, to clarify that housed commercial swine feeding operations that obtain a permit under new section 61.13 of the discharge permit regulations are excluded from coverage under this control regulation.

81.21 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: AUGUST, 2002 RULEMAKING

The provisions of sections 25-8-202(1)(c) and (2), 25-8-205, 25-8-401, 25-8-501.1, and 25-8-504, C.R.S. provide the specific statutory authority for the amendments to this regulation adopted by the Commission. The Commission has also adopted, in compliance with section 24-4-103(4), C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE:

Federal regulation 40 CFR 123.26 requires states that have been designated to administer federal regulations to adopt regulations that are at least as stringent as the corresponding federal regulations. Colorado has administered the federal Concentrated Animal Feeding Operations (CAFOs) under Regulation #81 since 1974. However, certain provisions of Regulation #81 are not as stringent as the federal CAFO regulations. The existence of these provisions has resulted in confusion among CAFO

operators regarding what regulatory standards should be followed. In addition, some CAFOs may be in compliance with the state regulation but not with the federal regulations, which are still fully enforceable.

The Commission has determined that it is appropriate to modify the regulation by making certain provisions of the regulation equivalent to the federal CAFO regulatory requirements. Therefore, the regulation presently being adopted includes revisions to four (4) different sections. Section 81.2(2) was revised to reflect animal unit equivalency factors for animal species that are as stringent as those reflected in the federal regulations.

Sections 81.3(6) and 81.3(C)(2) were revised to reflect the federal requirement that all CAFO facilities be designed, constructed, and operated to contain all process generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event for the location of the CAFO. Section 81.3(C)(5) was modified to delete Section 81.3(C)(5)(1) since it was inconsistent with this federal requirement.

The effect of the revisions to Sections 81.3(6), 81.3(C)(2), and 81.3(C)(5)(1) is that the regulation now consistently indicates that CAFOs can only discharge as the result of receiving within a 24-hour period rainfall that is in excess of a 25-year, 24-hour rainfall event. In contrast, CAFOs that do not have sufficient storage capacity in their retention structures to retain all process wastewater plus the runoff resulting from any series of rainfall events occurring over a short period of time (days or weeks) (also known as chronic storm events) cannot discharge as the result of such a series of events unless covered as point sources under a discharge permit, per Section 61.3 of the Colorado Discharge Permit System regulations.

81.22 STATEMENT OF BASIS, SPECIFIC AUTHORITY AND PURPOSE: FEBRUARY AND APRIL, 2004 RULEMAKING

The provisions of sections 25-8-202 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

A. BACKGROUND

Revisions to the Federal concentrated animal feeding operation regulations under the National Pollutant Discharge Elimination System (NPDES) became effective on April 14, 2003. Revisions were made to the permitting requirements (40 CFR 122) and to the effluent limitation guidelines (40 CFR 412). The revised regulation requires, among others, a mandatory duty for CAFOs to apply for an NPDES permit and to develop and implement a nutrient management plan. 40 CFR Part 412.4(c)(3) of the revised federal regulations requires state NPDES permitting programs to be revised to reflect the regulatory changes within one year of the effective date of the new regulations, where no amended or enacted statute is necessary. Part 25-8-504(2) of the Colorado Water Quality Control Act prohibits the Division from issuing permits for animal or agricultural waste on farms and ranches except as may be required by the federal act or regulations. Therefore, Colorado does not need to amend or enact a statute for the purpose of revising its CAFO permitting program and has until April 14, 2004 to revise its CAFO permitting program to reflect the new federal regulations.

As a result of the revised Federal regulations, all but a very few CAFOs will be required to be covered under a permit. Part 25-8-504(2) states that provisions of any permit for animal or agricultural waste on farms and ranches shall not be any more stringent than, and shall not contain any condition for monitoring or reporting in excess of, the minimum required by the Federal Act or regulations. The revised Federal CAFO regulations focus on protection of the nation's surface waters and do not include provisions for protection of ground water from pollutants in manure or process wastewater. Therefore, surface water protection provisions must be included in a permit, and groundwater protection provisions cannot be included in a permit. As a result, the Commission has taken final action on revising this Regulation #81, which is a control regulation and not a permit regulation, to remove provisions pertaining to protection of

surface waters and to monitoring of surface waters, and to retain provisions pertaining to protection of ground water

Also in this rulemaking hearing, the Commission adopted revisions to the Colorado Discharge Permit System Regulations [Regulation #61 (5 CCR 1002-61) to include regulatory requirements for CAFOs to protect surface waters, in response to the revised Federal CAFO regulations and to the revisions made to this Regulation #81.

B. REVISION OF TITLE OF REGULATION

The Commission is aware that the existing title of the regulation, "Confined Animal Feeding Operations Control Regulation" has been a source of confusion in the regulated community, primarily as a result of trying to discern the difference between a 'confined' animal feeding operation and a 'concentrated' animal feeding operation. The terms have often been used interchangeably, even though they do not mean the same thing. Since the regulation pertains to animal feeding operations, and a concentrated animal feeding operation must first meet the definition of an animal feeding operation before it is defined as a CAFO, the title of the regulation was revised to be the "Animal Feeding Operations Control Regulation."

C. DISCUSSION OF AMENDED SECTIONS

Sections 81.3, 81.5, and 81.7: The adopted regulations deleted the existing sections 81.3 (Surface Water Protection Requirements), 81.5 (Beneficial Use and Disposal of Manure and Process Wastewater), and 81.7 (Manure and Process Wastewater Plans) of this Regulation #81. Provisions of these sections pertain to protection of surface waters and now must be included in a permit, pursuant to the revised Federal CAFO regulations. In addition, since information in the existing Appendices A, B, C, and D of this Regulation #81 pertain to surface water protection (and to the existing section 81.3 or 81.5), the four appendices were eliminated in the adopted rule.

Applicability: The Commission finds it appropriate to clarify near the beginning of this regulation the applicability of the regulatory provisions, including the fact that housed commercial swine feeding operations are excluded, since such operations are regulated under section 61.13 of Regulation #61. This exception is currently stated in section 81.9 ("Exclusions"). Therefore, the regulation was revised to add an "Applicability" section (81.1) and to delete the existing section 81.9.

Purpose of the regulation: As discussed above, a focus of the regulation has been changed to ensure protection of ground water by CAFOs, instead of protection of both surface and ground waters. The "Purpose" section of this Regulation #81 was revised accordingly. The existing purpose of animal feeding operations using best management practices to protect waters of the state was retained.

Definitions: The revised Federal CAFO regulations modified the definition of a concentrated animal feeding operation by, for example, deleting reference to animal equivalency factors and adding operations that can now be defined as CAFOs (for example, veal calf operations). Instead of using equivalency factors, the revised Federal regulation specifies threshold numbers of animal species that define a CAFO. It also defines Large, Medium, and Small CAFOs. In addition, the existing definition for "animal feeding operation" is not consistent with the federal definition. Since today's adopted rule retains provisions pertaining to AFOs and CAFOs, the Commission revised the existing definitions to include new Federal definitions of "animal feeding operation" and of "concentrated animal feeding operation." Regarding the definition of an AFO, the Commission clarifies that wildlife and other non-traditional livestock animals, such as elk and llamas, are considered "animals" within the definition.

The Commission added the following definitions that pertain to ground water protection requirements: closed facility, conveyance structure, discharge, ground water, ground water recharge, impoundment, new source, open-lot wastewater, permit, process-generated wastewater, production area, raw material, setback, tank, tank overflow, wastewater, and water quality standard. The Commission intends that a

conveyance structure be interpreted as runoff diversion structures, and does not include natural sheet flow within a production area.

The definition of ground water was taken from Colorado's Basic Standards for Ground Water regulation [Regulation No. 41 (5 CCR 1002-41)]. The definitions of discharge, impoundment, new source, permit, tank, and water quality standard were taken from Regulation #61. The definition of ground water recharge was taken from page 211 of "Groundwater" by R. Allan Freeze and John A. Cherry, Prentice-Hall, Inc. 1979.

The production area, as defined, includes the raw materials storage area, which includes but is not limited to feed silos, silage bunkers, and bedding materials. The Commission finds it appropriate to clarify that the raw materials storage area does not include locations where harvested dry forage (such as hay bale stacks) is stored outside of the production area or in hay fields.

The Commission finds it appropriate to clarify the definition of "new source" by adding the following new source criteria language from 40 CFR 122.29(b)(1) and (2): "Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets [this] definition of "new source", and: 1) it is constructed at a site at which no other source is located; or 2) it totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or 3) its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the [Division] shall consider such factors as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source. A source meeting the requirements of the [1), 2), or 3) above] is a new source only if a new source performance standard is independently applicable to it. If there is no such independently applicable standard, the source is a new discharger."

Regarding the definition of "closed facility", the Commission clarifies that it is not the intent of this regulation to define a CAFO as closed where it has ceased operation but intends to sell the facility within a reasonable amount of time, or where the facility will restock animals within two years, or within some other reasonable period of time.

The Commission finds it appropriate to exclude harvested dry forage from being defined as a "raw material." Such forage is commonly found and stored in rural areas, runoff from such forage is not common, and contaminant concentrations in runoff are insignificant. In addition, water quality regulations do not contain provisions regarding runoff from dry harvested forage stored on farm fields or farmsteads.

A best management practice for AFOs is to apply manure and wastewater at agronomic rates. Since the existing regulation does not define "agronomic rate", the Commission added a definition of this term in order to clarify the performance standard for land applications of manure and wastewater. The expectation for meeting the requirements of the definition is use of the most current fertilizer suggestions of Cooperative Extension in Colorado or neighboring states, use of a qualified consultant's fertilizer calculation, or use of the fertilizer calculation in the most current United States Department of Agriculture-Natural Resources Conservation Service Comprehensive Nutrient Management Plan that has been prepared for the AFO.

The Commission also adopted the Federal definition of "land application site" since it is applicable to AFOs. The definition of "land application site" makes reference to land under the control of an AFO or CAFO. The Commission finds it appropriate to clarify that such land is under the control of an AFO where it is owned or leased by the AFO, where cropping and/or nutrient budget decisions for the site are made by the AFO, or where the AFO land applies wastewater or manure to such land. Such land is not under the control of an AFO where the AFO simply agrees to release wastewater or manure to the owner/operator of land that does not otherwise meet the criteria of being under the control of the AFO.

The Commission added a definition of "surface water" since it is this specific subset of waters of the state that is of concern in the process that the Division must use to designate an AFO as a CAFO. In keeping

with the Federal interpretation, surface water includes subsurface water that may be hydrologically connected to surface water. The Commission intends that the hydrological connection aspect is pertinent only where it results in a contribution of pollutants being conveyed from ground water to surface water.

The Commission revised the definitions section to delete the following definitions that are obsolete as a result of the new federal CAFO regulations, that are no longer applicable to today's adopted rule, or have been superceded by definitions of other terms: animal unit, average working capacity, expanded facility, housed animal feeding operation, hydrologically sensitive area, new facility, no-discharge, open animal feeding operation, process wastewater, reactivated facility, reconstructed facility, significant groundwater recharge, 'ten year twenty-four hour storm and twenty five year twenty-four hour storm', and vadose zone.

To provide clarification of language in the rule and to be consistent with other regulations, the Commission revised the existing definitions of operator, man-made drainage system, and manure, deleted the definition of director, and added definitions for 'Division' and 'person'.

Designation of an AFO as a CAFO: The Federal regulatory language for the process of determining if an AFO will be designated a CAFO was separated from the CAFO definition and placed into its own section (new Section 81.4) for the purpose of more readily finding and identifying the process. As presented in Part A, above, of today's statement of basis, the Federal regulations focus on protection of surface water and a permit can address only protection surface water. This means that an AFO can be designated as a CAFO only where it could reasonably be expected to adversely affect surface water. The existing regulation has language that provides for an AFO to be designated as a CAFO where it is located in a hydrologically sensitive area, which includes areas where contamination of ground water could occur. Therefore, the "hydrologically sensitive area" language was removed in favor of the Federal criteria. However, the ground water protection aspects of the language were added to the "Practices to Protect Groundwater" subsection of the Animal Feeding Operations – Best Management Practices" section [section 81.6(6)].

The Commission understands that as part of the process of determining whether an AFO should be designated as a CAFO, the Division will consider the five criteria listed in today's adopted regulation in order to conclude whether an AFO could cause significant degradation of surface water subject to antidegradation review, or could cause an exceedance of any adopted surface water quality standard. The latter standards are specified in Regulation No. 31, "The Basic Standards and Methodologies for Surface Water."

Since the preamble of the Federal regulation allows States to provide an opportunity for an AFO that may be designated a CAFO to take actions that eliminate conditions that pose a risk to surface water quality, the Commission included provisions in the regulations that provides for such an opportunity in the form of an approvable work plan that is developed in consultation with the Division. The Commission is aware that some AFOs may have no easy solutions for eliminating or significantly abating risks to surface water. Such AFOs may indicate to the Division that it intends to remain in its location and operate as a CAFO and apply for a permit. Where an AFO does not complete and implement a work plan as required, the Commission added language that the Division may designate the AFO as a CAFO and be required to submit a complete CAFO discharge permit application.

AFOs can be designated as CAFOs where they directly discharge wastewater or manure into surface water through man-made drainage systems. The Commission clarifies that an overflow from an AFO impoundment or conveyance structure into surface water, or sheet flow runoff from and AFO into surface waters, are not direct discharges through man-made drainage systems.

Clarification of AFO definition: The Commission finds it appropriate to provide clarification of what confined animal feeding operations are AFOs, and what are not AFOs. To be an animal feeding operation (AFO), a lot or facility must have animals stabled or confined for at least 45 days out of any 12 month period, and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility. Using this criteria, it is not the intent of this regulation

to include true pasture and rangeland operations as AFOs. Nor is it the intent of this regulation to include properly grazed crop residues or winter-feeding sites on pastures or rangeland as AFOs. A winter feeding site is not an AFO where it shows no vegetation during the winter but shows regrowth of desirable forage in the spring. However, pasture and grazing operations may have confinement areas (e.g., feedyards, barns, pens) that may meet the definition of an AFO.

Regarding the "no vegetation" cover part of the criteria, page 7189 of the revised Federal regulations states that incidental vegetation existing in a part, or parts, of a confined area, does not exclude the feeding operation from meeting the definition of an AFO. The Commission encourages the Division to use common sense and sound judgment in evaluating confined areas with incidental vegetation for meeting the definition of an AFO.

Part of the AFO definition refers to no vegetative cover being present during the normal growing season. However, Page 7189 of the revised Federal regulations states that the "no vegetation" criteria in the definition is meant to be evaluated during the winter, if animals are confined during that time. The Commission is aware that backgrounding operations are common in the State, where cattle weaned in the fall are fed in pens through the winter until they are turned out to pasture or rangeland in the spring. In keeping with the Federal preamble language, the Commission finds that backgrounding feedlots are AFOs where no vegetation is present for 45 days or more (whether during the winter or normal growing season), and animals are confined for 45 days out of any 12-month period. The Commission encourages the Division to use common sense and sound judgment in evaluating backgrounding feedlots for meeting the definition of an AFO.

<u>Ground water protection requirements:</u> As discussed above, the revised Federal CAFO regulations focus on protection of the nation's surface waters and do not, therefore, require provisions for protection of ground water from pollutants in manure or process wastewater. As a result, ground water protection provisions cannot be included as a condition in a CAFO permit, pursuant to section 25-8-504(2) of the Colorado Water Quality Control Act. The Commission recognized in 1992 the need to protect ground water under CAFOs by including in this Regulation #81 the previously existing section 81.4, "Ground Water Protection Requirements – Concentrated Animal Feeding Operations." Therefore, the Commission finds that such provisions should be retained in this control regulation, with the following revisions.

The previous provisions were revised to retain a maximum seepage rate of 1×10^{-6} cm/sec as the baseline liner requirement for impoundments. This seepage rate standard is consistent with the allowable seepage standard provided in subsection 61.14(9) of Regulation No. 61 (the ground water permit regulations) which states that where the seepage from an impoundment, "does not exceed 1×10^{-6} cm/sec" such an impoundment "will be considered not to have a discharge to waters of the state, by virtue of the insignificant nature of the seepage…" This standard also is consistent with the statement of basis and purpose language (in Regulation #61) for the July 10, 1989 ground water permitting regulation hearing which states that, "the Division's design criteria requires that domestic wastewater and storage impoundments be sealed such that the seepage from the impoundment does not exceed 1×10^{-6} cm/sec. This criteria has been used in the design of numerous domestic facilities, and it generally is considered to require an "impervious" liner to meet it. "

For impoundments that collect wastewater runoff only, the previous provisions were retained that required a maximum seepage rate of 7.35×10^{-6} cm/sec (1/4" per day). The Commission recognizes that this weaker seepage standard, relative to the baseline standard, is appropriate for the more dilute nature of the retained wastewater and the short retention time allowed (see statement of basis and purpose for 1992 revisions to this regulation), but it may not be sufficiently protective of ground water where porous, low nutrient-retaining soil, such as sands, exists below an impoundment. The primary constituent of concern regarding ground water quality that typically seeps below impoundments is ammonium-nitrogen, which has a positive charge. Where ammonium-nitrogen is exposed to air (such as after an impoundment is abandoned), it can rapidly be converted to nitrate-nitrogen, which is negatively-charged and soluble and can move rapidly to ground water in sandy-type soils. Positively-charged ions can be adsorbed by negatively-charged soil particles, thereby being deterred from leaching to any significant depth in the soil.

Therefore, the adopted rule specifies that the more lenient seepage rate can be used only where the ten (10) foot soil depth zone immediately beneath the impoundment has a cation exchange capacity (CEC) of at least 15 meq/100 g of soil, which is based on information in the Journal of Environmental Quality (Volume 29, November-December 2000) entitled, "Toward Site-specific Design Standards for Animal-Waste Lagoons: Protecting Ground Water Quality." The intent of these regulations is that the required CEC must exist below the entire surface of the impoundment, which requires that representative soil sampling be made in multiple locations, including perimeter and interior locations, within the "foot print" surface area of the impoundment.

As discussed above, ground water protection measures cannot be included as conditions in CAFO permits. While the existing rule required some, but not all, CAFOs to have evidence of a completed liner having been constructed in impoundments, the amended rule specifies that such evidence is required of all CAFOs, that it be prepared by a professional engineer certified in Colorado, and that it be provided to the Division upon request. The Commission recognizes that most CAFOs do not currently have the newly required evidence. To allow time for the CAFOs to obtain the evidence, the Commission set a deadline of April 13, 2006 by which CAFOs must have the evidence. This date is the latest deadline by which existing CAFOs must have applied for a permit under the revised federal CAFO regulations. After the deadline, the Division will request the evidence when a permit application is received, and during an inspection.

The Commission is aware that ground water located too close to impoundment bottoms can cause functional problems with construction and maintenance of impoundments. It also recognizes that impoundments pose a greater risk to ground water quality where they are located in close proximity to ground water. This risk is heightened where ground water supplies drinking water for the public. The Commission also recognizes that existing impoundments may be difficult to re-locate, but that it is appropriate to subject newly-constructed lagoons at new source CAFOs to location constraints. In order to provide for reasonable locations of impoundments, but not where they pose a potentially high risk to ground water quality or to proper construction and maintenance, the adopted rule specifies setbacks for impoundment locations for new source CAFOs.

The Commission added language requiring that manure and wastewater be removed from impoundments in a manner that does not damage the integrity of the liner. Liner integrity is at risk where manure is removed from impoundments using mechanical equipment and where it is difficult to discern the bottom of settled out manure versus the top of a soil liner, or where liquid remains in the impoundment. Mechanical equipment includes rubber- tired or track machinery, track hoes, and agitator pumps. It does not include other pumps such as floating pumps. Where an impoundment will be dewatered via pumps, agitators, or the like, the potential impacts to the structure should be considered and necessary protective features should be put into place, such as concrete pads, rip rap or additional sacrificial material, or an indicator of the impoundment bottom to signal an equipment operator where to stop pumping.

The Commission believes that a high level of assurance needs to exist that the liner standard continues to be met after manure removal, in order to assure the public that ground water is being protected. Therefore, the regulation was revised to require CAFOs to submit to the Division for approval a Standard Operating Procedure ("SOP") that the CAFO will use and that demonstrates how manure will be removed such that the liner integrity is not damaged. Examples of appropriate methods include, but are not limited to, removing teeth from mechanical cleaning equipment and adding a protective "lip" to mechanical cleaning buckets to prevent digging. The adopted regulation also requires the operator to certify that manure was removed according to the SOP, maintain on-site copies of the SOP and certifications, and submit the SOP or certifications to the Division upon request. Where the SOP was not followed, it is appropriate to require that the liner be made available for inspection and, where just cause exists upon inspection, to require that the liner be re-certified by a professional engineer.

The Commission added an additional provision to the regulations that requires an operator to visually inspect exposed liners weekly to assure that a liner is maintained to minimize seepage. The requirement is applicable to exposed liners since the liner on impoundment bottoms is commonly not visible, being hidden by wastewater or manure sludge. The exposed liners would be inspected to identify physical

changes or deficiencies that may affect the liner, such as rodent burrows, deep-rooted plants, rills, and step erosion caused by wave action. The weekly inspection frequency is the same as required for other inspections that must be made of impoundments, in accordance with the CAFO permit provisions in section 61.17 of the Colorado Discharge Permit System Regulations. Where deficiencies are found, the adopted regulation requires that they be corrected within 30 days, unless a longer correction period that was used by the operator is accompanied by an explanation of why the longer time period was necessary. These provisions are also consistent with the CAFO permit provisions in section 61.17 of the Colorado Discharge Permit System Regulations.

The existing regulation has language regarding the design, construction, and performance standards of wastewater conveyance structures. The existing language requiring that conveyance structures be constructed to prevent exceedances of water quality standards was deleted since wastewater is conveyed by such structures for only a short period of time (during storms) and the depth of flow is minimal. In addition, the process of determining whether seepage in a structure will prevent an exceedance of ground water quality standards can be complicated and expensive. The existing language requiring seepage of wastewater from conveyances to be limited through the use of very low permeability materials and proper compaction was revised in response to stakeholder input and information provided by the Colorado conservation engineer for the United States Department of Agriculture- Natural Resources Conservation Service. Based on this information, conveyance structures constructed in soils with less than 35 percent gravel do not need to be compacted or lined. Structures placed in soils with greater than 35 percent gravel need to be compacted or lined in order to sufficiently minimize seepage in the structures.

The Commission is aware that conveyance structures that carry process-generated wastewater have a higher risk of seepage from the structures impacting ground water as a result of the higher concentrations of pollutants in the wastewater and the greater frequency of flow of the wastewater. The Commission also is aware that the extent of seepage below a conveyance structure can be greater where the structure is constantly in a wetted condition, such as where process-generated wastewater flows daily from a milking parlor. The Commission considers such a structure to be essentially an impoundment and, therefore, required in the adopted regulations that conveyances that carry process-generated wastewater non-intermittently (48 hours or less between conveyance events) be constructed and maintained to seep at a maximum rate of 1×10^{-6} cm/sec.

The existing section 81.8 (Monitoring) was deleted since it addressed water quality monitoring that may be required of either surface or ground water, or both. Since ground water protection provisions are being retained in today's adopted rule, ground water monitoring language was added to the new section 81.5. The Commission believes that ground water monitoring beneath impoundments is not justified, except where the liner in an impoundment is not being properly maintained, or where required evidence of ground water protection measures does not exist or is not provided to the Division upon request. In such situations, the Commission found it appropriate to specify the factors the Division shall consider before determining whether ground water monitoring is required. Where the Division determines that ground water monitoring is necessary, it is reasonable to allow the monitoring to be done using, to the extent practicable, existing facility wells, such as irrigation wells and drinking water wells.

<u>Impoundment Closure:</u> Closed impoundments are a risk to ground water quality once they become dry since ammonium-nitrogen that has seeped below a lagoon can be exposed to air. The oxygen in air can convert the ammonium to nitrate-nitrogen, which is negatively-charged and soluble and movable to ground water. Therefore, the Commission revised the regulation to include the requirement that a closed CAFO remove wastewater and manure from impoundments and backfill the impoundments with at least five feet of soil to minimize the access of oxygen to soil ammonium. Because backfilling may be difficult during the winter, the Commission allowed 120 days for the backfilling to be completed. It also included language that provides a CAFO the opportunity to submit to the Division for approval an alternative closure procedure that provides for protection of ground water.

Practices for AFOs to Protect Ground Water: As presented in the "Designation of an AFO as a CAFO" section above, the ground water protection provisions of the existing "hydrologically sensitive area" language can no longer be included as criteria for designating an AFO as a CAFO. As a result, these provisions were added to subsection 81.6(6) as a best management practice for protecting ground water quality. In this way, the Commission's intent is maintained whereby ground water is protected where it is at risk from an AFO being located above it.

The Commission finds it appropriate to clarify in today's rulemaking the existing "hydrologically sensitive area" language pertaining to ground water. Regarding an AFO being in a location where significant ground water recharge occurs, stakeholders indicated their preference that specific criteria be stated in the regulation for how such recharge will be determined, so that AFOs are aware of the standard to which they may be held. Stakeholders also agreed that the following publication be used for making a determination: the United States Department of Agriculture- Natural Resources Conservation Service's current "Agricultural Waste Management Field Handbook, Part 651, Chapter 7, Geologic and Ground Water Considerations." The Commission found it appropriate to specify in the regulation use of this document.

Regarding protection of future drinking water system withdrawals, the Commission added language that requires the Division to perform a water source susceptibility analysis. The goal of the analysis is to reveal whether an AFO has a "medium-high" or "high" potential for contaminating existing or reasonably likely future drinking water system withdrawals from ground water. The Commission clarifies that "reasonably likely future drinking water system withdrawals" refers to any new development or public facility, such as a new housing area or school, proposed to be located within a Source Water Assessment area. In addition, the Commission intends that the Division use its current "Source Water Assessment Methodology for Ground Water Sources" document for conducting the water source susceptibility analysis, and that the Division may accept the use of other methodologies that appropriately evaluate the physical setting of the ground water and the contaminant threat from the AFO, using the factors stated in the regulation.

Where an AFO could adversely affect ground water quality, the Commission adopted language requiring that the AFO protect ground water by installing a liner such that the seepage rate from each impoundment does not exceed 1×10^{-6} cm/sec, which is the same seepage rate standard required of CAFOs. Language also was added that provides for liners to be installed according to an approvable plan that is developed in consultation with the Division.

PARTIES TO THE RULEMAKING HEARING

1. Colorado Livestock Association, the Livestock Government Affairs Project, the Colorado Cattleman's Association, Dairy Farmers of America, the Colorado Farm Bureau, the Colorado Corn Growers Association and the Colorado Horse Council (Colorado Livestock Association, et al.)

2. R. Dean Jarrett, Jr. and/or M Sue Jarrett

3. AGPROfessionals, LLC

4. City of Grand Junction, Department of Public Works and Utilities

5. Seaboard Farms, Inc.

6. Heritage & Mountain Prairie

7. Brink, Inc.

8. Colorado Pork Producers Councils

9. Manuello's Inc.

10. Veeman Dairy

11. ContiBeef, LLC.

81.23 STATEMENT OF BASIS, SPECIFIC AUTHORITY AND PURPOSE: APRIL, 2008 RULEMAKING, EFFECTIVE DATE OF JUNE 30, 2008

The provisions of sections 25-8-202, 25-8-205 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

A. BACKGROUND

This hearing was held to consider changes as recommended in the triennial review informational hearing for this regulation on May 14, 2007, and in subsequent testimonies provided by stakeholders and parties to the hearing process.

As a result of this rulemaking proceeding, the Commission adopted the following amendments to this regulation.

B. DISCUSSION OF AMENDMENTS

Section 81.1 (Applicability): On February 28, 2005, the U.S. Second Circuit Court of Appeals in Waterkeeper Alliance et al., v. EPA, 399 F. 3d 486 (2nd Cir. 2005) (Waterkeeper), vacated the requirement that a concentrated animal feeding operation (CAFO) has a "duty to apply" for a National Pollutant Discharge Elimination System (NPDES) permit. This requirement was specified in the federal CAFO rule that became effective on April 14, 2003 ("federal CAFO rule"). Therefore, the Commission revised Section 81.1 to delete the requirement that all CAFOs are subject to permitting requirements, and to add a sentence that reflects the permitting requirement as found in the current federal CAFO rule.

Section 81.2 (Purpose): As discussed below, today's adopted rule added the requirements that non-permitted CAFOs protect surface water and register with the Division. The "Purpose" section, therefore, was revised accordingly.

In addition, the four purposes were arranged to cite the ground water protection purpose first, since it applies to all CAFOs, whether permitted or not, to cite as second and third the purposes pertaining only to non-permitted CAFOs, and to list in fourth position the purpose pertaining to AFOs.

Section 81.3 (Definitions): The Commission added definitions of the following words, which are used in today's adopted regulation: best management practice, chronic storm, facility, freeboard, medium animal feeding operation, solid/liquid waste separation facility, stock watering point, stormwater, "25-year, 24-hour storm", wastewater treatment strip, and waters of the U.S. The definitions of chronic storm and "25-year, 24-hour storm" were taken from the Colorado Discharge Permit System Regulations (Regulation No. 61, 5 CCR 1002-61) in order to have consistency.

Regarding the stock watering point definition, the Commission intends for the term "hardened surface" to mean one that protects against water erosion, and includes surfaces made of gravel, concrete, cushioned padding, or stone cobbles.

The Commission revised for clarity the definitions of surface water and tank overflow. The surface water definition was revised to change "subsurface waters" to "ground water" and to make two minor edits. The tank overflow definition was revised to delete the word "cattle" and the word "process" in front of "wastewater."

The Commission deleted the definition of closed facility since this term is not used in today's adopted rule.

In the statement of basis and purpose for the 2004 revisions to this regulation, the Commission stated that: "The Commission finds it appropriate to exclude harvested dry forage from being defined as a 'raw material'." The Commission now notes that in some circumstances dry forage, or hay, meets the definition of a raw material, including, e.g., when it is stored for use in a location in or immediately adjacent to an animal confinement area. In view of the complexity reflected in the discussion during this hearing regarding drawing precise lines as to when hay is or is not a raw material subject to regulation as part of an animal feeding operation, the Commission believes that it is not appropriate to attempt to further define these terms in this rulemaking. Rather, interpretation and application of the regulatory language will be left to the case-by-case judgment of those implementing the regulation, taking into account the potential for adverse water quality impacts.

Section 81.4 (Designation of an AFO as a CAFO): The Commission amended this section to change "surface water" to "waters of the U.S." so that it reflects the language in the federal CAFO rule; that is, the federal CAFO rule provides for the designation of an AFO to a CAFO to be tied to waters of the U.S. This revision also makes the language consistent with that in section 61.17(4) of Regulation No. 61.

The Commission revised the word "wastes" to read "manure and wastewater" in order to clarify the regulatory meaning and intent of the word.

Because the Waterkeeper ruling removed the "duty to apply" for a permit provision in the federal CAFO rule, the Commission revised section 81.4(3)(b) to provide a designated CAFO the option to either apply for a permit or comply with the CAFO surface and ground water protection provisions of the regulation. In addition, section 81.4(4) was revised to require that a designated CAFO apply for a permit where it has discharged to waters of the U.S., which is required by section 61.17(2)(c) of Regulation No. 61.

New Section 81.5 (Register with Division): CAFOs are, by definition, point sources of pollution [per Section 25-8-103(14), C.R.S., of the Colorado Water Quality Control Act]. The Commission believes that CAFOs have the potential to discharge to waters of the state as a result of, for example, blizzards, sudden and intense rainfall events, or operational errors. Where a discharge is to waters of the U.S., it is subject to permit requirements (except those that are agricultural stormwater discharges as described in section 81.7(1)(c)), in accordance with sections 61.17(2)(b-c) of Regulation No. 61. However, as a result of the Waterkeeper ruling, a CAFO no longer has a duty to apply proactively for a NPDES permit. Where a CAFO elects to not apply for a permit, the Division may not have knowledge of its location and contact information. Such knowledge is important to help ensure that non-permitted CAFOs are in compliance with this regulation, including the ground water and agricultural stormwater exemption provisions, and with the permit requirement language in section 61.17(2)(b) of Regulation No. 61.

The information also is important for use by the Division to respond in a timely and effective manner to citizen complaints about a facility, including allegations of a discharge to waters of the U.S. Therefore, this regulation was revised to include a new section that requires non-permitted CAFOs to register with the Division by submitting information such as facility name, location, facility phone number, mailing address, and number of animals to be confined.

Regarding the number of animals that will be confined, the Commission intends for the number to represent the maximum number that a facility will confine in a year, and for the number to be broken down by the type of animals that will be confined (e.g., cattle, horses, dairy heifers, mature dairy cows, buffalo). It is not intended to be the cumulative or additive number of animals to be confined in a year.

New Section 81.6 (Facility Management Plan): Agreement among parties existed of the need for core documents required by the regulation (as opposed to dynamic documents, such as inspection records) to be located in one discrete place on a CAFO site for the benefit of the producer and for facilitation of inspections. As a result, the Commission created a new section that requires non-permitted CAFOs to compile a Facility Management Plan (FMP) that contains specified information under the following categories: 1) surface water protection elements –production area; 2) surface water protection elements – land application sites; 3) ground water protection elements – production area. The term Facility Management Plan was selected because the plan contains more than one category of information (e.g., it addresses more than nutrient management), has information about both the production area and land application sites, and to distinguish it from the nutrient management plan required of permitted CAFOs.

1. Surface water protection elements (background information). The Commission is aware that surface water protection provisions existed in the regulation prior to May 2004 and were removed because, as a result of the 2003 federal CAFO rule, all CAFOs would protect surface water as a result of having the duty to apply for a permit. However, as a result of the Waterkeeper ruling on February 28, 2005, a CAFO no longer has a duty to apply for a NPDES permit unless it discharges to waters of the U.S. As a result of this is ruling, it is anticipated that a majority of the estimated 200 CAFOs in the state will elect to not apply for a NPDES permit. Some of these CAFOs are located where a release of wastewater could discharge into surface waters of the state (from either the production area or a land application site), but not waters of the U.S. While such a discharge would not require a permit, it would be allowed under the previous Regulation No. 81 and would cause pollution of state waters.

   Similarly some CAFOs that elect to not hold a discharge permit are located where a release of wastewater could discharge into waters of the U.S. Where such a CAFO elects to not hold a permit, significant discharges to surface waters (albeit unauthorized discharges) can result from either no or a minimum of wastewater runoff controls being in place. In addition, wastewater runoff could flow unabated onto a crop field or neighboring property, which could be considered a nuisance.

   Agreement among parties to the hearing existed of the desire to have non-permitted CAFOs design their production areas, and to operate their production areas and application sites, substantially consistent with the standards specified for permitted CAFOs in section 61.17 of Regulation No. 61. This results in greater water quality protection, as well as a less confusing regulatory environment and equalization of economic positions among facilities.

   The Commission is aware, based on the above discussion, that such standards would affect all non-permitted CAFOs, whether or not a facility could discharge into waters of the U.S. In addition, the Commission considered the fact that where a non-permitted CAFO implements such standards and discharges to waters of the U.S., the discharge is a violation of sections 61.17(2)(b-c) of Regulation No. 61 (i.e., no discharge without a permit).

   The Commission concluded that, in the interest of protecting surface waters, and in light of the fact that surface water protection requirements for CAFOs existed in the regulation prior to May 2004, it is appropriate to have non-permitted CAFOs proactively protect surface waters by amending this regulation to require surface water protection provisions that reflect, where reasonable, those required of permitted CAFOs. Specifics of the requirements are discussed below.

2. Surface water protection elements – production area. The regulation was revised to include a subsection containing surface water protection requirements for the production area of non-permitted CAFOs. The main requirement is that wastewater control structures be designed and constructed to be capable of storing the volume of all liquid 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. These are the same standards required of permitted CAFOs. The regulation

also provides for, as an option to conventional impoundments, the use of a solid/liquid waste separation facility in conjunction with a wastewater treatment strip. The Commission is aware that, depending on the storm size or intensity, wastewater could exit the end of the treatment strip and discharge into waters of the U.S. Where a non-permitted CAFO operator elects to use this wastewater control system, and a discharge to waters of the U.S. occurs, it is clear from sections 61.17(2)(b-c) of Regulation No. 61 that such a discharge is subject to permit requirements.

In recognition that a number of CAFOs currently do not have in place the required control structures, the Commission determined that three-years was a reasonable amount of time for the structures to be constructed. Therefore, a deadline of May 31, 2011 was placed in the regulation for production area requirements to be developed, implemented, and included in the FMP.

The adopted regulation includes language from section 61.17(8)(c)(i)(B) of Regulation No. 61 indicating when an impoundment must be dewatered once the storage capacity is less than that required to store runoff from the designed storm event ("pumping level"). The language from section 61.17(8)(c)(i)(A) requiring that a minimum of two feet of freeboard exist in an impoundment was not included in today's adopted rule since it is a moot requirement where it is the pumping level that must be maintained and this level is lower than two feet of freeboard.

Section 81.6(1)(c) of the adopted rule includes the requirement from section 61.17(8)(g)(vii)(D) of Regulation No. 61 that depth markers be clearly marked, at minimum, in one (1) foot increments. The Commission intends that the markers show the depth of the impoundment, beginning at the top of the impoundment. In addition, Section 81.6(1)(c) specifies that only impoundments that are necessary to hold the runoff from the applicable storm event must have depth markers.

3. <u>Surface water protection elements – land application sites.</u> The regulation was revised to include a subsection containing surface water protection requirements for the land application sites. In order to have consistency with section 61.17(8)(c) of Regulation No. 61, a deadline of February 27, 2009, was set for the elements to be developed, implemented, and included in the FMP.

The surface water protection requirements are the same as those required of permitted CAFOs, except as follows: (1) The permit regulation requirement that process wastewater not be applied to either frozen or flooded land application sites was revised to state that "there shall be no discharge to surface water from land application activities when the ground is frozen or saturated." The Commission determined that the revision is appropriate because the permit regulation requirement is a technical standard not specified in the federal rule and the revised standard is protective of surface waters while providing flexibility in application timing. This provision also is applicable to where applied wastewater freezes on the soil surface and subsequently melts and runs off of the application site. (2) The permit regulation requirement that the soil water holding capacity of the soil cannot be exceeded when wastewater is sprinkler-applied was omitted since it would conflict with the revised language noted in number (1) above.

As in the CAFO permit regulation (section 61.17(8)(c)(x)(A) of Regulation No. 61), the adopted regulation requires that phosphorus transport risk assessments be made using a screening tool approved by the Division that is current, readily available, peer-reviewed, and appropriate for use in Colorado. The Commission is aware that one evaluation tool, the Colorado Phosphorus Index Risk Assessment published by the United States Department of Agriculture – Natural Resources Conservation Service ("P Index"), exists for phosphorus transport risk assessments and that this tool is useful and applicable to Colorado agronomic conditions. This tool rates transport risks as 'low', 'medium', 'high', or 'very high'. Therefore, today's adopted language specifies that assessments of phosphorus transport risk be made using a screening tool that results in a risk score of 'low', 'medium', 'high', or 'very high'. The Commission intends that the most current P Index be the preferred assessment tool, unless the Division has approved an equivalent or better tool.

The Commission is aware that a published tool suitable for assessing nitrogen transport risk does not currently exist. Therefore, it finds that use by operators of the technical standards specified in sections 81.6(2)(b)(i) and (iii), in conjunction with the requirement that land application sites be evaluated for phosphorus runoff risk, will result in nitrogen transport to surface waters being minimized.

The Commission is aware that an evaluation of the risk of phosphorus runoff from land application sites has not previously been a requirement for CAFOs applying process wastewater or manure, and that some land application sites may have a very high risk of such runoff. Therefore, the Commission adopted language that provides for a three (3) year phased implementation of phosphorus-based nutrient management for land application sites that have a very high risk of phosphorus runoff when first evaluated after the adoption of today's rules.

Regarding soil sampling protocols, the Commission clarifies that the appropriate soil sampling depth be governed by commonly accepted nutrient budget methodologies, such as Colorado State University Cooperative Extension fertilizer recommendations or a nutrient management plan that meets United States Department of Agriculture – Natural Resources Conservation Service standards. Where a methodology indicates that a certain sampling depth is necessary and a deeper depth is preferred, sampling to the former depth meets the intent of these regulations.

The adopted regulation requires that land application equipment be inspected for leaks. The Commission intends that such inspections be made within the six-month period prior to the first application of manure or wastewater being made in any given year. In addition, such equipment shall be inspected at least once daily when applying process wastewater.

The adopted regulation requires that manure and wastewater be applied as uniformly as possible with properly calibrated equipment. Dry manure is notably difficult to apply uniformly and evenly. Testimony in the record showed that contract haulers typically apply dry manure at a rate of between 10%-20% of the target agronomic rate (e.g., 20 tons/acre) and that Colorado State University research shows that the amount of manure applied to a field as calculated from two common calibration methods is not significantly different from the amount that contract haulers stated that they applied to the same field. In addition, where manure is applied within 10%-20% of the calculated agronomic rate, the nitrogen loading of the soil will self-balance over time as the result of subsequent soil samples and agronomic rate calculations based on the nitrogen concentration in those samples. Therefore, the Commission concludes that where the amount of dry manure applied to a field with properly calibrated equipment is within 10%-20% of the calculated agronomic rate, the application is compliant with this adopted provision. In addition, the Commission recognizes as an appropriate calibration method where a contract hauler adjusts his/her application rate "on-the-go" during application to a field. The Commission emphasizes that the expectation of the regulation is that dry manure be applied at the calculated agronomic rate using an appropriate calibration method.

4. <u>Ground water protection elements – production area.</u> As noted above, one purpose of the FMP is to have core documents (not records) required by the regulation to be located in one discrete location on a CAFO site for the benefit of the producer and for facilitation of inspections. Thus, the regulation was revised to specify that certain documents required by the ground water protection provisions of this regulation, such as the approved Standard Operating Procedure, be placed in the FMP. The Commission determined that these documents should be in the FMP by February 27, 2009, which is the same date that surface water protection provisions must be in place.

5. <u>New Section 81.7 (Additional requirements):</u> The Commission established a new section of this regulation to include certain performance standards, and recordkeeping and discharge reporting requirements, as they are not appropriate for inclusion in other previous or revised parts of this regulation. The provisions of new sections 81.7(1)(b) and 81.7(2)(c) pertain to the agricultural

stormwater discharge criteria specified in section 61.17(2)(b-c) of Regulation No. 61, and are included here to have the criteria be enforceable outside of the permitting regulation.

The Commission decided that the discharge reporting requirements are necessary because the Division does not have adequate staff to monitor, in real time, all discharges to waters of the U.S. Certain timely information is needed about a discharge prior to making the determination that a CAFO must apply for a discharge permit, in accordance with sections 61.17(2)(b-c) of Regulation No. 61.

Section 81.7(2)(c) includes language allowing the Division to approve an alternative to recording weekly depths of wastewater as indicated by depth markers. For example, depths could be measured and recorded using sonar or pressure transducers. Requests from operators to use an alternative method should demonstrate why the alternative will be at least as accurate as using depth markers, how an alternative instrument will be calibrated (for example, by comparing monthly the wastewater levels shown on the depth markers with those recorded by the alternative instrument), and how records of wastewater measurements will be taken and maintained (for example, on the web).

New Section 81.8 (Ground water protection – CAFOs): This section previously existed as section 81.5. The section title was revised to show that it applies to both permitted and non-permitted CAFOs, as opposed to the new sections 81.6 and 81.7, which are applicable to only non-permitted CAFOs.

1. Liner certifications. Subsection 81.8(2)(b) was revised to move liner certification deadlines to new subsections 81.8(2)(b)(i-iii). Subsection 81.8(2)(b)(ii) carries forward previously existing language in section 81.8(2)(b), but which today's ruling revised to remove the requirement that a liner certification for a new impoundment needs to be in place 30 days prior to wastewater entering the impoundment. It is sufficient simply to have the certification be in place prior to wastewater entering the impoundment. In addition, the subsection was revised to pertain to impoundments constructed after June 30, 2004 and before February 27, 2009. The reason for this revision was to separate these impoundments from those constructed after February 27, 2009, which now are required by subsection 81.8(2)(b)(iii) to have available both the liner certification and, where applicable, the seepage rate calculations using Darcy's Law.

   The previous regulation required that liner certifications be available on facility sites. Today's ruling retains this requirement and adds as section 81.8(2)(b)(iv) the requirement that certifications for impoundments constructed after February 1, 2007, be submitted to the Division by specified deadlines so that the Division has assurance that these important documents pertaining to ground water protection have been generated. As a result of an operator self-certification process conducted by the Division, liner certifications for impoundments constructed prior to February 1, 2007, should have been submitted to the Division.

   The Commission revised subsection 81.8(3)(b) to show that a liner re-certification needs to be made by a professional engineer registered in Colorado.

2. Liner inspections. The Commission is aware that both earthen and synthetic (e.g., plastic) liners are subject to damage from various causes. Thus, subsection 81.8(2)(c) was revised to delete the word "earthen" prior to "impoundment" to have the provision require that both earthen and synthetic liners be inspected weekly.

3. Manure removal certifications. To have the requirement be more appropriately positioned and more easily identified, the requirement that the approvable standard operating procedure (SOP) be on-site (previously part of subsection 81.8(3)(d)) was moved to become the new subsection 81.8(3)(a).

The Commission modified for clarity section 81.8(3)(c) to have the phrase "a new CAFO" read "a CAFO that comes into existence after December 31, 2004."

Subsection 81.8(3)(d) requires an operator to certify after each manure removal event that the manure was removed in accordance with the approved SOP. Implementation of this provision revealed that some concrete-lined impoundments are cleaned of manure daily, and some are cleaned a number of times daily, such as slurry pits in some dairy freestall barns. For such impoundments, it is not reasonable to expect an operator to certify after each cleaning that manure was removed in accordance with the approved SOP. However, where a certification is not provided after each removal event, the Commission is aware that concrete liner integrity can deteriorate with time, which can result in the rate of seepage exceeding the 1×10^{-6} cm/sec threshold. Therefore, the Commission provided the option that where the operator does not complete a certification after each manure removal event, the impoundment must be drained and cleaned every five years and evaluated for liner integrity. The Commission expects that the evaluation determine whether the concrete is free of visible defects and distress that would reasonably cause the liner to not be capable of having a maximum seepage rate of 1×10^{-6} cm/sec. It is appropriate to have the operator use best professional judgment in making the integrity evaluation as opposed to having a professional engineer make the evaluation. The adopted regulation specifies that damaged concrete liners be repaired and that evidence of liner evaluations and repairs, such as photographs, be kept and be submitted to the Division.

4. Impoundment setbacks. The previous subsection 81.8(6)(a) required a setback distance to ground water of 20 feet for earthen-lined impoundments at new source CAFO sites. As the result of testimony, the Commission concludes that this requirement is not relevant for the purpose of protecting ground water from impoundment seepage and for protecting impoundment liners from the affects of hydrostatic pressure. Therefore, this previous subsection was deleted by today's rulemaking.

The previous subsection 81.8(6)(b) [which is now subsection 81.8(6)(a)] required a setback distance of four feet from seasonally high ground water to the liner of a new source impoundment. The intent of this setback was to ensure that hydrostatic pressure from ground water will not affect the liner integrity; that is, it provided an insurance factor that allowed for some increase in the ground water level after impoundment construction to occur without the ground water contacting the liner. The Commission believes that the four foot setback is still appropriate as an insurance factor, but finds that a liner can also be protected from hydrostatic pressure where ground water is less than four feet from the liner by installation of an engineered feature (such as a dewatering system) that prevents ground water from contacting the liner. Thus, the adopted regulation includes a new subsection 81.8(6)(a) that allows for a liner to be constructed closer than four feet to ground water where the impoundment is constructed and maintained in accordance with the design by a professional engineer registered in Colorado that prevents ground water from contacting the impoundment liner. The purpose of such a design is to prevent hydrostatic pressure from affecting liner integrity.

As a result of the addition of subsection 81.8(6(a), any new impoundment, not just one at a new source facility, can comply with the ground water setback requirements. In addition, a significantly expanded impoundment can be designed to protect the liner from shallow ground water. Thus, the Commission revised section 81.8(6) to pertain to new and significantly expanded impoundments, instead of to just new source impoundments. The Commission finds it reasonable to have a significantly expanded impoundment mean one that is expanded by 50 percent or more of its existing storage capacity.

To provide needed clarity, section 81.8(6)(a) was revised to refer to the bottom of an impoundment liner instead of to an impoundment bottom.

The Commission is aware that it may be desirable to construct a CAFO impoundment nearby to a structure that contains surface water, such as a berm of an irrigation canal. Where such an impoundment meets the liner construction and protection requirements of this regulation, a release of pollutants from the liner to ground water is not considered a discharge to the ground water, in accordance with subsection 61.14(9) of Regulation No. 61. The Commission clarifies, however, that where a release of pollutants from the liner is to surface water (for example, the irrigation canal water), such a discharge is a discharge to surface water that is subject to the permitting requirements of section 61.17(2)(b) of Regulation No. 61.

5. Ground water remediation (new subsection). The Commission recognized in its 1992 rulemaking the need to protect ground water under CAFOs by including in this regulation the "Ground Water Protection Requirements – Concentrated Animal Feeding Operations." Where the Division determines that an operator caused ground water contamination through non-compliance with this regulation, the Commission finds it is appropriate that the operator remediate such contamination. To this end, a "Ground Water Remediation" subsection was added that specifies that the Division must determine that non-compliance by the CAFO with these regulations caused or contributed to the exceedance of ground water quality standards and, where so determined, the requirement that the CAFO submit to the Division certain information, such as investigation and remediation plans, by specified deadlines. The new subsection also requires implementation of plans by specified deadlines.

6. Impoundment closure. The previous impoundment closure language pertains only to where a CAFO facility closes. Implementation of this language revealed that situations exist where an impoundment needs to be closed even though the facility as a whole is not closing. The previous language also specifies that the default requirement for a closed earthen impoundment is backfilling with at least five feet of soil. Depending on the impoundment depth, such backfilling could cause ponding of rainfall and stormwater, which may cause material injury to state water rights. Therefore, the Commission revised the regulation to have impoundment closure pertain to any closed CAFO impoundment, to require that soil fill be sufficient to prevent ponding, and to have the soil fill requirement pertain to any closed impoundment, including synthetic-lined impoundments.

   The Commission retained the provision that an operator can close an impoundment using an alternative procedure and timeline approved by the Division. The Commission intends that one approvable alternative is backfilling with at least two feet of soil that is graded to reasonably prevent water ponding and provides for stormwater to drain from the impoundment through, for example, a breached berm of the impoundment.

   In addition, the adopted language requires that manure and wastewater be removed from a closed pond within 60 days of closure, but flexibility is provided to have the Division approve an alternative timeline proposed by an operator that addresses site specific needs, conditions, and/or circumstances.

New Section 81.9 (Animal Feeding Operations - BMPs): This section previously existed as section 81.6. The following revisions were adopted as a result of this rulemaking.

1. Collect manure frequently. This best management practice (BMP) currently exists under the general BMP category of "Practices to decrease open lot surface area." The Commission determined that this BMP was more appropriate under the general BMP category of "Practices to minimize manure transport to surface water", and moved it accordingly.

2. Practices to decrease wastewater discharges to watercourses. The word "watercourses" in this general BMP header was changed to "surface water", which is a defined term in this regulation.

An existing BMP provides for an AFO to "collect and allow wastewater to evaporate." The Commission has concerns that storage and evaporation of open-lot wastewater (which results primarily from runoff from pens as a result of precipitation) may cause material injury to state water rights. As a result, the BMP was modified to have it pertain to process-generated wastewater only. In addition, since process-generated wastewater typically has a higher concentration of pollutants than open-lot wastewater, and a Medium AFO can produce a significant volume of process-generated wastewater (such as from a dairy milking parlor), and inadequately controlled process-generated wastewater can have a significant impact on surface water quality, the Commission added a design standard that a Medium AFO have the capability of storing process-generated wastewater for 180 days, at minimum. However, where a Medium AFO anticipates eventually confining enough animals to be defined as a Large CAFO, the Commission encourages the operation to construct the impoundment to meet the capacity standard required of CAFOs.

An existing BMP provides for an AFO to "collect and evenly apply wastewater to land application sites at an agronomic rate." Since a Medium AFO can produce a significant volume of wastewater (open-lot plus process-generated wastewater), and a number of Medium AFOs operate with animal numbers that are close to the Large CAFO threshold numbers, and inadequately controlled wastewater can have a significant impact on surface water quality, the Commission established a minimum design standard that a Medium AFO have the capability of storing wastewater for 120 days, at minimum. This is a reasonable length of time during which no land application can typically occur due to conditions during winter months (e.g., cold weather). However, where a Medium AFO anticipates eventually confining enough animals to be defined as a Large CAFO, the Commission encourages the operation to construct the impoundment to meet the capacity standard required of CAFOs.

Where a BMP requires that manure or wastewater be applied at an agronomic rate, the Commission finds it appropriate that an AFO keep records showing that agronomic rate applications have occurred. Thus, sections 81.9(4)(b) and 81.9(5)(e) of the regulation were revised accordingly.

The Commission has become aware that management methods other than impoundments, such as a wastewater treatment strip, are available that can appropriately satisfy the intent of decreasing wastewater discharges to surface water. In addition, impoundments typically are not appropriate for AFOs located over shallow ground water. Therefore, the Commission added flexibility to this regulation by adding a wastewater treatment strip as a BMP, and stating that other methods are appropriate where approved by the Division. These methods are appropriate for managing open-lot wastewater only, for reasons previously discussed above.

As specified in sections 81.3(19) and 81.4 of the regulation, where animals at an AFO have direct contact with waters of the U.S., the AFO is either defined as a Medium CAFO or is at risk of being designated as a CAFO. Because of these provisions, the Commission added to section 81.9(4) a BMP prohibiting animal access to surface water. However, the Commission is aware that a number of AFOs were historically located adjacent to flowing water, which served as the water source for the confined animals. This flowing water often is the sole source of water for the animals because, for example, a well permit or diversion right (which could be used to divert water from a river to a stock tank) can't be acquired in these times of heavily appropriated water. In recognition of these realities, the Commission concluded that it is reasonable to allow animals to obtain drinking water from surface water where the animals do not reasonably have access to any other source of drinking water, and that for such situations, surface water will be reasonably protected by animal access to the surface water being strictly limited via a constructed stock watering point. The Commission provided in the BMP and in the definition of a stock watering point the design and operational standards for a stock watering point.

Improperly handled animal mortalities can be a significant source of surface water contamination. In recognition of this, section 25-1-612, C.R.S., specifies that dead animals shall not be placed in surface water or other specified areas. The Commission decided to emphasize the need for AFOs to properly handle mortalities by requiring that a discharge from mortalities to surface water be prevented.

3. Practices to minimize manure discharges to watercourses. The word "watercourses" in this general BMP header and in subsection 81.9(5)(a) was changed to "surface water", which is a defined term in this regulation.

4. Practices to protect ground water. As discussed previously, a Medium AFO can produce a significant volume of wastewater (open-lot and/or process-generated wastewater), especially those that operate with animal numbers that are just below the Large CAFO threshold numbers. Where an impoundment is in place to store the wastewater, ground water quality is at risk from pollutants (especially nitrogenous compounds) percolating through the vadose zone under the impoundment. In light of this risk, the Commission revised the regulation to add a new subsection 81.9(6)(c) requiring that an impoundment at a Medium AFO be lined such that the seepage rate from the impoundment does not exceed 1×10^{-6} cm/sec, which is the same standard required of CAFOs. In addition, the facility must have at the facility documentation from a professional engineer registered in Colorado certifying that a liner of an impoundment does not allow a seepage rate in excess of 1×10^{-6} cm/sec.

   As a result of this regulatory addition, the Commission amended sections 81.9(6)(c) and 81.9(6)(c)(i) to have them not pertain to Medium AFOs.

   The Commission recognizes that Medium AFOs will need time to test existing liners and, where a seepage rate is in excess of 1×10^{-6} cm/sec, time to install a compliant liner. Therefore, a deadline of May 30, 2011, was set for a Medium AFO to have at the facility the required documentation from a professional engineer for an impoundment constructed on or prior to December 31, 2008. This is the same deadline by which non-permitted CAFOs must have constructed in the production area the surface water protection structures specified in section 81.6(1). For an impoundment constructed after the effective date of this rulemaking, the documentation from a professional engineer must be available prior to wastewater entering the impoundment.

Administrative Revisions

The Commission added the following phrase to the first sentence of the introductory paragraph of this regulation because the acronym C.F.R. is used in the regulation: "including references to the Code of Federal Regulations (C.F.R.)."

In sections 81.8(2)(b), 81.8(5)(b and d), and 81.8(7), the Commission amended references to section 81.5 to be section 81.8, because section 81.5 was changed to be section 81.8.

The Commission modified for correctness section 81.8(2)(a)(ii) to have the outline notations I, II, III, and IV read A, B, C, and D, respectively.

The Commission modified for correctness section 81.9(3)(a) to have "caterers" read "waterers."

In order to segregate two requirements, the Commission moved the phrase "avoid applications on saturated soils and lands subject to erosion" from section 81.9(5)(e) and placed it in a new subsection 81.9(5)(f).

The Commission modified for clarity section 81.9(5)(g) to have the phrase "edge of field, grassed strips filter fences" read "edge of field grassed strips, filter fences."

The Commission modified for correctness sections 81.9(6)(c)(i) to have the outline notation I, II, and III read A, B, and C, respectively.

The Commission modified for correctness sections 81.9(6)(c)(ii) to have the outline notation I and II read A and B, respectively.

PARTIES TO THE RULEMAKING HEARING

1. Colorado Livestock Association

81.24 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: AUGUST 10, 2009 RULEMAKING – HB 09-1330 IMPLEMENTING REGULATIONS; EFFECTIVE DATE OF SEPTEMBER 30, 2009

The provisions of sections 25-8-202(1)(c) and (2) ; 25-8-205; and 25-8-402, C.R.S., provide the specific statutory authority for the amendments to this regulation adopted by the Water Quality Control Commission (Commission). The Commission has also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

House Bill 09-1330 was passed by the Colorado General Assembly in the 2009 legislative session. Effective July 1, 2009, the legislation increases annual fees assessed by the Department of Public Health and Environment on permitted housed commercial swine feeding and concentrated animal feeding operations and adds a new administrative fee for non-permitted concentrated animal feeding operations under the Colorado Water Quality Control Act. The bill also transfers certain funds from the Water Quality Control Fund to a newly created Animal Feeding Operation Fund. In addition, the bill requires the Department of Public Health and Environment to report annually to a joint session of the Senate Agriculture and Natural Resources Committee and the House of Representatives Agriculture, Livestock and Natural Resources Committee on or before March 31st of each year.

In this written-comment-only rulemaking hearing, the Commission adopted revisions to the Colorado Discharge Permit System Regulation #61 (5 CCR 1002-61) and to the Animal Feeding Operations Control Regulation #81 (CCR 1002-81) as needed. In particular, the specific annual fee and additional explanatory information included in sections 61.13(5)(a) and (b) of Regulation #61 were revised to generally cite the section of the Colorado Revised Statute, section 25-8-502(1)(b)(I), C.R.S., and to reference the general provisions included in section 61.15 that are applicable to Housed Commercial Swine Feeding Operations. In addition, a new section, 81.7(4), was added to Regulation #81 to clarify that non-permitted concentrated animal feeding operations are subject to a new administrative fee as set forth in section 25-8-502(1)(g), C.R.S. Also included in this section were additional process-related billing requirements associated with the Division's collection and proration of non-permitted concentrated animal feeding operation registration fees.

81.25 STATEMENT OF BASIS, SPECIFIC AUTHORITY AND PURPOSE: OCTOBER 7, 2013 RULEMAKING, EFFECTIVE DATE OF NOVEMBER 30, 2013

The provisions of sections 25-8-202, 25-8-205 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

A. BACKGROUND

This hearing was held to consider changes as recommended during the triennial informational hearing for this regulation held on August 13, 2012, and during subsequent discussions with stakeholders and parties to the hearing process.

As a result of this rulemaking proceeding, the Commission adopted the following amendments to this regulation.

B. DISCUSSION OF AMENDMENTS

Typographical Errors, Corrections, and Updates: The Commission corrected typographical errors and inconsistencies in the use of terms found throughout the regulation. The corrections have no effect on the substantive meaning of the regulation.

Introduction: The language was revised by the Commission to add clarity and consistency with other regulations.

Applicability [81.1]: Reference to Regulation No. 66 was added by the Commission to reflect all permitting requirements for Housed Commercial Swine Feeding Operations.

Definitions [81.3]:

The definition of “25-year, 24-hour” storm was moved to the beginning of the subsection to maintain proper alphabetical order and renumbered accordingly. In addition, corresponding citations were updated to reflect this change.

The definition of “Division” was revised to reflect that under the organic statute and Water Quality Control Act, the Water Quality Control Division is a part of the Division of Administration of the Department of Public Health and Environment in accordance with §§ 25-1-109 and 25-8-103(4), C.R.S. In addition, the definition was also amended to reference the Environmental Agriculture Program as the implementing authority of this regulation.

The definitions of “Freeboard” and “Land Application Site” were revised to add clarity and consistency with the corresponding definitions found in Regulation No. 61.

The Commission modified the definition of “Open-lot Wastewater” to include precipitation that comes into contact with feed. Previously all water that came into contact with feed, including precipitation, was considered process-generated wastewater, which requires more stringent management practices. Stakeholders to this rulemaking argued that this was an unnecessary burden on small and medium AFOs that typically do not have the ability to implement the measures required to manage process-generated wastewater. In addition, the Division was unable to find any available documentation that indicates the wastewater resulting from precipitation coming into contact with feed is not any more detrimental to the environment than sources already considered open-lot wastewater. Therefore, the Commission feels it is appropriate to include feed in the definition of open-lot wastewater and require animal feeding operations to manage this source of wastewater accordingly. As a result, this change reduces the regulatory burden on small and medium AFO operations, while maintaining the regulatory requirements for operations defined as large CAFOs.

The definition of “Process-generated Wastewater” was reformatted to provide clarity. In addition, water used for cooling or cleaning feed mills (also known as blow-down water) was removed from the definition. Blow-down water was previously considered a non-intermittent, process-generated wastewater, which required any related conveyance to meet a liner seepage rate standard of $1x10^{-6}$ cm/sec. Stakeholders to the rulemaking argued that feed mill blown-down water is basically clean water that poses little risk to the

environment and contended that the conveyance liner standard was therefore onerous and unnecessary. The Division evaluated available information regarding feed mill blow-down water and determined that relative small quantities are produced from normal feed mill operations and the potential risk to groundwater is minimal. Therefore, the Commission finds it appropriate to remove blow-down water from the definition of process-generated wastewater. However, the Commission does consider blow-down water to still be a potential source of pollutants and therefore, should be managed in accordance with the regulatory requirements associated with open-lot wastewater.

The definition of "Tank Overflow" was removed from this subsection and incorporated into the definitions of "Process-generated Wastewater" and "Open-lot Wastewater". Consolidation of this term also eliminates confusion inherent with the definition of "Tank".

Requirements – Non-Permitted Large CAFOs [81.5]:

The Commission moved subsections 81.7(1), 81.7(3) and 81.7(4), to subsection 81.5(1), 81.5(3), and 81.5(4), respectively, to consolidate the general requirements for non-permitted large CAFOs. The previous contents of subsection 81.5, which addressed the requirement for non-permitted large CAFOs to register with the Division, are now incorporated into the general requirements for large non-permitted CAFOs in subsection 81.5(2).

The Commission revised the language in the new subsection 81.5(3), previously 81.7(3), to require CAFO operators to notify the department's 24-hour Colorado Release and Incident Reporting Line in the event of a discharge or reportable incident. Subsequently the language in subsection 81.5(3)(a) was modified to reflect this change.

Facility Management Plan – Non-Permitted Large CAFOs [81.6]:

The Commission found it appropriate to delete subsection 81.6(1)(a), as it contained redundant requirements currently stated in 81.6(1). Subsequent subsections of 81.6(1) were renumbered as a result of this deletion. The compliance date of May 30, 2011 remains in the subsection to document the date in which all applicable facilities were to be in compliance with these regulatory provisions.

Section 81.6(1)(a)(i) was reformatted by the Commission to add greater clarification.

The term "liquid manure" was replaced with "manure" in subsection 81.6(1)(a)(i)(A) because the previous term is not defined in this regulation. In addition, the Commission found it appropriate to incorporate language from 61.17(8)(b)(iii)(A), which allows a facility to request an alternative freeboard level for wastewater impoundments. Inclusion of this provision provides consistency across both regulations and increased flexibility for producers.

Portions of the language in subsection 81.6(1)(a)(iii), were removed to provide clarity and better understanding of the regulatory requirement for CAFOs implementing filter strips. The Commission determined that the deleted language only restated the surface water protection elements presented in subsections 81.6(1)(a)(i), and 81.6(1)(a)(ii). The section was also reformatted to provide greater clarification. The ability for the Division to approve alternative wastewater management methods was moved from 81.6(1)(a)(iii), to 81.6(1)(a)(v), as a result of the reformatting.

The Commission revised the stormwater diversion sizing requirement in subsection 81.6(1)(c), to be consistent with the same requirement found in Regulation No. 61, and to not be more stringent than federal requirements.

The Commission found it appropriate to delete subsection 81.6(2)(a), as it contained redundant requirements currently stated in 81.6(2). Subsequent subsections of 81.6(2), were renumbered as a result

of this deletion. The compliance date of February 27, 2009 remains in the subsection to document the date in which all applicable facilities were to be in compliance with these regulatory provisions.

Subsection 81.6(2)(a)(ii)(B) was added by the Commission to the manure, wastewater, and soil sampling and analysis requirements in subsection 81.6(2)(a)(ii). A requirement to annually test land application sites for soil nitrate-nitrogen was added to be consistent with similar requirements found in Regulation No. 61 and to correspond with Colorado State University Extension and USDA, NRCS guidelines. Annual soil testing will also provide greater protection of groundwater. The remainder of the subsection was renumbered accordingly.

The Commission found it appropriate to change Cooperative Extension in Colorado to Colorado State University Extension in subsection 81.6(2)(a)(iii)(C) to accurately represent the referenced agency.

Language in subsection 81.6(2)(a)(iii)(c), was revised by the Commission to be consistent with similar requirements of Regulation No. 61. In addition, reference to the Comprehensive Nutrient Management Plan was removed as it is redundant with the nutrient management planning guidelines already referred to in the subsection.

Subsection 81.6(2)(b)(i)(A) was revised by the Commission to clarify that scoring off-site phosphorus transport risk as ‘low’, ‘medium’, ‘high’ or ‘very high’ is not a function of the screening tool but is a function of the Colorado Phosphorus Index Risk Assessment or other Division-approved method.

The Commission revised subsection 81.6(2)(b)(ii) to be consistent with the most current USDA, NRCS Colorado Phosphorus Index Risk Assessment regarding the application of nutrients to land application sites that are assessed a off-site phosphorus transport risk factor of ‘high’.

The Commission revised subsection 81.6(2)(b)(iii) to be consistent with the most current USDA, NRCS Colorado Phosphorus Risk Assessment regarding the application of nutrients to land application sites that are assessed a off-site phosphorus transport risk factor of ‘very high’.

The Commission found it appropriate to move the language in subsection 81.6(2)(b)(iv), to the new subsection 81.6(4), in order to consolidate the CAFO recording keeping requirements.

The Commission revised subsection 81.6(2)(e), to be consistent with the mortality management requirements of Regulation No. 61.

The compliance date of February 27, 2009 was retained in subsection 81.6(3) by the Commission to document the date in which all applicable facilities were to be in compliance with these regulatory provisions.

Language in subsection 81.6(3)(a), was revised by the Commission to include all impoundment related groundwater protection records. Applicable citations were updated accordingly.

Language in subsection 81.6(3)(b), was revised by the Commission to include all Standard Operating Procedure (SOP) records. Applicable citations were updated accordingly.

The Commission felt it appropriate to combine subsections 81.6(2)(b)(iv), and 81.7(2), into a new subsection 81.6(4), in order to consolidate the records non-permitted large CAFOs are required to maintain in their Facility Management Plan.

Additional Requirements – Non-Permitted CAFOs [81.7]: The Commission moved section 81.7 to section 81.5 to consolidate the general requirements for non-permitted large CAFOs.

Ground Water Protection Requirements – Concentrated Animal Feeding Operations (Permitted and Non-Permitted [81.7] (previously section 81.8):

The Commission revised the language in subsection 81.7(2)(a)(ii), to clearly indicate that the liner seepage rate standard of 7.35 x 10^{-6} cm/sec is appropriate only for earthen lined impoundments that collect open-lot wastewater.

Previous subsection 81.8(2)(b)(i), required that a liner certification for an impoundment built prior to June 30, 2004, be available by no later than April 13, 2006. The Commission felt it appropriate to delete this subsection since the compliance date has passed. Evidence of an impoundment liner certification must be made available upon request, as required by 81.7(2)(b)(i).

Previous subsection 81.8(2)(b)(ii), required that the liner certification for an impoundment built after June 30, 2004, and before February 7, 2009, be available prior to wastewater entering the impoundment. The Commission felt it appropriate to delete this subsection since the compliance dates have passed. Evidence of an impoundment liner certification must be made available upon request, as required by 81.7(2)(b)(i).

Language previously found in subsection 81.8(2)(b)(iii), that addressed the liner requirements for impoundments constructed after February 27, 2009, was revised by the Commission and incorporated into subsection 81.7(2)(b).

The Commission deleted the past compliance date of December 31, 2004 from subsections 81.8(3)(c), and 81.8(3)(c)(i). The remaining language of 81.8(3)(c)(i), which requires an SOP to be submitted to the Division within 120 days of animals being placed on the production area, was revised and renumbered as subsection 81.7(3)(c).

The Commission found it appropriate to revise the language in subsection 81.7(3)(d), to clarify the requirements for cleaning, inspecting, and repairing concrete-lined impoundments. The stakeholder comment record shows that stakeholders were often times confused by the regulation's use of the word "certify" when addressing determinations the operator was expected to make regarding liner integrity. Stakeholders felt the language implied a professional engineer must certify the integrity of the concrete lined structures every five years. By revising the language and removing the term "certify", the Commission feels the regulation now appropriately reflects the original intent of this subsection as discussed in the Statement of Basis and Purpose for amendments to this regulation during the April, 2008 rulemaking.

Stakeholders requested that the wastewater conveyance liner standard, particularly for open-lot and intermittent process-generated wastewater conveyances in subsections 81.8(5)(a), and 81.8(5)(b), be reviewed because these regulatory requirements were perceived as onerous, with minimal environmental protection benefit. In discussions with stakeholders, the Division was informed that the compaction of soil required by the standard is often comparable to in-situ soil conditions and adds little in minimizing seepage from conveyances. Furthermore, wastewater is conveyed in these structures for a short period of time, with minimal depth of flow, so little head pressure is present resulting in seepage. During the evaluation, the Commission also determined that the standard, while addressing gravel content, did not address other aspects of soil composition, such as porosity, that can also greatly influence the potential of seepage from a conveyance structure. In addition, the regulations of several surrounding states were reviewed in the course of this evaluation and the Commission found that none contain a similar regulatory requirement.

Based on the information presented above, the Commission found it appropriate to remove the seepage liner standard for minimizing seepage from open-lot and intermittent process-generated wastewater conveyances from subsection 81.7(5). In addition, the Commission clarified that a conveyance structure shall be designed and maintained to convey, but not store, any manure or wastewater. Given that non-intermittent, process-generated wastewater conveyances are in a constant wetted condition where

seepage can be greater, the requirement for these types of conveyance structures to be constructed and maintained to a minimum seepage rate of 1 x 10^{-6} cm/sec was retained in subsection 81.7(5)(a). Language in subsection 81.7(5), was also revised to replace the term “non-intermittently” with the term “continuously” to better clarify when the liner requirement is applicable.

Subsection 81.7(6)(a)(i), required that new or expanded impoundments located where seasonally high ground water level is located within four feet of the bottom of the impoundment liner, be constructed and designed to prevent ground water from contacting the impoundment’s liner. Through discussions with stakeholders and review of NRCS impoundment design guidelines, the Division learned that groundwater contacting the impoundment’s liner may be acceptable provided that the impoundment was constructed and maintained to account for hydrostatic pressure adversely affecting the integrity of the liner. Therefore, the Commission revised the language of the subsection to reflect this finding.

The Commission deleted the acronyms IP and RP in section 81.7(8), previously section 81.8(8), and spelled out “investigation plan” and “remediation plan” to provide better clarification of the plans.

Animal Feeding Operations – Best Management Practices [81.8] (previously section 81.9):

Previous language in subsection 81.8(4)(a and b), was revised by the Commission and combined into subsection 81.8(4)(a), to clarify the requirement that all animal feeding operations must manage process-generated wastewater. During discussions with stakeholders, it was conveyed that the previous regulatory language was confusing and it was unclear if all animal feeding operations were subject to the requirement or only those that met the definition of a Medium AFO. Impoundment sizing requirements for Medium AFOs were consolidated in subsections 81.8(4)(b)(i and ii). The Commission felt it appropriate to reformat section 81.8(4), to better organize regulatory requirements and to add clarity to the regulation.

Language was added to subsection 81.8(4)(b)(iii) by the Commission, to clarify the record keeping requirements for Medium AFOs that land apply wastewater.

The Commission revised language in subsection 81.8(4)(e) to clarify that wastewater retention structures or collection sites be located in areas there is minimal risk of stormwater run-off or seasonally high stream flow carrying waste into waters of the state. The Commission found it appropriate to add a similar requirement in subsection 81.8(5)(b), that addresses appropriate locations for manure stockpiles to be protected from stormwater runoff and seasonally high stream flow.

The Commission revised subsection 81.8(5)(d), to simplify the use and implementation of structures used to remove settleable solids from wastewater as a management practice to minimize manure transport to surface water. The spelling of “settling” was also corrected.

Language in subsection 81.8(5)(e), was revised by the Commission to clarify that the requirement to land apply manure at an agronomic rate applies to all animal feeding operations.

The Commission revised the language in subsection 81.8(5)(e)(i) to clarify the additional record keeping requirements for Medium AFOs that land apply manure.

Past compliance dates were removed from subsection 81.8(6)(c), and the language was revised by the Commission to state that Medium AFOs must have and make available, liner certifications for impoundments prior to wastewater entering the impoundment.

Subsection 81.8(6)(d)(ii) was reformatted by the Commission to add greater clarity. Language previously found in subsection 81.8(6)(d)(ii) was moved to subsection 81.8(6)(d)(ii)(A) and the remainder of the subsection was renumbered accordingly.

PARTIES TO THE RULEMAKING HEARING

1. Colorado Livestock Association