The Texas Commission on Environmental Quality (commission or TCEQ) proposes the amendment of §309.3.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE PROPOSED RULE

The TCEQ typically includes chlorine exposure time and residual concentration requirements as the bacteria control mechanism for disinfection by chlorination in Texas Pollutant Discharge Elimination System (TPDES) domestic discharge permits. Starting in February 2007, the United States Environmental Protection Agency (EPA) took a new position that bacteria limits are required. This resulted in the EPA objecting to a subset of the commission's draft permits. As a result, the commission could not issue approximately 100 permits during this time. The executive director and EPA reached an agreement in July 2008 regarding bacteria effluent limitations and monitoring requirements in TPDES domestic wastewater permits. The agreement included an interim approach to require bacteria limitations and/or monitoring for selected facilities that met certain criteria for discharges to bacteria impaired water bodies. The agreement also included a long term approach in which the commission would propose rulemaking to establish requirements for bacteria limitations in all TPDES domestic wastewater permits. Conditions in the agreement stated that an adopted rule must be effective by December 31, 2009, and all TPDES domestic wastewater draft permits for which Notice of Application and Preliminary Decision is published on or after January 1, 2010 will have the new requirements as part of the permit language or EPA objections would begin again. The purpose of this rulemaking is to satisfy the agreement with the EPA.

The commission is proposing the contact recreation criterion in the Texas Surface Water Quality Standards as the bacteria limit for domestic TPDES permits. The Texas Surface Water Quality Standards program has determined that the contact recreation criterion is protective of both human health and the environment. It is also readily achievable with current technology.

SECTION DISCUSSION

The commission proposes administrative changes throughout this rulemaking to conform to Texas Register and agency guidelines. These changes include updating cross-references.

Proposed §309.3(g)(2) removes the last sentence in the paragraph that applies to renewal permits for wastewater systems constructed prior to October 8, 1990. There are no longer any active permits issued prior to this date that have not been renewed. The statement is being removed to simplify the rule.

Proposed §309.3(g)(3) replaces the fecal coliform limit with the *Escherichia coli* (*E. coli*) or *Enterococci* bacteria limitation set by §309.3(h) or (i) if applying for an alternative method of disinfection. The requirement was changed to be consistent with other bacteria requirements in this section.

Proposed §309.3(g)(4) allows a permittee to choose to test for *E. coli* or fecal coliform testing for effluent that is land applied through a subsurface area drip dispersal system in an area that has the potential for human contact. This change was made to allow flexibility in testing procedures. Both bacteria tests indicate the safety level of water for human contact. The permittee may choose the test that is more convenient or more cost effective. Subsurface area drip dispersal systems are authorized by a state-only permit and are not subject to the TPDES program, and therefore, not subject to the agreement with EPA.

Proposed §309.3(h) describes bacteria effluent limitations for domestic TPDES permits.

Proposed §309.3(h)(1) lists the bacteria required for fresh water discharges and salt water discharges. The Texas Surface Water Quality Standards and the agreement with EPA require *E. coli* testing for fresh

water and *Enterococci* testing for salt water.

Proposed §309.3(h)(2) sets the monthly average bacteria limitation at the geometric mean of the contact recreation standard. The current geometric mean for contact recreation is 126 colony forming units (cfu) per 100 milliliters (ml) for *E. coli* bacteria in fresh water and 35 cfu/100 ml for *Enterococci* in salt water. The Chief Engineer's Office is currently evaluating a change to the fresh water standard. If a change is adopted, staff will use the new the *E. coli* criterion for the most stringent contact recreation category for the bacteria limits in TPDES domestic permits issued, amended, or renewed after the date the new standards are adopted.

Proposed §309.3(h)(3) sets the maximum single grab sample bacteria limitation as the single grab sample for the contact recreation standard. Currently, the single grab sample criterion is 394 cfu/100 ml for *E. coli* in fresh water and 89 cfu/100 ml for *Enterococci* in salt water. The levels contemplated for the amended Water Quality Standards would change the grab sample criteria to 399 cfu/100 ml for *E. coli* and 104 cfu/100 ml for *Enterococci* for primary contact recreation, the most stringent contact recreation criteria. If changes are adopted, staff will use the new criterion for the most stringent contact recreation category for the bacteria limits in TPDES domestic permits issued, amended, or renewed after the date the new standards are adopted.

Proposed §309.3(i) is the former §309.3(h) with amendments. The subsection was relettered to allow for the insertion of the bacteria limits subsection. It allows the executive director to assign a more stringent parameter limit if necessary to protect human health or water quality. The bacteria limit was included in the parameters that can be adjusted by the executive director. Protection of human health was also added, consistent with the commission's mission and other regulations. The list of subsections to which it applies

was changed from (a) - (g) to (a) - (h) to include the new bacteria limitations subsection.

FISCAL NOTE: COSTS TO STATE AND LOCAL GOVERNMENT

Nina Chamness, Analyst, Strategic Planning and Assessment, has determined that, for the first five-year period the proposed rule is in effect, no significant fiscal implications are anticipated for the agency as a result of administration or enforcement of the proposed rule. The agency will have to modify operational practices and record data regarding bacteria present in domestic wastewater discharges but will use current resources to implement the proposed rule. Other units of state or local governments will experience fiscal implications as a result of the proposed rule since they will be required to test for bacteria present in domestic wastewater discharges. However, any fiscal implications to other units of state or local governments are not expected to be significant.

The proposed rulemaking will modify 30 TAC Chapters 210, 309, and 319 to implement an agreement between the executive director and the EPA to include bacteria effluent limitations and monitoring requirements in TPDES domestic wastewater discharge permits. The state previously controlled for bacteria in most TPDES domestic permits by requiring specific chlorine exposure times and residual chlorine concentrations. The EPA objected to TCEQ permits for the lack of bacteria limits in certain permits in February 2007, and the agency, through an interim agreement, began to require bacteria limitations and monitoring for selected facilities in order to issue TPDES permits to those facilities in July 2008. To retain EPA delegation of the TPDES permit program, the commission must establish bacteria criteria in its rules.

This proposed rulemaking will establish requirements for bacteria limitations in all TPDES domestic wastewater permits for which Notice of Application and Preliminary Decision is published on or after

January 1, 2010. In the proposed rule for Chapter 309, bacteria limits are added to TPDES domestic wastewater permits. In proposed rule for Chapter 319, frequency of testing for bacteria is specified. In the proposed rule for Chapter 210, flexibility is given to allow reclaimed water providers to choose the most economical bacteria test (either *E. coli* or fecal coliform bacteria) to verify disinfection. This fiscal note discusses the fiscal implications of proposed rule in Chapter 309, and fiscal implications for the proposed rule changes in Chapters 319 and 210 are discussed in separate, but related fiscal notes.

The agency estimates that there are 2,011 TPDES domestic facilities statewide. An estimated 1,395 of these are governmental entities that include state agencies, municipalities, counties, river authorities, and utility districts. The agency issues or renews TPDES domestic permits for a five-year period, and approximately 20% of these permits, or 402 statewide, are renewed annually. Of the 402 permits renewed annually, approximately 279 will be issued to governmental entities each year and 123 will be issued to private facilities.

The proposed rule for Chapter 309 uses the most stringent contact recreation criterion in the Texas Surface Water Quality Standards as the bacteria limit for domestic TPDES permits and replace the fecal coliform limit with limits for *E. coli* for fresh water discharges and *Enterococci* for salt water discharges. If effluent is land applied through a subsurface or drip dispersal system, facilities can choose to test for either *E. coli* or fecal coliform, depending on which is the more convenient or cost effective to test.

Governmental entities will see testing costs increase because the proposed rule requires bacteria testing not previously required. The impact of cost increases depends on many factors including frequency of testing required by proposed rule in Chapter 319, whether or not an outside contractor is utilized to obtain the bacteria count, the size of the wastewater system, and whether or not bacteria measurement costs can

be recouped through increased user fees. However, the proposed rule is not expected to have a significant fiscal impact on governmental entities because of the testing choices available to comply with the rule requirements.

Testing for bacteria also involves sampling costs, transportation costs, and staff training costs. These costs vary greatly among both contractors and entities that choose to verify bacteria limits in house. The fiscal impact of these costs will depend on the unique operating environment of each entity and methods chosen to train staff, obtain samples, and transport samples for laboratory analysis.

Total estimated annual average costs for laboratory analysis for *E. coli* if done by a contract laboratory can be found in the following table, which shows the relationship between testing frequency proposed in Chapter 319 and effluent limitations proposed in Chapter 309. Estimated average costs for laboratory analysis for *E. coli* is approximately $51.50 per test. Ultra violet (UV) or other chemical systems are currently required to test for fecal coliform bacteria in effluent ($41.20 per test), and the table shows the increase in laboratory costs for those systems.

	Tests/Year	**Cost/Year Contract Lab**	**Tests/Year**	**Cost/Year Contract Lab**	**Tests/Year**	**Cost/Year Contract Lab**
Flow (mgd)	**Chlorine Systems**	**E. coli test $51.50 (average cost)**	**UV Systems & Other Chemical Systems**	**Cost Increase for E. coli test $51.50 - $41.20 (average cost)**	**Natural Systems**	**E. coli test $51.50 (average cost)**
>10	260	$13,390.00	365	$3,759.50	365	$18,797.50
5--10	156	$8,034.00	365	$3,759.50	260	$13,390.00
1—5	52	$2,678.00	365	$3,759.50	156	$8,034.00
0.5—1.0	24	$1,236.00	365	$3,759.50	52	$2,678.00
0.1—0.5	12	$618.00	260	$2,678.00	24	$1,236.00
<0.1	4	$206.00	260	$2,678.00	12	$618.00

If governmental entities decide to do laboratory analysis in-house, they will incur initial costs for

equipment purchases, for staff training, and for supplies, but those costs are expected to be lower than using a contractor to analyze bacteria counts. Staff has estimated that one time equipment costs for laboratory analysis would be approximately $1,500, and analysis costs would be approximately $6 per test if done in house.

PUBLIC BENEFITS AND COSTS

Nina Chamness also determined that for each year of the first five years the proposed rule is in effect, the public benefit anticipated from the changes seen in the proposed rule will be a more direct measure of the effectiveness of disinfection processes at domestic wastewater facilities discharging into state water and compliance with EPA requirements to retain delegation of the TPDES domestic wastewater permit program.

TPDES permits are held by different business types statewide. These can include investor-owned utilities, resorts, apartment complexes, camps, campgrounds, motels, hotels, and recreational vehicle parks. Staff estimates that there may be as many as 15 large businesses that have TPDES domestic wastewater permits. The largest have a discharge rate of 1.0 million gallons per day (mgd) to 5.0 mgd. If a contractor is used to do laboratory analysis, these businesses could see their costs increase by as much as $2,678 per year if they have chlorine systems. If they have a UV or other chemical disinfection system, they could pay approximately 20% more (an estimated $3,760 increase per year) for *E. coli* laboratory analysis instead of fecal coliform by a contractor. If a natural disinfection system is used, these businesses could see contract laboratory analysis costs increase by as much as $8,034 per year. If testing is done in-house, costs are expected to be lower and one time equipment costs for laboratory analysis would be approximately $1,500, and analysis costs would be approximately $6.00 per test.

SMALL BUSINESS AND MICRO-BUSINESS ASSESSMENT

Adverse fiscal implications are anticipated for some small or micro-businesses as a result of the proposed rule. Small systems are required to test less frequently than larger systems, and 98% of private wastewater treatment facilities (601) have a permitted flow under 0.5 mgd. Many of these small or micro-businesses rely on contractors for laboratory analyses, and annual cost increases are expected to range from $206 to $618 for chlorine disinfection systems to $618 to $1,236 for natural disinfection systems. In-house laboratory analysis could be done for approximately $1,500 for initial set-up, and analysis costs would be approximately $6.00 per test. The significance of the fiscal impact of the proposed rule depends on whether the small or micro-business can absorb the cost increases associated with bacteria testing or whether the customer base of the small business can absorb fee increases to cover increased costs for bacteria testing.

SMALL BUSINESS REGULATORY FLEXIBILITY ANALYSIS

The commission has reviewed this proposed rulemaking and determined that a small business regulatory flexibility analysis is not required because the proposed rule is required to protect the environment and to comply with EPA requirements requiring bacteria limits in TPDES domestic wastewater permits. Small businesses with TPDES permits, 98% of which have a permitted flow under 0.5 mgd, are given flexibility under the proposed rule in the sense that they are allowed to test for bacteria less frequently than large businesses or large governmental entities. However, to retain federal delegation of TPDES, the commission is required to implement EPA requirements regarding bacteria limits in all TPDES domestic wastewater permits and more flexibility cannot be given.

LOCAL EMPLOYMENT IMPACT STATEMENT

The commission has reviewed this proposed rulemaking and determined that a local employment impact

statement is not required because the proposed rule does not adversely affect a local economy in a material way for the first five years that the proposed rule is in effect.

DRAFT REGULATORY IMPACT ANAYSIS DETERMINATION

The commission reviewed this rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the rulemaking is not subject to §2001.0225, because it does not meet the criteria for a "major environmental rule" as identified in that statute. Major environmental rule is defined as a rule, the specific intent of which, is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. This proposal does not adversely affect, in a material way, the economy, a section of the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. The specific intent of the proposed rulemaking is to establish requirements for bacteria limitations in all TPDES domestic wastewater permits.
The proposed rulemaking modifies the state rules and/or procedural documents to include bacteria effluent limitations and monitoring in all TPDES domestic wastewater permits.

Furthermore, the rulemaking is not subject to Texas Government Code §2001.0225 because it does not meet any of the four applicable requirements specified in §2001.0225(a). Texas Government Code, §2001.0225(a) applies only to a state agency's adoption of a major environmental rule that: 1) exceeds a standard set by federal law, unless state law specifically requires the rule; 2) exceeds an express requirement of state law, unless federal law specifically requires the rule; 3) exceeds a requirement of a delegation agreement or contract between the state and an agency or representative of the federal

government to implement a state and federal program; or 4) is adopted solely under the general powers of the agency instead of under a specific state law.

The commission invites public comment regarding this draft regulatory impact analysis determination. Written comments on the draft regulatory impact analysis determination may be submitted to the contact person at the address listed under the SUBMITTAL OF COMMENTS section of this preamble.

TAKINGS IMPACT ASSESSMENT

The commission evaluated the proposed rulemaking and performed an analysis of whether it constitutes a taking under Texas Government Code, Chapter 2007. The specific purpose of the proposed rulemaking is to modify the Texas Administrative Code to reflect bacteria effluent limitations and monitoring in all TPDES domestic wastewater permits, as mandated by the EPA. This rulemaking substantially advances that stated purpose by modifying 30 TAC §§210.33, 309.3, 319.9, and 319.10.

Promulgation and enforcement of the proposed rule will not be a statutory or constitutional taking of private real property. Specifically, the proposed rulemaking does not apply to or affect any landowner's rights in private real property because it does not burden (constitutionally), restrict, or limit any landowner's right to real property or reduce any property value by 25% or more beyond that which would otherwise exist in the absence of the regulations. These actions will not affect private real property.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the proposed rulemaking and found that the proposal is subject to the Texas Coastal Management Program (CMP) in accordance with the Coastal Coordination Act, Texas Natural Resources Code, §§33.201 *et seq*., and therefore must be consistent with all applicable CMP goals and

policies. The commission conducted a consistency determination for the proposed rule in accordance with Coastal Coordination Act Implementation Rules, 31 TAC §505.22 and found the proposed rulemaking is consistent with the applicable CMP goals and policies.

CMP goals applicable to the proposed rule includes the protection, preservation, restoration, and enhancement of the diversity, quality, quantity, functions, and values of coastal natural resource areas and ensure sound management of all coastal resources by allowing for compatible economic development and multiple human uses of the coastal zone.

CMP policies applicable to the proposed rule includes 31 TAC §501.21(b)(1) and (2), which state that discharges shall comply with water quality-based effluent limits and that discharges that increase pollutant loadings to coastal waters shall not impair designated uses of coastal waters and shall not significantly degrade coastal water quality unless necessary for important economic or social development.

This rulemaking would adopt bacteria limits for all domestic wastewater facilities that discharge into waters in the state. By adopting bacteria limits, there will be a more direct and possibly more accurate measure of the level of disinfection achieved in domestic effluent discharged to both fresh and salt water in the areas of concern to the CMP.

Promulgation and enforcement of this rulemaking will not violate or exceed any standards identified in the applicable CMP goals and policies because the proposed rule is consistent with these CMP goals and policies and because these rule does not create or have a direct or significant adverse effect on any coastal natural resource areas.

Written comments on the consistency of this rulemaking may be submitted to the contact person at the address listed under the SUBMITTAL OF COMMENTS section of this preamble.

ANNOUNCEMENT OF HEARING

The commission will hold a public hearing on this proposal in Austin on June 30, 2009, at 10:00 a.m. in Building E, Room 201S, at the commission's central office located at 12100 Park 35 Circle. The hearing is structured for the receipt of oral or written comments by interested persons. Individuals may present oral statements when called upon in order of registration. Open discussion will not be permitted during the hearing; however, commission staff members will be available to discuss the proposal 30 minutes prior to the hearing.

Persons who have special communication or other accommodation needs who are planning to attend the hearing should contact Michael Parrish, Office of Legal Services at (512) 239-2548. Requests should be made as far in advance as possible.

SUBMITTAL OF COMMENTS

Written comments may be submitted to Michael Parrish, MC 205, Office of Legal Services, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087, or faxed to (512) 239-4808. Electronic comments may be submitted at: *http://www5.tceq.state.tx.us/rules/ecomments/*. File size restrictions may apply to comments being submitted via the eComments system. All comments should reference Rule Project Number 2009-005-309-PR. The comment period closes July 6, 2009. Copies of the proposed rulemaking can be obtained from the commission's Web site at *http://www.tceq.state.tx.us/nav/rules/propose_adopt.html*. For further information, please contact Sherry

Smith, Water Quality Division, (512) 239-0571.

SUBCHAPTER A: EFFLUENT LIMITATIONS

§309.3

STATUTORY AUTHORITY

The amendment is proposed under the Texas Water Code (TWC), §5.013, which establishes the general jurisdiction of the commission. TWC, §5.102, which provides the commission with the authority to carry out its duties and general powers under its jurisdictional authority provided by TWC. TWC, §5.103, which requires the commission to adopt any rule necessary to carry out its powers and duties under the code and other laws of the state. TWC, §5.104, which states that the commission, by rule, will develop memoranda of understanding necessary to clarify and provide for its respective duties, responsibilities, or functions on any matter under the jurisdiction of the commission that is not expressly assigned to the commission. TWC, §5.105, which authorizes the commission to adopt rules and policies necessary to carry out its responsibilities as provided by the TWC, TWC, §5.120, which requires the commission to "administer the law so as to promote the judicious use and maximum conservation and protection" of the environment and natural resources of the state. TWC, §26.011, which provides the commission with the authority to establish the level of quality to be maintained in, and to control the quality of, the water in the state. TWC, §26.013, which authorizes the executive director to conduct or have conducted any research and investigations it considers advisable and necessary for the discharge of the duties under Chapter 26 of the TWC. TWC, §26.027, which authorizes the TCEQ to issue permits for the discharge of waste or pollutants into or adjacent to water in the state.

The amendments is also proposed under the Texas Water Quality Control Act, which gives the TCEQ the authority to adopt rules for the approval of disposal system plans under TWC, §26.034 as well as the authority to set standards to prevent the discharge of waste that is injurious to the public health under

TWC, §26.041.

This proposed amendment implements TWC, §§5.013, 5.102, 5.103, 5.104, 5.105, 5.120, 26.011, 26.013, 26.027, 26.034, and 26.041.

§309.3 Application of Effluent Sets.

(a) Discharges into effluent limited segments.

(1) All discharges into effluent limited segments shall, at a minimum, achieve secondary treatment. An effluent limited segment is any segment which is presently meeting or will meet applicable water quality criteria following incorporation of secondary treatment for domestic sewage treatment plants and/or best practicable treatment for industries.

(2) New or increased discharges into effluent limited segments shall achieve that level of treatment deemed necessary by the commission, based on the assimilative capacity and uses of the receiving stream.

(b) Discharges into water quality limited segments.

(1) All discharges into water quality limited segments for which evaluations have been developed shall, at a minimum, achieve the treatment level specified in the recommendations of the evaluation for that discharge. A water quality limited segment is a surface water segment classified by the commission as water quality limited where conventional treatment of waste discharged to the segment is

not stringent enough for the segment to meet applicable water quality standards; monitoring data have shown significant violations of water quality standards; advanced waste treatment for point sources is required to protect existing exceptional water quality; or the segment is a domestic water supply reservoir used to supply drinking water.

(2) Discharges into water quality limited segments for which wasteload evaluations or total maximum daily loads have not been developed shall, at a minimum, achieve secondary treatment as provided by §309.1 of this title (relating to Scope and Applicability).

(c) Discharges into certain reservoirs. Any discharge made within five miles upstream of a reservoir or lake which is subject to on-site/private sewage facility regulation adopted under Texas Water Code, Chapter 26 or Texas Civil Statutes, Article 4477-7e, or which may be used as a source for public drinking water supply shall achieve, at a minimum, Effluent Set 2 in §309.4 of this title (relating to Table 1, Effluent Limitations for Domestic Wastewater Treatment Plants). Five miles shall be measured in stream miles from the normal conservation pool elevation. The commission may grant exceptions to this requirement where it can be demonstrated that the exception would not adversely impact water quality.

(d) Discharges from stabilization ponds. Effluent Set 3 in §309.4 of this title shall apply to stabilization pond facilities in which stabilization ponds are the primary process used for secondary treatment and in which the ponds have been designed and constructed in accordance with applicable design criteria. Effluent Set 3 in §309.4 of this title is considered equivalent to secondary treatment for stabilization pond systems.

(e) Discharge to an evaporation pond. Effluent discharged to evaporation ponds must receive, at a

minimum, primary treatment, be within the pH limits of 6.0 - 9.0 standard units, and have a quality of 100 milligrams per liter five-day biochemical oxygen demand or less on a grab sample. For the purpose of this subsection, primary treatment means solids separation which is typically accomplished by primary clarifiers, Imhoff tanks, facultative lagoons, septic tanks, and other such units.

(f) Land disposal of treated effluent. The commission may authorize land disposal of treated effluent when the applicant demonstrates that the quality of ground or surface waters in the state will not be adversely affected. Each project must be consistent with laws relating to water rights. The primary purpose of such a project must be to dispose of treated effluent and/or to further enhance the quality of effluent prior to discharge.

(1) When irrigation systems ultimately dispose of effluent on land to which the public has access, Effluent Set 4 in §309.4 of this title, at a minimum, shall apply. The pH shall be within the limits of 6.0 - 9.0 standard units unless a specific variance is provided in the permit based upon site-specific conditions. When lands to which the public does not have access are to be used for ultimate disposal of effluent, the effluent must, at a minimum, receive primary treatment. Effluent Set 5 in §309.4 of this title shall apply and the pH shall be within the limits of 6.0 - 9.0 standard units unless a specific variance is provided in the permit based upon site-specific conditions. For irrigation systems, primary treatment is the same as described in subsection (e) of this section. Effluent may be used for irrigation only when consistent with Subchapters B and C of this chapter (relating to Location Standards and Land Disposal of Sewage Effluent).

(2) When overland flow systems are utilized for effluent treatment, the public shall not have access to the treatment area. Primary treated effluent meeting Effluent Set 6 in §309.4 of this title,

within the pH limits of 6.0 - 9.0 standard units may be used consistent with environmental safeguards and protection of ground and surface waters. For overland flow systems, primary treatment is the same as described in subsection (e) of this section. At a minimum, Effluent Set 1 in §309.4 of this title shall apply to discharges from overland flow facilities except where more stringent treatment levels are required to meet water quality standards.

(3) When evapotranspiration beds, low pressure dosing, or similar soil absorption systems are utilized for on-site land disposal, the effluent shall, at a minimum, receive primary treatment and meet Effluent Set 7 in §309.4 of this title. Use of these on-site systems shall be consistent with environmental safeguards and the protection of ground and surface waters. Primary treatment is the same as described in subsection (e) of this section.

(4) When subsurface area drip dispersal systems, or similar soil absorption systems ultimately dispose of effluent on land where there is the significant potential for public contact, as defined in §222.5 of this title (relating to Definitions), Effluent Set 4 in §309.4 of this title, at a minimum, shall apply. The pH shall be within the limits of 6.0 - 9.0 standard units unless a specific variance is provided in the permit based upon site-specific conditions.

(5) When subsurface area drip dispersal systems, or similar soil absorption systems ultimately dispose of effluent on land where there is the minimal potential for public contact, as defined in §222.5 of this title, Effluent Set 5 in §309.4 of this title, at a minimum, shall apply. The pH shall be within the limits of 6.0 - 9.0 standard units unless a specific variance is provided in the permit based upon site-specific conditions.

(6) Treated effluent may be land applied only when consistent with Subchapters B and C of this chapter. Use of subsurface area drip dispersal systems shall be consistent with environmental safeguards and the protection of ground and surface waters.

(7) For the purpose of this subsection, primary treatment means solids separation which is typically accomplished by primary clarifiers, Imhoff tanks, facultative lagoons, septic tanks, and other such units.

(g) Disinfection.

(1) Except as provided in this subsection, disinfection in a manner conducive to the protection of both public health and aquatic life shall be achieved on all domestic wastewater which discharges into waters in the state. Any appropriate process may be considered and approved on a case-by-case basis.

(2) Where chlorination is utilized, any combination of detention time and chlorine residual where the product of chlorine (Cl_2 mg/l) X Time (T minutes) equals or exceeds 20 is satisfactory provided that the minimum detention time is at least 20 minutes and the minimum residual is at least 0.5 mg/l. The maximum chlorine residual in any discharge shall in no event be greater than four mg/l per grab sample, or that necessary to protect aquatic life. [Where an existing system, constructed prior to October 8, 1990, has a detention time of less than 20 minutes at peak flow, the waste discharge permit will be amended at renewal by the commission to require limits for both chlorine residual and fecal coliform.]

(3) On a case-by-case basis, the commission will allow chlorination or disinfection

alternatives to the specific criteria of time and detention described in paragraph (2) of this subsection that achieve equivalent water quality protection. These alternatives will be considered and their performance standards determined based upon supporting data submitted in an engineering report, prepared and sealed by a registered, professional engineer. The report should include supporting data, performance data, or field tracer studies, as appropriate. The commission will establish effluent limitations as necessary to verify disinfection is adequate, including chlorine residual testing, other chemical testing, and bacteria testing as specified in subsections (h) or (i) of this section [and/or fecal coliform].

(4) Except as provided herein, disinfection of domestic wastewater which is discharged by means of land disposal or evaporation pond shall be reviewed on a case-by-case basis to determine the need for disinfection. All effluent discharged to land to which the public has access must be disinfected and if the effluent is to be transferred to a holding pond or tank, the effluent shall be rechlorinated to a trace chlorine residual at the point of irrigation application. All effluent discharged to land via a subsurface area drip dispersal system to which there is a potential for public contact shall be disinfected and shall comply with an *Escherichia coli* (*E. coli*) bacteria effluent limitation of 126 colony forming units per 100 milliliters of water or a fecal coliform effluent limitation of 200 colony forming units per 100 milliliters water, per grab sample, in accordance with paragraph (1) of this subsection [§309.3(g)(1) of this title (relating to Application of Effluent Sets)].

(5) Unless otherwise specified in a permit, chemical disinfection is not required for stabilization ponds when the total retention time in the free-water-surface ponds (based on design flow) is at least 21 days.

(h) Effluent limitations for bacteria.

(1) To demonstrate the disinfection level in effluent discharged into water in the state by its wastewater treatment facility, a permittee shall measure the amount of bacteria in the effluent.

(A) To demonstrate disinfection, *Escherichia coli* (*E. coli*) must be the indicator bacteria measured for discharges to fresh water.

(B) To demonstrate disinfection, *Enterococci* must be the indicator bacteria measured for discharges to salt water.

(2) The monthly average bacteria effluent limitation in a Texas Pollutant Discharge Elimination System (TPDES) permit must be the applicable geometric mean for the most stringent contact recreation category as specified in Chapter 307 of this title (relating to Texas Surface Water Quality Standards).

(3) The daily maximum bacteria effluent limitation in a TPDES permit must be the applicable single grab sample for the most stringent contact recreation category in Chapter 307 of this title.

(i) [(h)] More stringent requirements. The commission may impose more stringent requirements in permits than those specified in subsections (a) - (h) [(a) - (g)] of this section, on a case-by-case basis, where appropriate to maintain desired water quality levels or protect human health.