The Texas Commission on Environmental Quality (commission or TCEQ) adopts an amendment to §317.1. Section 317.1 is adopted *with change* to the proposed text as published in the August 13, 2004 issue of the *Texas Register* (29 TexReg 7897).

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED RULE

The legislature passed House Bill 346 in 1993 which required rules to be developed by the commission and the Texas State Board of Plumbing Examiners for graywater use in Texas. The commission adopted rules in June 2001 that allow water from clothes-washing machines as the only graywater to be discharged without going through an on-site sewage facility (OSSF). Water from other sources in a residence was not included in the use of graywater.

In 2003, the 78th Legislature passed House Bill 2661 which amended Texas Water Code (TWC), §26.0311 and Texas Health and Safety Code (THSC), §341.039 and §366.012. These amendments modify the definition of graywater and require the commission to adopt and implement standards by June 1, 2004 for the use of graywater and to address the separation of graywater in a residence served by an OSSF system. To implement this legislation, the commission concurrently amended 30 TAC Chapter 210, Use of Reclaimed Water; 30 TAC Chapter 285, On-Site Sewage Facilities; and Chapter 317. Amendments to Chapter 210 and Chapter 285 are also published in the Adopted Rules section of this issue of the *Texas Register*.

SECTION DISCUSSION

Throughout this rulemaking, the commission made wording changes to bring the existing rule language into agreement with guidance provided in the Texas Legislative Council Drafting Manual, October

2002.

The commission amended §317.1, General Provisions, by adding a requirement in subsection (c) that the final engineering design report include how the design of the collection system and the treatment plant can handle the loss of graywater as defined in TWC, §26.0311. The commission adopts this amendment to implement TWC, §26.0311.

FINAL REGULATORY IMPACT ANALYSIS 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 definition of a "major environmental rule" in that statute. Major environmental rule means 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.

The amendment to §317.1(c) requires that the final engineering design report include how the design of the collection system and the treatment plant can handle the loss of graywater as defined in TWC, §26.0311. The adopted rule does not meet the definition of a major environmental rule as it 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.

In addition, the adopted amendment is not subject to Texas Government Code, §2001.0225, because it

does not meet any of the four criteria specified in §2001.0225(a). Texas Government Code, §2001.0225(a), applies to a rule adopted by an agency, the result of which is to: 1) exceed a standard set by federal law, unless the rule is specifically required by state law; 2) exceed an express requirement of state law, unless the rule is specifically required by federal law; 3) exceed 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) adopt a rule solely under the general powers of the agency instead of under a specific state law.

The adopted amendment to Chapter 317 does not meet any of these requirements. First, the revision does not exceed a standard set by federal law as there are no federal requirements for this rule. As a result, there are no applicable standards set by federal law that could be exceeded by the rule. Second, the revision does not exceed an express requirement of state law, but is being adopted to implement state law. Therefore, the rulemaking does not exceed an express requirement of state law. Third, the commission is not a party to a delegation agreement with the federal government concerning a state and federal program that would be applicable to requirements set forth in the rule. Therefore, there are no delegation agreement requirements that could be exceeded by the rule. Fourth, the adopted rule was not developed solely under the commission's general powers, but rather was developed to implement the specific requirements of House Bill 2661, amending TWC, §26.0311 and THSC, §341.039 and §366.012. Therefore, the commission does not adopt the rule solely under the commission's general powers. Thus, the commission concludes that a regulatory analysis is not required in this instance because the adopted rule does not meet any of the criteria of a major environmental rule as defined by Texas Government Code, §2001.0225.

TAKINGS IMPACT ASSESSMENT

The commission performed as assessment of the adopted rule in accordance with Texas Government Code, §2007.043. The purpose of this rulemaking is to implement House Bill 2661 which amended TWC, §26.0311 and THSC, §341.039 and §366.012. This amendment modifies the definition of graywater and requires the commission to adopt and implement standards for the use of graywater and to address the separation of graywater in a residence served by an OSSF system. The adopted graywater rules are voluntary. Thus, the commission's assessment indicates that Texas Government Code, Chapter 2007, does not apply to this rulemaking because the promulgation and enforcement of this rule will not create a burden on private real property.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the adopted rulemaking and found that the rule is neither identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11, nor will it affect any action/authorization identified in §505.11. Therefore, the adopted rule is not subject to the Texas Coastal Management Program.

PUBLIC COMMENT

The comment period closed on September 13, 2005 at 5:00 p.m. A public hearing on this proposal was held in Austin on September 8, 2004. The commission received no comments with regard to Chapter 317.

CHAPTER 317: DESIGN CRITERIA FOR SEWERAGE SYSTEMS

§317. 1

STATUTORY AUTHORITY

The amended section is adopted under the authority granted to the commission by the Texas Legislature in THSC, Chapter 366. The amended section implements THSC, §366.012(a)(1), which requires the commission to adopt rules consistent with the policy defined in TWC, §26.0311 and THSC, §341.039 and §366.012, relating to Standards for Control of Graywater, Graywater Standards, and Rules Concerning On-Site Disposal Systems. Specific statutory authorization derives from House Bill 2661, 78th Legislature, 2003, which amended TWC, §26.0311 and THSC, §341.039 and §366.012. The amendment is also adopted under the general authority granted in TWC, §5.013, which establishes the general jurisdiction of the commission over other areas of responsibility as assigned to the commission under the TWC and other laws of the state; TWC, §5.103 and §5.105, which authorize the commission to adopt rules and policies necessary to carry out its responsibilities and duties under TWC, §5.013(14)(b); and TWC, §7.002, which authorizes the commission to enforce provisions of the TWC and the THSC.

§317. 1. General Provisions.

(a) Purpose. These design criteria are minimum guidelines to be used for the comprehensive consideration of domestic sewage collection, treatment, or disposal systems and establish the minimum design criteria pursuant to existing state statutes pertaining to effluent quality necessary to meet state water quality standards. These criteria are intended to promote the design of facilities in accordance with good public health and water quality engineering practices. These criteria include the minimum requirements for a preliminary engineering report which provides the general engineering concepts underlying the proposed project as well as the final engineering report detailing the fully developed

project along with related plans and specifications.

(1) Authority for requirement. The Texas Water Code prescribes the duties of the commission relating to the control of pollution including the review and approval of plans and specifications for sewage disposal systems. This authority is found in Texas Water Code (TWC), §§5.013, 12.081-12.083, 15.104, 15.114, 26.023, 26.034, 49.181-49.182, 54.024, and 51.333.

(2) Review of plans and specifications. Plans and specifications shall meet the design criteria and the operation, maintenance, and safety requirements for the proposed project as provided by this chapter. Approval given by the executive director, or a participating municipality with review authority as provided for in paragraphs (5) and (6) of this subsection, shall not relieve the sewerage system owner or the design engineer of any liabilities or responsibilities with respect to the proper design, construction, or authorized operation of the project in accordance with applicable commission rules.

(3) Submittal requirements.

(A) "Sanitary sewer collection system projects," which will be constructed within the jurisdiction of a municipality which performs technical reviews of sanitary sewer collection system projects under TWC, §26.034, and which are not prepared by the staff of a municipality, need not be submitted to the agency for review.

(B) "Sanitary sewer collection system projects," which are prepared by the

staff of a municipality, which will be constructed within the jurisdiction of a municipality which performs technical reviews of sanitary sewer collection system projects under TWC, §26.034, and where the entire project falls into one or more of the categories outlined in clauses (i) - (iii) of this subparagraph, need not be submitted to the agency for review.

(i) Any conventional gravity sewer collection system lines less than 1,500 linear feet in length which are extensions to existing systems where the existing system has been completed and in operation at least six months;

(ii) Any duplex lift stations which have a firm pumping capacity of less than 100 gallons per minute;

(iii) Any conventional gravity sewer piping less than 12 inches in diameter.

(C) "Domestic wastewater projects" which receive a technical review and approval from a state agency other than the commission need not be submitted to the agency for review, if:

(i) the review is performed under the supervision of a professional engineer registered in the State of Texas, the review ensures that the project complies with this chapter, and the state agency has requested that the commission not perform technical reviews of a wastewater project or category of projects; or

(ii) the state agency has been granted review authority in lieu of the commission under state law.

(D) A summary transmittal letter shall be submitted, by certified mail, to the Wastewater Permits Section, and to the appropriate commission regional office, for all wastewater projects constructed in the State of Texas, which are not exempted from the commission's submittal requirements as detailed in subparagraphs (A), (B), or (C) of this paragraph. If the executive director does not notify the person who submitted the summary that a review will occur, under subparagraph (E) of this paragraph, the project is deemed approved. The information in the summary shall be signed, dated, and sealed by a professional engineer registered in the State of Texas. All summaries shall include, at a minimum:

(i) the name and address of the design firm;

(ii) the name, phone number, and facsimile number of the design engineer;

(iii) the county(s) in which the project will be located with an identifying name for the project;

(iv) the name of the entity which proposes to own, operate, and maintain the project through its design life;

(v) the permit name and permit number of the relevant wastewater

treatment facility;

(vi) a statement verifying that the plans and specifications are in substantial compliance with all the requirements of this chapter and which states that any deviations from the requirements are based on the best professional judgement of the registered professional engineer who prepared the project plans and specifications and final engineering design report; and

(vii) a brief description of the project scope which includes the specifics of the project, a description of deviations from the requirements of this chapter, including the use of nonconforming or innovative technology, and an explanation of the reasons for such deviations.

(E) Any project, for which a summary is submitted, is subject to review by the executive director. Factors to be used to determine whether a review will be performed include, but are not limited to, whether or not a non-conforming or innovative technology is being proposed, the stream segment in which the project is located, and the applicant's compliance record. If the executive director chooses to review a project, the design engineer will be notified in writing or by facsimile of the executive director's intent to review the project, within ten days of receipt of the summary. Upon receipt of the notification of intent to review, the design engineer shall submit to the executive director a complete set of plans and specifications and a complete final engineering design report. These submitted materials shall be sufficient to satisfy the executive director that the project is in compliance with this chapter. If the executive director reviews a project, any approval may be granted under paragraph (4) of this subsection. Construction may not commence until approval has been obtained.

(F) A complete set of plans and specifications, the final version of such plans and specifications with engineer's certification, a complete engineering design report, all change orders and test results, a copy of the written summary submitted to the executive director, and any written approvals granted by the executive director, a municipality, or another state agency, shall be maintained and kept by the permittee, or for collection system projects, person(s) responsible for management of the collection system, for at least three years from the date the engineer certifies to the executive director that the project is complete. These materials shall be submitted to the executive director, another state agency, or municipality upon request. Such materials must be readily available for inspection by the executive director's staff upon request during regular business hours.

(4) Types of approval. Regardless of the type of approval, constructed facilities when in operation are required to produce the quality of effluent specified in their discharge permit(s). The types of approvals described in subparagraphs (A) - (C) of this paragraph will be utilized by the commission or any other review authority.

(A) Standard approval. Plans and specifications found to comply with all applicable parts of these criteria and to conform to commonly accepted sanitary engineering design practices shall be approved for construction.

(B) Approvals of innovative and nonconforming technologies.

(i) Technologies considered to be nonconforming or innovative include ones not conforming to or addressed in the design criteria of this chapter.

(ii) If an approval for nonconforming or innovative technologies is requested, engineering proposals for processes, equipment, or construction materials not covered in these criteria shall be fully described in the submitted planning materials and the reasons for their selection clearly outlined. Processes considered to be nonconforming or innovative should also be supported by results of pilot or demonstration studies. Where similarly designed full scale processes exist and are known to have operated for a reasonable period of time under conditions similar to those suggested for the proposed design, performance data from these existing full scale facilities shall be required to be submitted to the executive director in addition to, or in lieu of, pilot or small scale demonstration studies. Any warranties or performance bond agreements offered by the process, equipment, or material manufacturers shall be fully described in the request.

(iii) Approvals of processes, equipment, or construction materials which are considered to be innovative or nonconforming will be granted only in cases where the commission or review authority determines, after an engineering evaluation of the supporting information provided in the submitting engineer's design report, that the technology will not result in a threat to public health or the environment.

(iv) The executive director or review authority may require the manufacturer or supplier to obtain and furnish evidence of an acceptable two-year performance bond from an approved surety which insures the performance of the innovative or nonconforming technology. The performance bond shall cover the cost of removal or abandonment of the innovative or nonconforming facility and equipment, replacement with previously agreed upon facilities or equipment, and all associated engineering fees necessary for the removal and replacement.

(v) Approval of innovative and nonconforming technologies may include a condition which states that after some predetermined period of time after the installation and startup of the innovative or nonconforming technology, requiring an engineering report to be submitted after start-up, detailing the performance of the nonconforming or innovative technology. The engineering report shall include unbiased calculations and data supporting the technology's performance; and written submittals from the design engineer and permittee which state that the nonconforming or innovative technology has satisfied its manufacturer's claims.

(C) Conditional approval. The executive director or review authority may grant approvals which contain detailed conditions, stipulations, or restrictions. Examples of such conditions and stipulations include, but are not limited to, testing requirements, reporting requirements, operational requirements, and additional installation and design requirements which may be necessary to ensure compliance with this chapter. Any conditional approval granted may be issued for a specific set of flow situations, wastewater characteristics, and/or required effluent quality. If a conditional approval is granted, both the sewage system owner and design engineer, as appropriate, shall be responsible for ensuring that the approval conditions outlined by the commission or review authority have been met.

(5) Municipalities performing technical reviews of sanitary sewer collection systems under TWC, §26.034, within 90 days of the effective date of this rule and/or within 90 days of a boundaries change, shall submit maps to the agency's Wastewater Permits Section detailing the boundaries of the review authority. If a municipality decides to perform technical reviews of sanitary sewer collection systems after the effective date of this rule, the municipality shall submit maps

detailing the boundaries of the review authority, within the 30 days before starting these reviews. If at any time a municipality, which has chosen to implement this review authority, decides to cease review of sanitary sewer collection system plans and specifications, the municipality shall notify the executive director within 30 days of the date on which the final plans and specifications review is expected to be performed. In order to meet the standards specified in TWC, §26.034, municipalities shall incorporate the items detailed in subparagraphs (A) - (E) of this paragraph into their review programs:

(A) The municipality's review and approval process shall ensure compliance with the rules of this chapter.

(B) All reviews performed by an employee of the municipality shall be conducted by a professional engineer, registered in the State of Texas, or the employee conducting the review shall be under the direct supervision of a professional engineer, registered in the State of Texas, who is ultimately responsible for the review and approval of each collection system submitted and installed in the municipality's jurisdiction.

(C) The responsible review engineer shall be either an employee of the reviewing municipality, or a consultant to the municipality, separate from the private consulting firm charged with the design work under review. For purposes of this section, the term "separate" means that the responsible review engineer is not employed by and does not receive compensation from the private consulting firm and from any of its parent companies, subsidiaries, or affiliates charged with the design. The municipality shall provide on request documentation of its agreements with private consultants sufficient to allow the agency to audit its compliance with this subsection.

(D) A participating municipality may review and approve engineering reports, plans, and specifications only for projects which transport primarily domestic waste within the boundaries of jurisdiction of that municipality. For each project approved for construction, the municipality shall issue an approval letter or other indication of the approval which clearly details the project being approved.

(E) The municipality shall maintain complete files of all review and approval activities carried out under its authority and shall make any existing project files available to the commission upon request and/or during audits performed in accordance with paragraph (6) of this subsection.

(6) The executive director may perform periodic audits of the review and approval process of municipalities which perform technical reviews of sanitary sewer collection systems in lieu of the commission, to ensure that the projects approved by the municipalities are in compliance with this chapter. If the executive director decides to perform an audit of a municipality's review and approval process, the executive director will provide the municipality with a minimum of five working days advance notice of the pending audit. The executive director may, for auditing purposes only, review specific projects which have previously been approved by the review authority. The municipality shall provide to the executive director, on request, documentation of all agreements between the private consultants and the municipality, which relate to the wastewater collection system review program. If the executive director finds through reviews of specific projects or through audits of the municipality's review and approval process that a municipality's review and approval process does not provide for compliance with the minimum design and installation requirements detailed in this chapter, the review and approval authority shall address these findings within a time established by the

executive director. If compliance cannot be achieved, the review authority shall be voided for that municipality. If such authority is voided for a municipality, the executive director shall notify the municipality in writing and shall include the justification for voiding the authority of the municipality. If the authority of a municipality is voided, all new projects proposed to be constructed within that municipality's jurisdiction shall be submitted to the executive director in accordance with paragraph (3)(D) of this subsection.

(b) Preliminary engineering report.

(1) Definition. The preliminary engineering report shall form the conceptual basis for the collection, treatment, and/or disposal system proposed. This document shall bear the signed and dated seal of the registered professional engineer responsible for the design.

(A) For projects receiving United States Environmental Protection Agency construction grants assistance, a facility plan may serve as the preliminary engineering report.

(B) For all other projects, a preliminary engineering report proposing processes, methods, or procedures may be submitted as early in the planning stage as is practical. Submission of a preliminary engineering report at this point is only necessary to resolve any potential disagreements between the design engineer and the commission regarding the essential planning information, design data, population projections, and other requirements of the commission. Agreement is desirable to eliminate delays or inconveniences and to avoid the possibility of having to revise the final plans and specifications.

(C) The preliminary engineering report may be merged directly with the final engineering report to produce a single engineering report at the discretion of the sewerage system owner.

(2) General requirements. The following is required for each project as applicable.

(A) A brief description of the project with maps showing the area to be served, general location of proposed improvements, water and wastewater treatment plant sites, existing and proposed streets, parks, drainage ditches, creeks, streams, and water mains shall be provided. The drainage area should be defined clearly, either by contour map or otherwise. Where a contour map is not available to the community, one should be obtained and the contours should be shown at intervals of not more than ten feet. The maps and plans shall be reproduced on paper not larger than 24 inches by 36 inches in size; however, where variations are necessary, all sheets shall be uniform in size.

(B) The domestic population of the area to be served (present and projected) and design population of the project shall be included.

(C) The names of industries contributing any significant wastes, types of industry (standard industry codes), volume of wastes, characteristics and strength of wastes, population equivalent, and other pertinent information shall be included. It should be emphasized that if significant amounts of wastes other than normal domestic sewage are to be treated at the wastewater treatment plant, sufficient data on such wastes must be presented to allow an evaluation of the effect on the treatment process. This would include, but not be limited to, heavy metals and toxic materials such as

polychlorinated biphenyls, organic chemicals, and pesticides.

(D) The preliminary engineering report shall include the technical information described in §317.10 of this title (relating to Appendix B - Overland Flow Process) for all overland flow projects.

(3) Collection system. The following information shall be provided in the preliminary engineering report if applicable to the project:

(A) present area served and future areas to be served;

(B) terrain data in sufficient detail to establish general topographical features of present and future areas to be served;

(C) lift stations existing and/or proposed;

(D) effect of proposed system expansion on existing system capacity; and

(E) amount of infiltration/inflow existing and anticipated, and how it is to be addressed in the collection system design.

(4) Treatment plant. The following information is required in a preliminary engineering report.

(A) Quantity and quality of existing sewage influent and changes in the characteristics anticipated in the future. If adequate records are not available, analyses shall be made for the existing conditions and such information included in the report.

(B) Design and peak flow rates being considered and the design period. Design flow is defined as the wet weather maximum 30-day average flow. Therefore, when determining design flow rates, consideration must be given to flows during periods of wet weather in order to assure consistent compliance with discharge permit volume and quality limitations. Peak flow is defined as the highest two hour flow expected to be encountered under any operational conditions, including times of high rainfall (generally the two-year, 24-hour storm is assumed) and prolonged periods of wet weather. For new systems, the peak flow to average annual flow ratio is normally in the range of three-five to one, although other peaking factors may be warranted.

(C) Type of treatment plant proposed and the effluent quality expected. The information should include basis of design, flow, organic loading, infiltration allowance, and efficiency determinations sufficient to a given level of treatment.

(D) Type of units proposed and their capacities, considering the criteria contained herein. The information should include detention times, surface loadings, weir loadings, flow diagram, and other pertinent information regarding the design of the plant, including sludge processing units required for the selected ultimate sludge disposal.

(E) Treatment plant site information and the siting analysis. The location of

the plant, the area included in the plant site, dedicated buffer zone, and a description of the surrounding area including a map or a sketch of the area. Particular reference should be made as to the plant's proximity to present and future housing developments, industrial sites, prevailing winds, highways and/or public thoroughfares, water plants, water supply wells, parks, schools, recreational areas, and shopping centers. If the effluent is to be discharged to the waters of the state, the immediate receiving stream, canal, major water course, etc., shall be designated. The siting analysis shall include:

(i) flood hazard analysis. Provide the 100-year flood plain elevation. Proposed treatment units which are to be located within the 100-year flood plain will not be approved for construction unless protective measures satisfactory to the commission (such as levees or elevation of the treatment units) are included in the project design;

(ii) buffer zone analysis. Demonstrate that the location of each proposed treatment unit is consistent with the buffer zone criteria specified in Chapter 309 of this title (relating to Domestic Wastewater Effluent Limitation and Plant Siting).

(5) Sludge management. The preliminary engineering report shall include a discussion of the method of sludge disposal to be utilized. The report shall assess the following factors:

(A) estimated quantity of sludge that must be handled which includes future sludge loads based on flow projections;

(B) quality and sludge treatment requirements for ultimate disposal;

(C) sludge storage requirements for each alternative considering normal operating requirements and contingencies;

(D) transportation of sludge;

(E) land use and land availability; and

(F) reliability of the various alternatives, contingencies, and mitigation plans to ensure reliable capacity and operational flexibility.

(6) Control of bypassing. Information and data shall be submitted to describe features (auxiliary power, standby and duplicate units, holding tanks, storm water clarifiers, etc.) and operational arrangements (flexibility of piping and valves to control flow through the plant, reliability of power sources, etc.) to prevent unauthorized discharges of untreated or partially treated wastewater. An outline of control measures to prevent unauthorized discharges of untreated or partially treated wastewater during construction (see subsection (e)(5) of this section) is to be included.

(c) Final engineering design report. The final engineering design report shall be submitted with the final plans and technical specifications. The report shall include calculations and any other engineering information pertaining to the plant design as may be necessary in the review of the plans and specifications by the commission. The report must include how the design of the collection system and treatment plant will handle the potential loss of graywater as defined in TWC, §26.0311. This

report shall bear the signed and dated seal of the registered professional engineer responsible for the design. Information should be included to describe any changes that have been made since a preliminary engineering report was submitted, along with additional information as follows.

(1) Collection system (if applicable):

(A) minimum and maximum grades proposed for each size and type of pipe;

(B) lift stations (also refer to §317.3 of this title (relating to Lift Stations)):

(i) the operating characteristics of the stations at minimum, maximum, and design flows (both present and future);

(ii) safety considerations, such as ventilation, entrances, working areas, and prevention of explosions; and

(iii) means of preventing overflow of raw sewage;

(C) capability of existing trunk and interceptor sewers and lift stations to handle the peak flow under anticipated conditions and capability of existing treatment facilities to receive and adequately treat the anticipated peak flows;

(D) type of pipe proposed and its anticipated performance under the conditions imposed by the particular wastewater quality and loading conditions;

(E) the manhole spacing proposed;

(F) areas not served by the present proposed project, and the projected means of providing service to these areas, including special provisions incorporated in the present plans for future expansion;

(G) amount of infiltration/inflow existing and anticipated, its hydraulic effect on the proposed and existing system, and an abatement plan if applicable, including a:

(i) description of infiltration allowances and test procedures in the specifications governing design of new sanitary sewer lines; and

(ii) description of control program to reduce infiltration/inflow occurring in the existing sewer system;

(H) soil conditions, such as quicksand, that will not support collection system development, and measures to be taken to overcome the anticipated difficulties.

(2) Treatment plant:

(A) the final decisions as to the method of treatment;

(B) types of units proposed and their capacities, considering the criteria

contained herein including:

(i) detention times, surface loadings, weir loadings, and flow diagram; and

(ii) other pertinent information regarding the design of the plant, including hydraulic profiles for wastewater and sludge which includes a plot of the hydraulic gradient at peak flow conditions for all gravity lines;

(C) the anticipated operation mode of the plant, the degree of treatment expected and any special characteristics of the plant; and

(D) the safety features included such as stairways, railing, lighting, insulation mats, and walkway mats.

(3) Sludge management system:

(A) the final decisions as to the method(s) of managing sludge, including final disposal;

(B) contingency alternatives; and

(C) the type and size of sludge treatment units to provide the quality of sludge for the selected sludge management method.

(d) Final plans and technical specifications.

(1) Construction drawings and technical specifications will not be considered for review unless they bear the signed and dated seal of the registered professional engineer responsible for the design on each sheet of the plans and on the title page of the technical specifications. These shall be the plans and specifications to be used by the contractor for bidding and construction.

(2) Plans and profiles for sanitary sewers, insofar as practical, shall be prepared using one of the following scales.

Horizontal	Vertical
1" = 20 feet	1" = 2 feet
1" = 40 feet	1" = 4 feet
1" = 50 feet	1" = 5 feet

(3) The size, grade, and type of pipe material shall be shown. Alternate materials may be identified in the bid document.

(4) The location and structural features of the sewers, including manholes to be installed, shall be shown on plans and profiles. The details of the appurtenances shall be provided.

(5) The plans and technical specifications for lift stations shall fully describe all pumps, valves, pumping control mechanisms, safety and ventilation equipment, access operator points, hatches,

and hoisting equipment for installing and removing equipment.

(6) The plans and technical specifications for the wastewater treatment plant shall include construction details for all units of the plant as well as equipment and material specifications and installation procedures. The location and details of inlet and outlet structures, valving, and piping arrangements that allow alternate modes of operation during periods of stress such as mechanical failure, structural repair, or any other activity which requires the removal of one or more treatment elements from service, shall be included. The plans shall include a hydraulic profile of the treatment facilities at both design and peak flows. The plans shall also show provisions for future expansion of the plant, should such be contemplated. Details of complex piping should be clarified by the inclusion of an isometric flow diagram as a part of the plans.

(e) Other requirements.

(1) Completion. Upon completion of construction, the design engineer or other engineer appointed by the owner shall notify the commission of completion and attest to the fact that the completed work is substantially in accordance with the plans, technical specifications, and change orders approved by the commission. If substantial changes have been made to the original plans, record drawings documenting such changes shall be submitted to the commission.

(2) Inspection. During construction, the project may be visited by a representative of the commission during normal working hours to establish general compliance with the plans and technical specifications approved by the commission.

(3) Operation and maintenance manual. Prior to completion of construction of a new wastewater treatment plant or plant expansion, an operation and maintenance manual covering the recommended operating procedures and maintenance practices for the entire facility shall be furnished to the sewerage system owner by the design engineer. The design engineer shall submit a letter to the commission certifying that this action has been performed and shall furnish a copy of the operation and maintenance manual to the commission upon request.

(4) Sludge management implementation plan. The design engineer shall prepare an implementation plan for the selected sludge management method. The plan shall identify regulatory requirements of state and federal agencies. The plan shall also include requirements for selected contingency alternatives.

(5) Authorization to discharge. For treatment plant projects, the owner is required to secure proper authorization from the commission prior to initiation of construction. No discharge shall be authorized without a discharge permit. In no case shall bypassing of partially treated wastewater be authorized during construction without an order for such discharge from the commission. Also see §317.4(a)(3) of this title (relating to Wastewater Treatment Facilities).

(f) Variance. A variance from the design criteria herein may be granted by the commission if the variance would not result in an unreasonable risk to treatment plant performance, public health, or the waters in the state. Requests for variances must be submitted in writing by the design engineer and must, for each affected item, include a detailed engineering justification.