Fact Sheet and Executive Director’s Preliminary Decision

General Permit No. TXG920000 for

Concentrated Animal Feeding Operations

Issuing Office: Office of Water

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Permit Action: Amendment and Renewal of General Permit No. TXG920000 for Concentrated Animal Feeding Operations

# Summary

The Texas Commission on Environmental Quality (TCEQ or Commission) is renewing General Permit No. TXG920000, which authorizes the discharge of manure, sludge, and wastewater into or adjacent to water in the state only during chronic or catastrophic rainfall or catastrophic conditions by concentrated animal feeding operations (CAFOs), that are properly designed, constructed, operated, and maintained to contain all process-generated wastewaters and the runoff from the rainfall event. The general permit (GP) provides coverage for both Texas Pollutant Discharge Elimination System (TPDES) and State-only CAFOs. TPDES CAFOs are CAFO facilities that meet the head count for a Large CAFO by species, as defined in the GP. State-only CAFOs are CAFO facilities that meet the headcount for a Medium CAFO by species, as defined in the GP, and are located in Bosque, Comanche, Erath, Hamilton, Hopkins, Johnson, Rains, or Wood counties. State-only CAFOs may also include animal feeding operations that are designated by the Executive Director (ED) as a CAFO because they are a significant contributor of pollutants into water in the state. The GP specifies which facilities may be authorized under this GP, and which facilities must be authorized by an individual permit.

This GP complies with the TPDES requirements in accordance with the Memorandum of Agreement between the U.S. Environmental Protection Agency and TCEQ dated September 14, 1998, for the delegation of the National Pollutant Discharge Elimination System program under Clean Water Act (CWA) Section 402.

The new requirements to address digesters in the GP are already in practice since the last GP renewal, and therefore, are for formality and clarity purposes only.

# Executive Director's Recommendation

The ED has made a preliminary decision that this GP meets all statutory and regulatory requirements. The permit has an expiration date of July 20, 2029.

# Permit Applicability and Coverage

## Discharges Eligible for Authorization

The GP provides authorization for facilities defined or designated as CAFOs to discharge manure, sludge, and wastewater into or adjacent to surface water in the state. Discharges to surface water in the state may occur from a CAFO designed (25-year frequency, 24-hour duration; or no discharge for new source swine, veal, or poultry), constructed, and properly operated and maintained under the provisions of this GP. In addition, the GP provides requirements for the retention and beneficial land application of manure, sludge, and wastewater generated by a CAFO.

## Limitations on Coverage

1. Discharges from the following CAFOs are not eligible for coverage under this GP and must be authorized under an individual permit:
2. Except for an existing CAFO which was authorized by the Commission prior to January 10, 1997, any CAFO located within one mile of Coastal Natural Resource Areas as defined by Texas Natural Resources Code §33.203.
3. Any dairy CAFO located in a major sole-source impairment zone, as defined in the GP.
4. Any CAFO where any part of the production area of the CAFO is located or proposed to be located within the protection zone of a sole-source surface drinking water supply. This paragraph does not apply to dry litter poultry operations.
5. Any CAFO where any part of a production area or land management unit (LMU) is located in a watershed of a segment listed on the current TCEQ’s EPA approved CWA§ 303(d) list of impaired waters where a Total Maximum Daily Load (TMDL) Implementation Plan (I-Plan) has been adopted by the Commission that establishes additional water quality protection measures for CAFOs in addition to those required by the CAFO GP.
6. Any CAFO that has a site or customer classification that is categorized as “unsatisfactory performer” under 30 Texas Administrative Code (TAC) §60.3 (relating to Use of Compliance History).
7. Any CAFO required by the ED to obtain and operate under an individual permit.
8. Discharges are not eligible for authorization under this GP where they are prohibited by:
9. 30 TAC Chapter 311 (relating to Watershed Protection);
10. 30 TAC Chapter 213 (relating to the Edwards Aquifer); or
11. any other applicable rules or laws.

## Denial of Authorization

The ED may deny an application for authorization under this general permit, and may require that the applicant apply for an individual permit, if the ED determines that the discharge will not meet water quality standards. The ED may deny a Notice of Intent (NOI) or revoke authorization under this general permit if the applicant submits a false affidavit relating to public notice or public meeting. Additionally, the ED may cancel, revoke, or suspend authorization to discharge under this general permit based on a finding of historical and significant noncompliance. An applicant who owns or operates a facility classified as an “unsatisfactory performer” is entitled to a hearing before the Commission prior to having its coverage denied or suspended, in accordance with Texas Water Code § 26.040(h). Denial of authorization to discharge under this general permit or suspension of a permittee’s authorization under this general permit shall be done according to commission rules in 30 TAC §205.4 (relating to Authorizations and Notices of Intent).

# Permit Conditions and Effluent Limitations

1. **Discharge Restrictions**

No discharge of manure, sludge, or wastewater from a CAFO into or adjacent to surface water in the state is allowed, except when chronic or catastrophic rainfall causes an overflow from a retention control structure (RCS) that is properly designed (25-year frequency, 24-hour duration; or no discharge for new source swine, veal or poultry), constructed, operated, and maintained. Any swine, veal, or poultry CAFO subject to the new source performance standards in Title 40 of the Code of Federal Regulations (CFR) § 412.46 must have a RCS designed and constructed so that no discharge occurs. Any other CAFOs must have a RCS designed and constructed to meet or exceed the capacity required to contain the runoff and direct precipitation from the 25-year, 24-hour rainfall event.

Manure, sludge, and wastewater generated by a CAFO must be retained and used in an appropriate and beneficial manner as provided in this GP and TCEQ rules. This GP incorporates the effluent limitation guidelines from EPA's rules. See 40 CFR Part 412.

1. **Effluent Limitations**
2. Nutrient Management Plan Review and Terms.
3. Permittees must develop and implement a site-specific nutrient management plan (NMP) developed by a certified nutrient management specialist, based on United States Department of Agriculture/Natural Resource Conservation Service (NRCS) Practice Standard 590 Code. The NMP must identify and describe the practices that will be implemented to assure compliance with the effluent limitations in the GP. The elements of a NMP as listed in 40 CFR § 122.42(e)(1) have been incorporated into this permit, and each of the required elements are to be implemented upon issuance of this permit. Large CAFOs are required to submit the NMP and the NOI to be authorized under the GP. Any changes to the NOI, including NOI for a significant expansion, substantial and non-substantial changes are also required to be accompanied by an updated NMP for review and approval.
4. Upon receipt, the ED will review the NMP to identify site-specific permit terms, which must be incorporated as terms and conditions of the permit. The NOI and NMP will be publicly noticed in accordance with the GP. The Terms of the NMP must include the following:
   * 1. Authorized animal type and head count;
     2. Land management units (LMUs) and application acreage for each LMU;
     3. Crops (including alternative crops) identified in the NMP with their yield goals for each LMU;
     4. The maximum application rates for nitrogen (N) and phosphorus (P) for each crop in each LMU;
     5. The methodology (including formulas, sources of data, protocols for making determination, etc.), and the actual data that will be used to account for:
        1. results of soil tests required by Parts III.A.13(c) and (d);
        2. credits for all nitrogen in the field that will be plant-available;
        3. amount of nitrogen and phosphorus in the manure and wastewater to be applied;
        4. consideration of multi-year phosphorus application (for any field where nutrients are applied at a rate based on the crop phosphorus requirement, the methodology must account for single-year nutrient applications that supply more than the crop’s annual phosphorus requirement);
        5. all other additions of plant available nitrogen and phosphorus to the field (i.e., from sources other than manure or wastewater or credits for residual nitrogen);
        6. timing and method of land application;
        7. volatilization of nitrogen and mineralization of organic nitrogen;
        8. nitrogen and phosphorus recommendations from the S Crops Table as contained in the Texas NRCS 590 Software Tool, site-specific historic CAFO yield data or other sources as approved by the ED for each crop identified for each field, including any alternative crops identified; and
        9. outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field.
     6. Any other factors necessary to determine the amounts of nitrogen and phosphorus to be applied in accordance with Appendix I of the GP.

(c) Substantial Change to the Terms of the NMP. The following changes to the terms of the NMP of a large CAFO facility are substantial:

1. Changing animal type or increasing authorized head count that increases the manure production at the CAFO by less than 50% of the maximum operating capacity stated in the initial authorization for the facility under TXG920000. If the proposed headcount change will increase the manure production at the CAFO by more than 50%, above the maximum operating capacity stated in the initial authorization, this will be a significant expansion.
2. Adding land management units or increasing application acreage.
3. Using a crop or yield goal to determine maximum application rates for manure or wastewater not included in the CAFOs authorization.
4. Non-substantial Change to the Terms of the NMP. These changes to the terms of the NMP of a large CAFO are non-substantial:

Non-substantial changes include but are not limited to a reduction in the number of permitted animals, a reduction in manure production, decrease in LMU acreage, removal of a LMU, removal of crop(s) and or yield goal(s) from the alternative crop list previously approved for the CAFO, or changes to the site-specific LMU information on Table 1 of Appendix I – Phosphorus Index Worksheet of this GP; changes to the maximum application rates, Lbs/Ac of nitrogen or phosphorus as P2O5 to be land applied; changes in the phosphorus index rating; or addition of a digester to the production area for methane gas recovery.

For the addition of LMUs, if the land application area to be added to the NMP was previously covered by the terms of a NMP incorporated into an existing TPDES permit in accordance with the requirements of this GP, and the CAFO owner or operator is transferring the LMU(s), such addition would be a non-substantial change.

1. NMP Content. The General Permit (GP) requires the NMP to address the following requirements:
   * 1. Ensure adequate storage of manure and wastewater, including procedures to ensure proper operation and maintenance of the storage facilities as described in Part III.A.6 through Part III.A.11 of the GP.
     2. Ensure proper management of mortalities (*i.e.*, dead animals) to ensure that they are not disposed of in a liquid manure, stormwater, or wastewater storage or treatment system that is not specifically designed to treat animal mortalities consistent with Part III.A.11(c) of the GP.
     3. Ensure that stormwater runoff is diverted, as appropriate, from the production area consistent with Part III.A.6(c)(2) of the GP.
     4. Prevent direct contact of confined animals with water in the state as described in Part III.B.2 of the GP.
     5. Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, wastewater, or stormwater storage or treatment system unless specifically designed to treat such chemicals or contaminants consistent with Part III.A.16(a) of the GP.
     6. Identify appropriate site-specific conservation practices to be implemented, including buffers or equivalent practices, to control runoff of pollutants to water in the state and to minimize the runoff of nitrogen and phosphorus as described in Part III.A.12(f) of the GP.
     7. Identify protocols for appropriate testing of manure, wastewater, and soil as described in Part III.A.13 of the GP.
     8. Establish protocols to land apply manure, litter, or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure or wastewater in accordance with the requirements in Part III.A.12(a) to (e) of the GP.
     9. Identify specific records that will be maintained to document the implementation and management of the NMP content consistent with Part IV.A of the GP.
     10. Application rates may be expressed in NMPs consistent with the Narrative Rate Approach as described in Appendix I of the GP. The approach expresses the field-specific rate of application as a narrative rate prescribing how to calculate the amount in tons or gallons of manure and wastewater allowed to be land applied.
2. Changes to the NMP
3. When changes are made to the CAFO’s NMP previously submitted to the ED, the permittee must provide the ED with a Notice of Change (NOC) form containing the terms of the most current version of the revised NMP and identify changes from the previous version, except for annual recalculations of application rates for manure and wastewater, which are not required to be submitted to the ED.
4. When the changes to a NMP are submitted, the ED will review the changes to ensure that they meet the requirements of this permit. If the ED determines that the changes to the NMP necessitate revision to the terms of the NMP incorporated into the authorization issued to the CAFO, the ED will determine whether such changes are substantial or non-substantial.
5. If the ED determines that the changes to the terms of the NMP are non- substantial, the ED will include the revised terms of the NMP in the permit record, revise the terms of the permit based on the site specific NMP, and notify the permittee and the public of any changes to the terms of the permit based on revisions to the NMP.

After permit issuance, the ED will notify the public of the revised terms of the NMP by posting for 2 weeks on the TCEQ internet site at: <https://www.tceq.texas.gov/permitting/wastewater/cafo/cafo-nonsubstantial-changes>.

1. If the ED determines that the changes to the terms of the NMP are substantial, the ED will make the proposed changes and the information submitted by the permittee available for public review, and comment by posting the information on the TCEQ internet site at http://www14.tceq.texas.gov/epic/eCID/. The posting will provide the opportunity for a public meeting on the revisions to the terms of the NMP.
2. The public comment period begins on the first date the notice is posted and ends 30 days later unless a public meeting is held. The public may submit comments to the TCEQ Office of Chief Clerk during the comment period detailing how the NMP for the CAFO fails to meet the technical requirements or conditions of the GP.
3. The ED will hold a public meeting if it is determined there is significant public interest. The ED will post a notice of the public meeting on the TCEQ internet site at: <http://www14.tceq.texas.gov/epic/eCID/>. The notice of a public meeting will be posted at least 30 days before the meeting and will be held in the county where the facility is located. TCEQ staff will facilitate the meeting and provide a sign in sheet for attendees to register their names and addresses. The public meeting held under this GP is not an evidentiary proceeding. If a public meeting is held, the comment period will end at the conclusion of the public meeting.
4. The ED, after considering public comment(s), shall incorporate the revised terms of the NMP into the permit. Once the revised terms of the NMP have been incorporated into the permit, the ED will include the revised terms of the NMP into the permit record and notify the permittee and the public of the revised terms and conditions of the permit.
5. Numeric Effluent Limitations are established for duck CAFOs. No discharge from a duck CAFO per 1000 ducks shall exceed a daily maximum limit of 3.66 pounds or a monthly average of 2.0 pounds of five-day biochemical oxygen demand and shall not exceed a fecal coliform count of 400 per 100 ml most probable number at any time.
6. 40 CFR Part 122, which is adopted by reference in 30 TAC §305.541, specifies that any requirements, in addition to or more stringent than promulgated effluent limitation guidelines, must be applied when they are necessary to achieve state water quality standards. Water quality based effluent limitations must be established when TCEQ determines there is a reasonable potential to cause or to contribute to an in-stream exceedance of the allowable ambient concentration of a state numeric criterion. The TCEQ must also consider for CAFO discharges:
7. existing controls on point and non-point sources of pollution;
8. variability of the pollutant in the effluent; and
9. dilution of the effluent in the receiving water.

In this GP, considerations (a) and (b) above are addressed, because continuous discharges are prohibited and effluent discharges are authorized only during a chronic or catastrophic rainfall event from a facility that is properly designed, constructed, operated, and maintained to contain all process wastewater resulting from the operation of the CAFO plus all runoff from a 25-year, 24-hour storm event for the facility and for the location of the CAFO or no discharge for new source swine, veal or poultry. This permit includes a requirement to identify additional water levels in RCSs to alert operators when normal storage volumes are exceeded that will allow them to manage wastewater levels that meet the requirements of this permit. The effluent pollutant levels are variable and are typically not discharged from the RCSs. Additionally, during these chronic or catastrophic climatic events, water bodies receiving a contribution of CAFO wastewater will be significantly diluted by other rainfall runoff.

Consideration (a) above necessitates the imposition of controls on CAFO discharges that will result in the numeric criteria of the water quality standards being met, thus ensuring that applicable uses of water in the state are attained. The principal pollutants of concern include organic matter causing biochemical oxygen demand, the discharge of ammonia-nitrogen, phosphorus, and fecal coliform bacteria.

EPA periodically adopts nationally applicable guidelines identifying the "best practicable control technology" (BPT), "best conventional pollutant control technology" (BCT), and "best available technology economically achievable" (BAT) standards that apply to specific industrial categories and subcategories. However, when such guidelines are published, CWA, § 402(a)(1) requires that appropriate BCT and BAT effluent limitations be included in permitting actions on the basis of the permitting authority's best professional judgment.

Numeric effluent limitations, other than for duck CAFOs, are neither practicable nor economically achievable because the nature of existing technology does not make numeric effluent limitations feasible. EPA has not promulgated numeric effluent guidelines that would allow regular discharges of CAFO process wastewater or process-generated wastewater, other than for duck CAFOs.

Technology-based effluent limitations are considered in the proposed GP. They are based on BCT and BAT standards that generally represent the best performing existing technology in an industrial category or subcategory. BAT and BCT effluent limitations may never be less stringent than corresponding effluent limitations based on BPT, a standard applicable to similar discharges before March 31, 1989 under CWA § 301(b)(1)(A). The GP addresses these potential pollutant impacts through requirements including numerous narrative (non-numeric) BMPs on CAFO wastewater and non-point sources of pollutant discharges associated with CAFOs. Setting specific water quality-based effluent limitations in this permit is not feasible. (See 40 CFR §122.44 (k)(3)(4)).

1. The provisions in the GP that will result in compliance with non-numeric effluent limitations and protect applicable water quality standards are as follows:
2. A licensed Texas Professional Engineer or a licensed Texas Professional Geoscientist must conduct a site evaluation, and certify the absence or presence of any natural or artificial recharge features on the CAFO. If recharge features are present, protective measures must be developed and certified by a licensed Texas Professional Engineer or a licensed Texas Professional Geoscientist to be protective of these recharge features.
3. RCSs at a CAFO must have a constructed or installed liner certified by a licensed Texas Professional Engineer or have naturally occurring in situ material certified by a licensed Texas Professional Engineer or licensed Texas Professional Geoscientist to have hydraulic conductivity and thickness equivalent to a constructed or installed liner. In lieu of a liner, the permittee may have documentation showing there is no hydrologic connection with groundwater and documentation showing that there will be no significant leakage from the RCS or that any leakage from the RCS will not migrate to water in the state. The lack of hydrologic connection documentation must be certified by a licensed Texas Professional Engineer or licensed Texas Professional Geoscientist.
4. Each RCS shall be designed for the authorized number of animals and include the storage for the design rainfall event (no discharge for new source swine, veal or poultry or 25-year, 24-hour), process generated wastewater, one year of sludge accumulation, and treatment volume (if required). Design criteria to meet BAT and BCT must be supplemented with an analysis of how wastewater can be sufficiently stored. Additionally, that documentation must be supplemented with a water balance analysis that demonstrates irrigation and consumption of the wastewater will not create runoff or tailwater.
5. New source swine, veal, or poultry CAFOs must have a RCS designed and constructed such that no discharge occurs in accordance with the following:
   * 1. An evaluation of the adequacy of the designed RCS using the most recent version of the Soil Plant Air Water (SPAW) Hydrology Tool or another tool approved by the ED. The evaluation must include all inputs to SPAW including, but not limited to, daily precipitation, temperature, and evaporation data for the previous 100 years, user-specified soil profiles representative of the LMUs, planned crop rotations consistent with the NMP, and the final modeled result of no discharges from the designed RCS. For those CAFOs where 100 years of local weather data is not available, a simulation with a confidence interval analysis conducted over a period of 100 years may be used.
     2. Provisions for upset/bypass apply to a new source subject to this provision. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, operating logs, or other relevant evidence that:
        1. An upset occurred and that the permittee can identify the cause(s) of the upset; and
        2. The permitted facility was at the time being properly operated in accordance with this general permit.
6. Any CAFO that proposes to install a digester shall design and operate RCSs to minimize odors in accordance with accepted engineering practices. Each RCS shall be operated in accordance with the design and an operation and maintenance plan that minimizes odors.

(1) Accepted engineering practices to minimize odors include anaerobic treatment lagoons, aerobic treatment lagoons, or other equivalent technology.

(2) Accepted design standards and requirements for each of these methods of treatment are:

(i) an anaerobic treatment lagoon shall be designed in accordance with American National Standards Institute/American Society of Agricultural Engineers EP403.3 July 1999 (or subsequent updates); NRCS Field Office Technical Guidance, Practice Standard 359, Waste Treatment Lagoon, or the equivalent for the control of odors. The primary lagoon in a multi-stage lagoon system shall be designed with a minimum treatment volume so that the lagoon maintains a constant level at all times unless prohibited by climatic conditions. A multi-stage lagoon system shall be designed to minimize the amount of contaminated stormwater runoff entering the primary lagoon by routing the contaminated stormwater runoff into a secondary RCS;

(ii) aerobic treatment lagoons shall be designed in accordance with NRCS, Field Office Technical Guidance, Practice Standard 359, Waste Treatment Lagoon; or technical requirements for sizing the aeration portion of the system located in 30 TAC Chapter 217; and

(iii) equivalent technology or design standards shall indicate how the design of the RCS minimizes odors equivalent to an aerobic or anaerobic lagoon. These designs shall be developed and certified by a licensed Texas Professional Engineer. An “as-built” certification in letter form shall be completed by a licensed Texas Professional Engineer before operation of the RCSs.

1. For all new construction or structural modification of a RCS, a permittee must maintain two vertical feet of freeboard between the top of the embankment and the required storage capacity to protect from overtopping the structure. The two feet of freeboard must be constructed of materials equivalent to the construction materials used in the construction of the RCS.
2. Measuring devices are required for rainfall and RCS wastewater levels. Records must be maintained showing the required measurements.
3. Discharges of wastewater from irrigation areas are prohibited. However, precipitation-related runoff from application areas is allowed by the permit, when consistent with a NMP.
4. Manure or sludge stored for more than 30 days must be stored within the drainage area of a RCS or stored in a manner (e.g storage shed, bermed area, tarp covered area, etc.) that otherwise prevents contaminated stormwater runoff from the storage area. Storage for more than 30 days is prohibited in the 100-year floodplain.
5. Temporary storage of manure or sludge shall not exceed 30 days and is allowed only in LMUs or a RCS drainage area. Temporary storage of manure and sludge in the 100-year flood plain, near water courses or near recharge features may be allowed if protected by berms or other structures to prevent inundation or damage that may occur during a 100-year flood event.
6. The drainage area shall be designed and maintained to minimize entry of uncontaminated stormwater runoff into RCSs. Stormwater runoff shall be diverted from contact with feedlots and holding pens, and manure or process wastewater storage systems. In cases where it is not feasible to divert stormwater runoff from the production area, the retention structures shall include adequate storage capacity for the additional stormwater runoff.
7. Discharge of manure, sludge, or wastewater is prohibited from a LMU and shall not cause or contribute to a violation of surface water quality standards, contaminate groundwater, or create a nuisance condition.
8. Any land application of manure, sludge, or wastewater shall not exceed the planned crop requirements. Land application rates of manure, sludge and/or wastewaters shall be based on the total nutrient concentration on a dry weight basis.
9. Where a specific chemical pollutant does not have water quality criteria and that pollutant is present in CAFO effluent at a concentration that has the reasonable potential to cause, or contributes to, an exceedance above a narrative criterion in the state water quality standards, TCEQ must establish effluent limits.

Nutrient pollutants of concern have narrative criteria and are present in CAFO wastewater. As described above, numeric effluent limitations are not feasible, at this time. Nutrient pollutants are addressed through imposition of a NMP and BMPs. The permittee of a large CAFO is required to develop and implement a NMP in accordance with the Natural Resources Conservation Service Practice Standard Code 590. The provisions in the GP that should result in compliance with narrative criteria and protection of attainable water quality are as follows:

1. Land application of manure, sludge, and wastewater must ensure the beneficial use of nutrients by the cover crop, based upon the agronomic rate. Land application rates shall be based on the total nutrient concentration on a dry weight basis.
2. A permittee shall not land apply any manure, sludge, or wastewater to the LMU except in accordance with a NMP approved by TCEQ when results of the annual soil analysis for extractable phosphorus indicate a level greater than 200 ppm of extractable phosphorus in Zone 1 for a particular LMU or a level greater than 350 ppm of extractable phosphorus in Zone 1 for an LMU where the average annual rainfall is 25 inches or less and erosion control is adequate to keep erosion at the soil loss tolerance (T) or less and the closest edge of the field is more than one mile from a named stream.
3. Irrigation practices shall be managed to minimize ponding or puddling of wastewater on-site, prevent tailwater discharges to water in the state and prevent the occurrence of nuisance conditions.
4. Vegetative buffer strips shall be maintained in accordance with Natural Resources Conservation Service Practice Standard Code 393. The minimum buffer shall be no less than 100 feet of vegetation maintained between all manure, sludge, and wastewater application areas and all surface water in the state. A buffer is not required for wastewater irrigation when applied by low-pressure, low-profile center pivot irrigation systems in areas of the state where the annual average rainfall is less than 25 inches per year. This alternative conservation practice meets the requirements of 40 CFR §412.4(c)(5)(ii) by implementation of an alternative conservation practice (e.g a low-pressure, low-profile center pivot irrigation system) and field specific conditions. Land application of manure, sludge, and wastewater into surface water in the state is an unauthorized discharge and is prohibited.

Research in 1996 (Sharpley *et al*, 1996) demonstrated that a concentration of about 200mg/kg phosphorus in surface soil (about 0-5 cm depth) is the critical level where the concentration of phosphorus in runoff becomes environmentally significant. Based on the NRCS Phosphorus Index as contained in the code 590 - Nutrient Management section of NRCS's Field Office Technical Guide, the critical level of concentration may be increased due to lower average annual rainfall and distance to surface water. TCEQ has established a critical soil phosphorus concentration of 200/350 ppm at which manure, sludge or wastewater cannot be applied unless it is in accordance with a detailed NUP or NMP approved by TCEQ. All counties must use the 200 ppm P level limit if manure, sludge or wastewater are applied where Soil Test P Level is less than 200 ppm. The 350 ppm P level limit applies in counties receiving less than 25 inches of annual rainfall, and where the LMU is greater than 1 mile from a named stream or lake.

1. **General Requirements**

Any new operation required to obtain authorization under this GP may not commence construction or operation of any control facilities or LMUs without first receiving authorization.

The permittee shall take all steps necessary to prevent any adverse effect to human health or safety, or the environment. The permittee shall immediately cease discharging upon becoming aware that a discharge may endanger human health or safety, or the environment and shall provide notification to TCEQ.

The permittee shall provide the following noncompliance notifications:

1. Any noncompliance which may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Report of such information shall be provided orally to the appropriate Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the appropriate Regional Office and the TCEQ Enforcement Division within five business days of becoming aware of the noncompliance.
2. Discharges shall be reported by the permittee in writing to the appropriate TCEQ Regional Office and the TCEQ Enforcement Division within 5 business days.
3. For any effluent noncompliance other than that specified in paragraphs (a) and (b) above, the permittee shall notify TCEQ of the noncompliance in writing.
4. **Requirements for Beneficial Use of Manure, Sludge and Wastewater**

The permit contains requirements related to the collection, handling, storage and beneficial use of manure, sludge, and wastewater, which were established based on TCEQ rules, EPA guidance, NRCS technical guidance documents found in the Field Office Technical Guide and the Animal Waste Management Field Handbook, recommendations from the TCEQ's Water Quality Assessment Team, and best professional judgment. The land application requirements related to beneficial use of manure, sludge, and wastewater are protective of ground and surface water when performed in accordance with this permit. When phosphorus is greater than 200/350 ppm, manure, sludge, or wastewater cannot be applied unless it is in accordance with a detailed NUP or NMP approved by TCEQ.

1. **Protection of Impaired Waters**

The permit contains additional requirements or prohibition of coverage under the GP for CAFOs located in an impaired segment listed on the current EPA approved CWA § 303(d) list of impaired waters.

* + - 1. CAFOs located in a segment impaired for bacteria, nutrients, and/or pathogens must adhere to the following additional requirements when authorized under the GP:

1. Land application must be consistent with a NMP certified in accordance with NRCS Practice Standard Code 590 using the phosphorus index rating for impaired waters.
2. The permittee shall install and maintain one of the following between the land application area and the main stem of the impaired segment:
3. a 200-foot vegetative buffer; or
4. a 100-foot vegetative buffer and a filter strip or vegetative barrier, according to NRCS Practice Standard Codes 393 or 601.
   * + 1. The following CAFOs are not eligible for coverage under this GP:
5. A dairy CAFO located in a major sole source impairment zone.
6. Any CAFO where any part of the production area or LMU is located in a CWA §303(d) listed segment where a TMDL implementation plan has been adopted by the Commission that establishes additional water quality protection measures for CAFOs that are not required by this general permit.
7. **Public Participation**

For a new and significant expansion applications, the applicant must submit the NOI, a site-specific NMP, and a complete technical application to the ED for review. Upon determining that the application is technically complete, the ED will develop a technical summary that identifies the name and minimum size of each RCS (acre-feet), LMU name and acreage, the crops to be planted in each LMU or any other uses such as pasture or fallow LMUs; the realistic yield goal for each crop or use identified for each LMU; and the nitrogen and phosphorus recommendations from the NRCS Practice Standard Code 590 for each crop or use identified for each LMU; and a list of alternative crops and yield goals for the facility.

The applicant must publish a notice in the newspaper of general circulation in the county in which the facility is or will be located that provides an opportunity for the public to submit comments on the NOI, NMP and ED's technical summary. In addition, the notice will inform the public that they may request a public meeting. A copy of the NOI, NMP, the ED’s technical summary, and the CAFO GP will be available for viewing and copying at the public viewing location identified in the notice.

For a substantial change application, the applicant must submit the NOC, the updated NMP, changes from the previous version of the terms of the NMP (except for the annual recalculations of application rates of manure and wastewater), and the applicable Attachments to the NOC to the ED for review. Upon determining that the application is technically complete, the ED will develop a technical summary that identifies the name and minimum size of each RCS (acre-feet), site-specific information from the updated NMP including, LMU name and acreage, maximum application rate of nitrogen and phosphorus for each LMU; and a list of alternative crops and yield goals.

The TCEQ will post the notice on the TCEQ website that provides an opportunity for the public to submit comments on the NOC, updated NMP and ED's technical summary. In addition, the notice will inform the public that they may request a public meeting. A copy of the NOC, the revised terms of the NMP, and the ED’s technical summary will be available for viewing and copying at the TCEQ’s Office of the Chief Clerk, 12100 Park 35 Circle, Austin, Texas 78753, and the TCEQ Regional Office where the CAFO is located. The ED will hold a public meeting if there is significant public interest.

# Summary of Changes to the General Permit

1. Part I – Definitions: The definition of Design Rainfall Event was updated to allow rainfall data from the National Oceanic and Atmospheric Administration’s National Weather Service, Hydrometeorological Design Studies Center, Precipitation Frequency Data Server, NOAA Atlas 14 Precipitation Frequency Estimates.

**Design rainfall event-** A design parameter corresponding to precipitation frequency values for a given rainfall duration and return period based on United States Department of Commerce, Weather Bureau, Technical Paper 40 or 49, May 1961 or the National Oceanic and Atmospheric Administration’s National Weather Service, Hydrometeorological Design Studies Center, Precipitation Frequency Data Server, NOAA Atlas 14 Precipitation Frequency Estimates.

1. Part II – Permit Applicability and Coverage

* The provision to allow theaddition of a digester to the production area of a CAFO facility was added toPart II.C.9(a)(2)(ii)(I) that relates to notice of change for a large CAFO and Part II.C.9(b)(2) for a State-only CAFO.
* Part II.C.10 that relates to Air Authorization was revised to include Part II.C.10(d), which addressed the rule requirements in 30 TAC § 321.43(j)(3) for the addition of a digester for odor control. The section read as follows:

Any CAFO that proposes to install a digester shall design and operate RCSs to minimize odors in accordance with accepted engineering practices. Each RCS shall be operated in accordance with the design and an operation and maintenance plan that minimizes odors.

(1) Accepted engineering practices to minimize odors include anaerobic treatment lagoons, aerobic treatment lagoons, or other equivalent technology.

(2) Accepted design standards and requirements for each of these methods of treatment are:

(i) an anaerobic treatment lagoon shall be designed in accordance with American National Standards Institute/American Society of Agricultural Engineers EP403.3 July 1999 (or subsequent updates); NRCS Field Office Technical Guidance, Practice Standard 359, Waste Treatment Lagoon, or the equivalent for the control of odors. The primary lagoon in a multi-stage lagoon system shall be designed with a minimum treatment volume so that the lagoon maintains a constant level at all times unless prohibited by climatic conditions. A multi-stage lagoon system shall be designed to minimize the amount of contaminated stormwater runoff entering the primary lagoon by routing the contaminated stormwater runoff into a secondary RCS;

(ii) aerobic treatment lagoons shall be designed in accordance with NRCS, Field Office Technical Guidance, Practice Standard 359, Waste Treatment Lagoon; or technical requirements for sizing the aeration portion of the system located in 30 TAC Chapter 217; and

(iii) equivalent technology or design standards shall indicate how the design of the RCS minimizes odors equivalent to an aerobic or anaerobic lagoon. These designs shall be developed and certified by a licensed Texas Professional Engineer. An “as-built” certification in letter form shall be completed by a licensed Texas Professional Engineer before operation of the RCSs.

* Part II.F.3 that relates to application following renewal was revised to 90 days to be consistent with the other water quality GPs.

1. Part III.A. - Pollution Prevention Plan (PPP) Requirements

* Part III.A.6(c)(4) adds requirements for digesters within production areas based on requirements currently incorporated into certain CAFO permits. The requirements are as follows:

A digester that is installed in the production area shall comply with the following requirements:

1. The permittee shall have adequate RCS capacity to maintain minimum treatment volume for odor control at all times, including when the digester is bypassed or during digester maintenance.
2. The facility shall maintain the ability to bypass the digester in the event it is taken offline for maintenance or repair. If the digester is taken offline for a period lasting longer than 90 days, the permittee shall notify the TCEQ Regional Office. If the digester is to be permanently discontinued, a NOC must be submitted for approval.
3. The permittee shall use only manure from the authorized species as feedstock and shall submit a NOC for approval prior to use of manure that is generated by another AFO for digester feedstock. The use of additional feedstocks other than manure from the authorized species is prohibited by this permit.
4. The permittee shall ensure that the owner and operator of the digester obtains all necessary authorizations from the TCEQ Air Permits Division for the digester operation. Off-gasses, flares, internal combustion engines, or other emissions associated with the digester are not authorized under the CAFO Air Standard Permit.
5. Digestate shall be defined as manure. The permittee shall land apply the digestate in accordance with Part III.A.12 of this permit.
6. The anaerobic digester and any appurtenances such as recirculation basins and mixing pits shall be certified in accordance with 30 TAC §321.38(g)(2).
7. Discharges from the digester or digester appurtenances are not authorized under this permit. Any leaks or spills shall be retained onsite and handled in accordance with the requirements of this GP.

* Part III.A.7 that relates to Cooling Pond was amended to reference Part III.A.12 of the permit, in order to clarify that the requirement is applicable to both Large and State only CAFOs’ nutrient management plans**.**
* Part III.A.12.(d)(4) was added for clarity, the language reads as follows:

For a large CAFO, a NMP that is developed in accordance with Appendix I of this GP complies with the requirements for an effective NUP.

* The text (below) which was in Part III.A.16(a)(3) (spill and recovery) and also in Part III.B.3 (general requirements for pesticide) has been deleted from Part III.B.3, to remove the redundancy, and to be consistent with the CAFO rules in 30 TAC 321.39(d).

“There shall be no disposal of pesticides, solvents or heavy metals, or of spills or residues from storage, or application equipment or containers, into RCSs. Incidental amounts of such substances entering a RCS as a result of stormwater transport of properly applied chemicals is not a violation of this general permit.”

# Addresses

Questions concerning this general permit should be sent to:

Land Application Team (MC-150)

Water Quality Assessment Section

Water Quality Division

Texas Commission on Environmental Quality

P. O. Box 13087

Austin, Texas 78711-3087

(512) 239-4671

**Comments on this general permit should be sent to**:

Office of the Chief Clerk (MC-105)

Texas Commission on Environmental Quality P.O. Box 13087

Austin, TX 78711-3087

Supplementary information on this Fact Sheet is organized as follows:

VII. Legal Basis

VIII. Regulatory Background

IX. Permit Coverage

X. Technology-Based Requirements

XI. Water Quality-Based Requirements

XII. Monitoring Reporting and Notification

XIII. Procedures for Final Decision

XIV. Administrative Record

# Legal Basis

Texas Water Code (TWC), §26.121 makes it unlawful to discharge pollutants into or adjacent to surface water in the state, except as authorized by a rule, permit, or order issued by the Commission. TWC, §26.027 authorizes the commission to issue permits and amendments to permits for the discharge of waste or pollutants into or adjacent to surface water in the state. TWC, § 26.040 provides the commission with authority to authorize waste discharges by general permit.

CAFOs are point sources, subject to NPDES permitting requirements 40 CFR § 122.23(a). Once an animal feeding operation is defined as a CAFO for at least one type of animal, the NPDES requirements for CAFOs apply with respect to all animals in confinement at the operation and all manure, litter, and process wastewater generated by those animals or the production of those animals, regardless of the type of animal.

The headcount threshold for the regulated species (beef and dairy cattle; swine, horses; sheep or lambs; turkeys; chickens and ducks) were based on the annual phosphorus production in the manure of 1,000 beef cattle, as the metric for establishing threshold for a Large CAFO. (Source: US EPA NPDES Development Document EPA-821-R-03-001 – December 2002).

On September 14, 1998, the TCEQ received authority from the United States Environmental Protection Agency (EPA) to administer the Texas Pollutant Discharge Elimination System (TPDES). 40 CFR, Parts 122, 412, and 33 United States Code (USC) §§1251, 1311, 1314, 1316, 1317, 1318, 1342, and 1361 include provisions that require NPDES permits to include effluent limitations from authorized discharges to: (1) meet standards reflecting levels of technological capability; (2) comply with EPA approved state water quality standards; and (3) comply with other state requirements adopted under authority retained by states under CWA § 510 and 33 USC §1370.

For certain CAFOs, the EPA standards and effluent limitations as contained in 40 CFR Parts 122 and 412 state that there shall be no discharge of waste or wastewater from animal feeding operations into waters of the United States, except when chronic or catastrophic rainfall or catastrophic condition causes an overflow of a facility designed, constructed, operated, and maintained to contain all process-generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event at the location of the point source. For new source swine, veal, and poultry CAFOs, there shall be no discharge of waste or wastewater into waters of the United States.

# Regulatory Background

As allowed by TWC, §26.040 – General Permits, TCEQ may issue a general permit to authorize the discharge of waste into or adjacent to water in the state by category of dischargers when there are a large number of similar discharges occurring that contain common characteristics. The discharge and beneficial use of CAFOs manure, sludge, or wastewater occurs in numerous areas across the state, and the character and quality of the manure, sludge, and wastewater from the same species are generally similar. This results in similar types of facilities and waste handling operations for these types of facilities. Because of the similar character of the facilities and waste generated it is appropriate to regulate them under a general permit. Where exceptions exist, such as prohibitions against general permit coverage for dairies in a major sole source impairment zone, the general permit contains restrictions and prohibitions for allowing those facilities to obtain authorization under the CAFO individual permit.

# Permit Coverage

This GP covers the discharge of manure, sludge, and wastewater into or adjacent to surface water in the state by CAFO facilities under certain conditions. The permit identifies those facilities that may be authorized under this GP and those that must be authorized by an individual permit.

1. Applicants seeking authorization to discharge under the GP must submit a completed NOI on a form approved by the ED as well as a copy of the site-specific NMP that was certified by a Nutrient Management Specialist. The NOI shall include at a minimum: the legal name and address of the applicant; the facility name and address; specific description of its location (including the street address, if applicable, and county); the number and type(s) of animals; the type and size of RCSs; the estimated amount of manure, sludge, and wastewater generated annually and transferred off-site annually; the acreage of LMUs; the crops to be planted in each land management units (LMUs) or any other uses such as pasture or fallow LMUs; the realistic yield goal for each crop or use identified for each LMU; the nitrogen and phosphorus recommendations from the NRCS Practice Standards Code 590 for each crop or use identified for each field; the maximum application rates for nitrogen and phosphorus; and the list of alternative crops and yield goals.
2. Submission of a NOI, and for Large CAFOs, a NMP certified by a certified nutrient management specialist is an acknowledgment that the conditions of the GP are applicable to the proposed discharges and that the applicant agrees to comply with the conditions of the GP. For renewals, provisional authorization to discharge under the terms and conditions of this GP begins 48 hours after a completed NOI is postmarked for delivery to the TCEQ unless otherwise restricted. If the NOI is submitted electronically, provisional authorization to discharge under the terms and conditions of this GP begins immediately following confirmation of receipt of the NOI by TCEQ.
3. For a new CAFO, or a CAFO that requests a significant expansion, or a substantial change, authorization under the terms and conditions of this GP begins when the applicant is issued a written TCEQ authorization. The permitting process for these applications includes a public participation component that allows members of the public to comment on whether or not the CAFO meets the requirements of the GP, and allows the public an opportunity to request a public meeting. If significant interest exists, the applicant for a new CAFO or a substantial change or significant expansion of an existing CAFO will be required to hold a public meeting in the county where the facility is located or proposed to be located. The ED, after considering public comment(s), will approve or deny the NOI or NOC based on whether the NOI or NOC and technical application meet the requirements of the GP. The ED will notify the applicant and everyone on the mailing list of its final decision on whether to grant or deny the authorization.
4. Coverage under this GP is not transferable. If the ownership or operator of the regulated entity changes, the present owner must submit a Notice of Termination (NOT) and the new owner must submit a NOI. The NOT and NOI must be submitted no fewer than 10 days before the change in ownership occurs.
5. A permittee must submit a NOC within 14 days when information submitted to the ED must be updated or corrected; or when changes are made to the terms of the NMP previously approved for the CAFO.
6. A permittee may terminate coverage under this GP by providing a NOT on a form approved by the ED. A NOT must be submitted in the following instances:
7. when a CAFO is not operational within 18 months after authorization, or at the expiration of the requested and granted 18 months extension;
8. when a NOI is submitted by a new permittee when the facility ownership changes;
9. when submitting an individual permit application to replace general permit authorization;
10. when the facility is no longer in use and has been closed, with certification by a licensed Texas Professional Engineer that closure of the facility is completed; or
11. with a statement from the landowner that the facility will be operated as an animal feeding operation not defined or designated as a CAFO.

The authorization will not be terminated until final action is taken on the new NOI or individual permit application, receipt of post-closure documentation, or receipt of landowner statement that the facility will be operated as an animal feeding operation.

1. Any CAFO that obtains authorization under this GP must be operational within 18 months of the date of the CAFOs authorization or must terminate coverage under this GP by submitting a NOT. Upon written request to the TCEQ Water Quality Division, the ED may grant a one-time extension up to an additional 18 months, to allow the CAFO additional time to become operational. If an extension is granted and the CAFO is not operational at the expiration of the extension period, the CAFO must submit a NOT terminating coverage under this GP. The facility does not have to be operating at the maximum number of animals authorized to be considered operational.

# Technology-Based Requirements

The conditions of the GP were developed to comply with the technology-based standards of 40 CFR Part 412. The permit includes a series of best management practices and performance standards based on NRCS technical standards rather than numeric effluent limitations, to address the collection, storage, treatment, and land application of manure, sludge, or wastewater and to limit pollutants in any discharges.

# Water Quality-Based Requirements

The permit authorizes the land application of manure, sludge, and wastewater and only allows a discharge to surface water when chronic or catastrophic rainfall or catastrophic conditions result in an RCS overflow. For new source swine veal or poultry, no discharge from the RCS is allowed. No water quality impacts are expected to occur from land application of manure, sludge, or wastewater when applied at agronomic rates. Although the Texas Surface Water Quality Standards do apply to the instream effects of CAFO discharges, the TCEQ has not developed routine procedures for setting chemical-specific numeric effluent limitations for stormwater and stormwater related discharges. Instead of numeric water quality-based effluent limitations, this permit establishes minimum control and BMPs to prohibit discharges that occur only during defined chronic or catastrophic rainfall events. Discharges occurring during these conditions are highly intermittent in nature and would be significantly diluted by rainfall runoff.

# Monitoring, Reporting and Notification

* + - * 1. Monitoring requirements were established based on TCEQ rules, and 40 CFR Part 412 which requires monitoring to insure compliance with the permit limits. For any discharges, grab samples must be collected and analyzed for all applicable parameters and reported to TCEQ. Soil samples from LMUs must be taken annually and reported to the TCEQ.
        2. The permit requires large CAFOs to submit an annual report for the previous year to the appropriate TCEQ regional office and the TCEQ’s Office of Compliance and Enforcement, Enforcement Division (MC 224, P.O. Box 13087, Austin, Texas 78711) by March 31 of each year. The report must include, but not limited to:
  + the number and type of animals that were in open confinement or housed under roof;
  + the amount of total manure, sludge, and wastewater generated, land applied to each LMU or transferred to other persons;
  + the acreage that was covered by the certified NMP for land application;
  + summary of discharges of manure, sludge, or wastewater from the production area that occurred, including dates, times, and approximate volume;
  + a statement that the NMP, under which the CAFO is operating, was developed, and certified by a certified nutrient management specialist;
  + groundwater monitoring results, if it is required for the CAFO site;
  + the annual soil analysis of each sample collected from the LMUs;
  + the actual crop(s) planted and yield(s) for each LMU;
  + the actual nitrogen and phosphorus content of manure, sludge or process wastewater that was land applied;
  + the results of data used in calculations and the results of calculations conducted in accordance with the narrative rate approach of nutrient application rates of nitrogen and phosphorus;
  + the laboratory reports of any soil testing for nitrogen and phosphorus;
  + the amount of any supplemental fertilizer applied; and
  + any other relevant information deemed necessary by the Executive Director.
    - * 1. State-only CAFOs must submit the following items by March 31 of each year for the 12-month reporting period to the appropriate TCEQ regional office and the TCEQ’s Office of Compliance and Enforcement, Enforcement Division (MC 224, P.O. Box 13087, Austin, Texas 78711):

1. groundwater monitoring results, if it is required for the CAFO site;
2. the annual soil analysis of each sample collected from the LMUs; and
3. any other relevant information deemed necessary by the Executive Director.
   * + - 1. The permit also requires that the appropriate TCEQ regional office be notified at least 48 hours prior to:
4. putting into operation any new or replacement RCS, i.e., before the RCS commences the receipt of manure, sludge, or wastewater; and
5. any new construction or modification of control facilities.
   * + - 1. The permit requires that written notice be sent to the appropriate TCEQ regional office as soon as RCS cleaning is scheduled, but not less than ten business days prior to cleaning; and also provide written verification of completion to the regional office within five business days after the cleaning is complete. This requirement does not apply to cleaning of solid separators, settling basins, or conveyances into the RCS.

# Procedures for Final Decision

The Memorandum of Agreement between the EPA and TCEQ provides that EPA has 90 days to comment, object, or make recommendations to the draft general permit before notice of the draft permit is published in the *Texas Register*. According to 30 TAC Chapter 205, when the draft general permit is proposed, notice must be published, at a minimum, in the Texas Register and at least one newspaper of statewide or regional circulation. The commission may also publish notice in additional newspapers of statewide or regional circulation at its discretion. Mailed notice must also be provided to the following:

1. the county judge of the county or counties where the discharges under the general permit could be located;
2. if applicable, state and federal agencies identified in 40 CFR §124.10(c);
3. persons on a relevant mailing list maintained under 30 TAC §39.407, relating to Mailing Lists; and
4. any other person the ED or chief clerk may elect to include.

After notice of the GP is published in the Texas Register and the newspaper(s), the public will have a 30-day period to provide public comment on the proposed GP.

Any person, agency, or association may make a request for a public meeting on the proposed GP before the end of the public comment period. A public meeting will be granted when the ED determines that there is significant degree of public interest in the proposed GP. A public meeting is intended for the taking of public comment and is not a contested case hearing under the Administrative Procedure Act. The ED may also call and conduct a public meeting on the proposed GP.

If the ED sets a public meeting, the Commission will give notice of the date, time, and place of the meeting, as required by Commission rules. The ED shall prepare a response to all significant public comments on the proposed GP raised during the public comment period, including those received at any CAFO GP public meeting. The ED shall make the draft response to comment available to the public by filing with the TCEQ Office of the Chief Clerk no later than ten (10) days prior to the TCEQ commission agenda date when the commissioners consider whether to issue the GP.

# Administrative Record

The following section is a list of the fact sheet citations to applicable statutory or regulatory provisions and appropriate supporting references.

1. 40 Code of Federal Regulation (CFR) Citations

* Part 122 –that relates to the EPA Administered Permit Programs: The National Pollutant Discharge Elimination System
* Part 127 relates to Electronic Reporting
* Part 412 relates to Concentrated Animal Feeding Operations (CAFO) Point Source Category

1. U.S. Environmental Protection Agency, Office of Water (4303T), 1200 Pennsylvania Avenue, NW Washington, DC 20460 – 2002. Development Document for the Final Revisions to the National Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations- EPA-821-R-03-001- December 2002.
2. 30 Texas Administrative Code

* 30 TAC Chapters 39 relates to Public Notice
* 30 TAC Chapters 205 relates to General Permits for Waste Discharges
* 30 TAC Chapters 305 relates to Consolidated Permits
* 30 TAC Chapters 307 relates to Texas Surface Water Quality Standards
* 30 TAC Chapters 319 relates to General Regulations Incorporated into Permits
* 30 TAC Chapter 335 relates to Industrial Solid Waste and Municipal Hazardous Waste.
* 30 TAC Chapter 321, Subchapter B relates to Concentrated Animal Feeding Operations

1. Texas Water Code §26.0286
2. Texas 2022 Clean Water Act Section 303(d) List, Texas Commission on Environmental Quality, June 1, 2022; approved by EPA on July 7, 2022.
3. U. S. Department of Agriculture, Natural Resources Conservation Service Citations:

* Field Office Technical Guide (FOTG and web site on-line version eFOTG) and Animal Waste Management Field Handbook.
* Texas Natural Resources Conservation Service, Conservation Practice Standard (Nutrient Management) Code 590, revised December 2012.
* Agronomy Technical Note Number – 15, Phosphorus Assessment Tool For Texas revised December 2012.

1. Miscellaneous

Andrew Sharpley, T.C. Daniel, J.T. Sims, and D.H. Pote, 1996. Determining environmentally sound soil phosphorus levels. Journal of Soil and Water Conservation 1996 51(2):160-166.