

SOUTH CAROLINA DEPARTMENT OF
HEALTH AND ENVIRONMENTAL CONTROL



R.61-67
Standards for Wastewater Facility Construction

May 24, 2002

**Bureau of Water
2600 Bull Street
Columbia, S.C. 292011**

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BUREAU OF WATER



South Carolina Department of Health
and Environmental Control

Standards for Wastewater Facility Construction: R.61-67

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61-67. STANDARDS FOR WASTEWATER FACILITY CONSTRUCTION

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Section 67.100. General Provisions

- A. Purpose.** This regulation establishes standards, for general and technical design requirements, for use by Department in reviewing Engineering Reports, establishing Reliability Classifications and issuing State Construction Permits or other approval actions as outlined in the regulation.
- B. Applicability.** This regulation applies to engineering design and construction of all wastewater treatment facilities and all wastewater collection and transmission facilities which require a construction permit or approval from the Department after the effective date of this regulation. The Department may approve temporary research and development and other wastewater treatment projects without requiring an engineering report or construction permit when such activity is considered by the Department to be minor in nature.
- C. Exclusions.** The following exclusions shall apply:
1. Wastewater collection systems approved by permits issued under Regulation 61-56;
 2. Replacement of a component (same or similar), as long as there is no change in capacity;
 3. Routine maintenance;
 4. The construction of buildings; or
 5. Service lines as defined in subsection 67.100.D.
- D. General Definitions.** All other definitions have the meaning given by the Pollution Control Act.

“208 Water Quality Management Plan” (208 Plan) means a Statewide and regional plan developed pursuant to Section 208 of the Federal Clean Water Act.

“208 Water Quality Management Plan Entity” means the government organization responsible for certifying if projects are consistent with 208 Water Quality Management Plans.

“7Q10” as defined in Regulation 61-68.

“Actual Flow” means a long term average of effluent flow as reported by Discharge Monitoring Reports.

“Alternative Collection System” means a system designed to collect wastewater from individual sources utilizing solids interceptor tank effluent systems (gravity or pressure), and grinder systems. This definition includes vacuum sewer systems. An exception is where a system such as a grinder pumping system, which serves one building or residence, meets the definition of a service connection (e.g., force main connecting to a gravity sewer).

“Alternative Sewer Management Plan” means a plan, approved by the Department, that allows entities to authorize individual connections to an alternative sewer collection system (using force main sewers) by an entity participating in the Delegated Review Program.

“Auxiliary Power” means provisions to provide backup electrical and/or mechanical power.

“BOD” means Biochemical Oxygen Demand.

“COD” means Chemical Oxygen Demand.

“CWA” means the Federal Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, and all amendments thereto, codified at 33 U.S.C. 1251 et seq., and any subsequent amendments. Specific references to sections within the CWA shall be according to Pub. L. 92-500 section.

“Collection System” means a pipeline system designed to receive wastewater or treated effluent directly from individual sources.

“Construction Permit” means a State permit authorizing construction of wastewater facilities including, but not limited to, wastewater treatment systems, interceptors, and collection systems.

“Delegated Review Program” means a Department program by which the technical review for the construction of sewer systems is delegated to local entities.

“Department” means the South Carolina Department of Health and Environmental Control.

“Discharge Monitoring Report” (DMR) means the Environmental Protection Agency (EPA) uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self monitoring results by permittees, and modified to substitute the State Agency name, logo, and other similar information, as appropriate, in place of EPA’s.

“EPA” means the United States Environmental Protection Agency.

“Effluent Disposal Permit” means an NPDES or Land Application Permit.

“Force Main Sewer” means a pipeline carrying wastewater or treated effluent in which the flow in the pipeline is dependent on and driven by a pump station.

“GPD” means gallons per day.

“GPM” means gallons per minute.

“General Construction Permit” means a permit issued pursuant to Appendix B of this regulation.

“General Permit” means a State permit or National Pollutant Discharge Elimination System (NPDES) permit issued under Regulation 61-9.122.28 authorizing a category of discharges or activities under the Pollution Control Act (PCA) and CWA within a geographical area.

“Gravity Sewer” means a pipeline carrying wastewater or treated effluent which flows exclusively under the influence of gravity (i.e., no pump station).

“Interceptor Sewer” means a pipeline system designed to transport wastewater or treated effluent from one location to another. Interceptor sewers can flow under pressure (i.e., force main) or by gravity.

“Interceptor Tanks” means tanks and other devices designed to remove solids from raw wastewater prior to discharging to an alternative collection system.

“L.F.” means linear feet.

“Land Application Permit” means a permit issued by the Department to a discharger for all land application disposal systems.

“Main Sewer” means the sanitary sewer system beginning at the point where two (2) or more individual service lines connect together, except as otherwise defined as a service connection and except as noted in R.61-67.300.A.4.

“Major Sources of Waste” means those wastes that may have or tend to have a potentially adverse effect on wastewater treatment facility design and operation and water quality (e.g., textile dyeing, finishing, metal plating, and slaughter house waste). This includes waste identified as a “Significant Industrial User” under Regulation 61-9.403.2(n).

“mg/l” means milligrams per liter.

“MGD” means million gallons per day.

“NPDES” means National Pollutant Discharge Elimination System.

“NPDES Permit” means a permit issued by the Department to a discharger pursuant to regulations adopted by the Department’s Board for all point source discharges into surface waters, and shall constitute a final determination of the Board.

“Navigable Waters” as defined in Regulation 19-450, Permits for Construction in Navigable Waters. Navigability is determined by the Department.

“Notice of Intent (NOI)” means a form used by potential permittees to notify the Department, within a specified time that they intend to comply with the general permit, or that they do not desire to be covered by the general permit and desire an individual construction permit.

“OSHA” means the Occupational Safety and Health Administration.

“Permitted Flow” means the value equivalent to the sum of flows as computed for the purpose of issuing construction permits for sewer lines or other connections to the systems.

“PCA” means the South Carolina Pollution Control Act, S.C. Code Ann. Section 48-1-10 et seq. (1987), and any subsequent amendments.

“Pretreatment Facility” means a facility which provides reduction of the amount of pollutants, elimination of pollutants or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a publicly owned treatment works (POTW) or other treatment system not owned by the facility.

“Primary Source Water Protection Area” means the surface-water flow system and drainage area upstream of an existing or proposed public water system intake, delineated by the Department as the in-stream twenty four (24) hour time of travel distance for the ten (10) percent exceedance flow (i.e., primary source water protection area).

“Private Entity” means any private corporation, association, partnership, corporation, industry, copartnership, firm, trust, estate, any other legal entity whatsoever, or an agent or employee thereof.

“Public Entity” means organizations such as a city, town, county, municipality, or special purpose sewer district.

“POTW” means a publicly owned treatment works.

“Pump and Haul” means an operation whereby process wastewater as defined in Regulation 61-9.122.2 or domestic wastewater is collected and stored in Department approved facilities and then hauled by tanker truck or other vehicle to an off-site receiving facility such as a POTW. Pump and haul in this context does not apply to management of spills.

“Receiving Waters” means waters of the State.

“Service Connection” means an individual gravity sewer line, or an individual pump station and force main, serving only one (1) building or one (1) residential lot with domestic or industrial wastewater connecting to a gravity sewer system. Oil/Water Separators, pH Adjustment Systems, and other similar simple industrial wastewater treatment systems (as determined by the Department) will be considered a component of the service connection when a local pretreatment permit is not required. A Service Connection does not include the following:

- a. Individual connections, where at the time of connection, design flow contribution shall be greater than five (5) percent of the existing wastewater treatment facility’s design capacity or shall generate flows greater than fifty thousand (50,000) gallons per day.
- b. Individual connections to force main sewers and vacuum sewer connections beginning with the valve pit.
- c. A gravity sewer line or pump station and force main serving more than one (1) building or more than one (1) residential lot.
- d. Sewer lines that have the reasonable ability to serve any additional projects and/or buildings in the future.

“Sewers” means a gravity sewer line, vacuum sewers or a force main.

“State” means the State of South Carolina.

“TOC” means Total Organic Carbon.

“USGS” means the United States Geological Survey.

“Vacuum Sewers” means an alternative collection system designed to operate under the influence of a vacuum pumping station.

“Wastewater Facilities” means main sewers, wastewater collection systems, pump stations and force mains, wastewater treatment facilities and components.

“Wastewater Treatment Facility” means a system of structures, equipment and related appurtenances designed to treat, store, or manage wastewater. Wastewater treatment facility shall include pretreatment facilities and wastewater recycling facilities, which are not part of an industrial manufacturing process.

“Water Supply Intake Area” means that portion of the primary source water protection area representing the twenty four (24) hour time of travel distance for the ninety (90) percent exceedance flow.

E. General Requirements.

1. Under Section 48-1-30 of the Code of Laws of South Carolina (1976 as amended), the Department is authorized to adopt such rules and regulations as may be necessary to implement the PCA.
2. The information submitted in compliance with this regulation shall be prepared by or under the direct supervision of a person properly qualified to perform engineering work as provided in Title 40 of the 1976 Code of Laws of the State, as amended, Chapter 22, Engineers and Land Surveyors. The Engineering Report and/or construction permit application shall be submitted to the Department, and shall be stamped and signed by a professional engineer as defined by the above named Act. The construction permit application shall also be signed by the owner of the proposed project. A status report addressing the stage of review may be made to the professional engineer upon request.
3. The Department may develop criteria for evaluating those entities applying for coverage under the Department's Delegated Review Program.
4. Construction Permit Submittal. The construction permit application shall include the following documentation, where applicable, in order to be considered a complete submittal. Incomplete submittal packages may be returned without processing. The application package may be returned if the determination is made that it conflicts with the applicable 208 Water Quality Management Plan.
 - a. Standard Submittal. Includes all projects that fall outside the scope of the Delegated Review Program. A separate application shall be made for each wastewater treatment plant addressed.
 - (1) A transmittal letter outlining the submittal package;
 - (2) A completed application form for a permit to construct, completed in entirety, submitted in triplicate (one (1) original and two (2) copies);
 - (3) Appropriate application fee based on Regulation 61-30, Environmental Protection Fees;
 - (4) Three (3) copies of detailed plans signed and sealed by a professional engineer as stated in subsection 67.100.E.2. General layout on plan sheets no larger than thirty (30) inches by forty-two (42) inches. Profiles of sewer lines required for all gravity sewers, all vacuum sewers and force mains of four (4) inches or greater;
 - (5) Three (3) sets of material and construction specifications signed and sealed by a professional engineer as stated in subsection 67.100.E.2. Specifications may be omitted when Department approved standard specifications are to be utilized;
 - (6) Three (3) copies of the appropriate design data and calculations, including flow and pump station calculations and pump curve, when appropriate;
 - (7) Three (3) copies of a detailed 8.5 inch by 11 inch location map, separate from the plans;
 - (8) Three (3) copies of construction easements unless the project owner has the right of eminent domain;
 - (9) For non-industrial projects, one (1) additional set of the plans, overall layout only, showing the proposed sewer lines (highlighted for identification) and their size;

- (10) If the owner of the project is different from the entity that will be accepting the wastewater for treatment, a letter of acceptance (dated within twelve (12) months of application) from that entity stating their willingness and ability to provide the wastewater treatment that, when applicable, includes the specific number of lots and flow being accepted; and
 - (11) If the owner of the project is different from the entity that will be responsible for operating and maintaining the project, a letter (dated within twelve (12) months of application) from that entity acknowledging such responsibility.
- b. Delegated Review Program (DRP) Submittal. Includes only those applicable projects submitted to the Department for permitting by a Department approved DRP entity.
- (1) A transmittal letter outlining the submittal package. This transmittal shall clearly identify the project as a delegated program submittal;
 - (2) A completed application form for a permit to construct, completed in entirety, submitted in duplicate (one (1) original and one (1) copy);
 - (3) Appropriate application fee based on Regulation 61-30, Environmental Protection Fees;
 - (4) Two (2) copies of detailed plans signed and sealed by a professional engineer as stated in subsection 67.100.E.2. General layout on plan sheets no larger than thirty (30) inches by forty-two (42) inches. Profiles of sewer lines required for all gravity sewers, all vacuum sewers and force mains of four (4) inches or greater;
 - (5) Two (2) sets of material and construction specifications signed and sealed by a professional engineer as stated in subsection 67.100.E.2. Specifications may be omitted when Department approved standard specifications are to be utilized;
 - (6) Two (2) copies of the appropriate design data and calculations, including flow and pump station calculations and pump curve, when appropriate;
 - (7) Two (2) copies of a detailed 8.5 inch by 11 inch location map, separate from the plans;
 - (8) Two (2) copies of construction easements unless the project owner has the right of eminent domain;
 - (9) For non-industrial projects, one (1) additional set of the plans, overall layout only, showing the proposed sewer lines (highlighted for identification) and their size;
 - (10) If the owner of the project is different from the entity that will be accepting the wastewater for treatment, a letter of acceptance (dated within twelve (12) months of application) from that entity stating their willingness and ability to provide the wastewater treatment that, when applicable, includes the specific number of lots and flow being accepted;
 - (11) If the owner of the project is different from the entity that will be responsible for operating and maintaining the project, a letter (dated within twelve (12) months of application) from that entity acknowledging such responsibility;
 - (12) The 208 Plan certification from the appropriate Council of Governments (COG) for designated 208 areas, or from the Department on the non-designated 208 areas;

- (13) Coastal Zone Management Consistency (for projects in Horry, Georgetown, Berkeley, Charleston, Dorchester, Colleton, Beaufort, and Jasper county);
 - (14) The Department's permit for placement in navigable waters, where applicable; and
 - (15) The delegated entity shall indicate that a copy of the final approved plans are being returned to the appropriate design engineer.
5. Review Process. Department staff will review the application package to determine compliance with the provisions of this regulation. In the case of a project submitted under the Delegated Review Program, the Department may elect to forego a technical review. The Department's review will include, where applicable, consultation with other Department programs (e.g., enforcement, coastal resources, district services). In either case, the Department will request additional information, if necessary, to make a final determination on the permit application. The applicant will be notified in writing of the final permit decision (i.e., issue the permit, deny the permit or issue the permit with conditions).
6. Contested Permit Decisions. The appeal of a permit decision is governed by the South Carolina Administrative Procedures Act, Regulation 61-72, and the Operating Procedures of the State's Administrative Law Judge Division.
7. Approval to Place in Operation. Newly-constructed facilities shall not be placed into operation until an approval to place in operation is issued by the Department. Upon completion of the permitted construction, the applicable professional engineer shall submit to the Department the following:
- a. A letter certifying that construction is complete and in accordance with the approved plans and specifications. This letter shall specifically identify the project by permit number.
 - b. Other submission requirements include, but may not be limited to, information to confirm ownership, operation and maintenance of the project, documentation of sewer leakage and pump tests, along with information concerning the treatment plant operator (where applicable); Stamped, record drawings by the engineer of record; and
 - c. If the project was not completed in accordance with the approved plans and specifications, the professional engineer shall so state and shall outline any deviations to the permitted project. Failure to obtain an approval to place in operation is a violation of the South Carolina Pollution Control Act and is subject to enforcement action by the Department. Where a person has failed to obtain a permit to construct, an application for permit to construct shall be submitted to include record drawings carrying the seal and signature of a professional engineer.
 - d. After review of this information provided by the applicable professional engineer, the Department may perform an inspection prior to finalizing its review of the request for an approval to place in operation.
8. 208 Water Quality Management Plan.
- a. All engineering reports and construction permit applications shall be reviewed to determine if they conflict with the applicable 208 Water Quality Management Plan, except those projects or activities identified in subsection 67.100.E.8.b below. Engineering reports shall not be approved, and construction permits shall not be issued if it is determined that they conflict with the 208 Water Quality Management Plan.

- b. The following project types do not have to be reviewed to determine if they conflict with the applicable 208 Water Quality Management Plan prior to engineering report approval, issuance of a construction permit, or other approval:
 - (1) Modifications to wastewater treatment facilities that do not result in increased capacity;
 - (2) Groundwater remediation projects;
 - (3) Construction permits within the scope of a previously approved engineering report, which has not expired;
 - (4) Industrial wastewater facilities, including collection and treatment systems, when 208 plan consistency has been previously determined; or
 - (5) Relocation of existing sewer lines where the downstream facilities (e.g., the wastewater treatment facility receiving the wastewater) would remain the same.
- c. No provisions above shall restrict wastewater treatment facilities from being eliminated in a timely fashion in accordance with the requirements of a 208 Water Quality Management Plan.

Section 67.200. Engineering Reports

- A. Purpose.** Engineering Report herein after means Preliminary Engineering Report. The purpose of this section of the regulation is to provide for the review and approval of Engineering Reports and Proposals for wastewater facilities. All applicable data and information required and outlined in this section of the regulation (appropriate to the scope of the project) shall be submitted in the form of an Engineering Report to the Department before acceptance for review.
- B. Applicability.** These provisions relating to submittal of Engineering Reports apply to any person discharging or intending to discharge sewage, industrial waste and/or other wastes into the waters of the State or any person intending to increase the quantity of pollutant characteristics of sewage, industrial wastes and/or other wastes which are being discharged to such waters on the effective date of this regulation. Any person intending to construct a new outlet (e.g., discharge to the environment), or build, add to, or alter (permanently or for maintenance purposes) any treatment works for the handling of sewage, industrial wastes, and/or other wastes shall, before starting such work, apply to the Department on a form prescribed for such application, and shall submit to the Department an Engineering Report describing the proposed work and the steps which shall be taken to protect the waters of the State. The Department may require that an Engineering Report be submitted for other wastewater facilities as deemed necessary. For pretreatment facilities and modifications to existing wastewater facilities a simplified Engineering Report may be allowed. The simplified Engineering Report may be submitted with the permit application.
- C. General Requirements.**
1. Prior to the preparation and submission of a formal Engineering Report, the applicant and/or his Consulting Engineer may participate in a pre-application/pre-design conference with the appropriate wastewater division. The purpose of this conference is for reviewing this regulation as it applies to the particular project and for obtaining guidance and specific information from the Department.
 2. The Engineering Report shall be prepared in accordance with the requirements which follow. No construction work on proposed wastewater facilities shall be started until the Engineering Report and subsequent plans and specifications have been approved and a construction permit for the wastewater facilities has been issued by the Department. It is advised that preparation of plans and specifications not begin until the Engineering Report is approved and the owner/engineer is in receipt of notice from the Department that the proposed project is approvable upon the receipt and permitting of the appropriate plans and specifications. Final plans and specifications are required to be submitted to the Department within one hundred eighty (180) days of approval of the Engineering Report, or a new Engineering Report may be required, unless the Department grants an extension to this time period.
 3. Requirements for reports prepared under the State Revolving Fund (SRF) may have distinctive requirements in addition to those outlined in this section, (e.g., criteria in accordance with the Clean Water Act).

D. Additional Conditions Applicable to Specific Categories of Engineering Reports.

1. Wastewater Treatment Facilities. Minor modifications to wastewater treatment facilities may be exempt from the engineering report provisions.
 - a. Comprehensive Description of Proposed Project.
 - (1) This section shall include the name of the project or facility to be served and the person directly responsible (owner). The proposed wastewater treatment facility or modification shall be described in detail to include all unit operation and processes to be employed, and the handling and ultimate disposal of all liquid and solid wastes from the wastewater treatment facility. A reasonable estimate based on professional engineering judgment shall be provided for removing or reducing constituents in the influent wastewater to the proposed wastewater treatment facility.
 - (2) A flow diagram of the proposed wastewater treatment facility or modification shall be provided with the project description section of the Engineering Report. Such diagrams shall identify any bypass line or structures to bypass flow around treatment units.
 - (3) The project description section shall also include a discussion of the proposed treatment method as it relates to compliance with any discharge permit, administrative order, or other legal requirements applicable to the wastewater treatment facility.
 - b. Description of Waste. This section shall include the type of waste expected, such as domestic, industrial, or combined (industrial and domestic), and a list of all major sources of waste. A combined waste shall be described in terms of the relative proportions of domestic and industrial flows based on volume and strength (BOD₅ and COD or TOC). Where industrial waste is involved, this section shall contain the primary four (4) digit Standard Industrial Code number for the industry and a brief description of the process as to the type of waste generated, the relative volumes, and the frequency of discharge.
 - c. Characteristics of Waste. The characteristics of the raw waste shall include but not be limited to the following items:
 - (1) Flow.
 - (a) Applicable flow values shall be measured where flow exists (i.e. wastewater treatment facility being upgraded but not expanded for additional volume). Flow (daily total and daily variations) shall include:
 - (i) Monthly average;
 - (ii) Minimum;
 - (iii) Daily maximum; and
 - (iv) Peak hourly.
 - (b) Where flow does not exist, or additional flow is proposed, a reasonable estimate of the characteristics of the proposed waste shall be supported based on the following criteria:
 - (i) Domestic Waste. Based on contributory population as referenced to the type of facility to be served, as stated in 61-67 Appendix A.

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- (ii) Industrial Waste. May be based on:
 - (aa) Comparison of waste characteristics from similar processes; and,
 - (bb) Relative use of industrial process chemicals and process water.
 - (2) Solids. Solids parameters shall be measured where flow exists. Where flows are proposed, the normal characteristics of domestic waste are acceptable. Comparative or literature cited values may be acceptable for industrial flows (or domestic facilities with significant industrial contributions). The following shall be evaluated:
 - (a) Settleable;
 - (b) Suspended;
 - (c) Dissolved; and,
 - (d) Floating, such as oils and greases.
 - (3) Strength of the Waste. An estimate of the total oxygen demand such as the Chemical Oxygen Demand (COD) shall be provided where industrial wastes are involved in part or in total. The average values coupled with diurnal and seasonal fluctuations, measured or anticipated, shall be provided in the engineering evaluation and design of the wastewater treatment facility where such fluctuations effect compliance with the proposed effluent disposal permit limitations. For domestic facilities with significant industrial contribution, the design shall account for additional industrial loading (e.g., higher strength of waste). This evaluation shall include:
 - (a) Biochemical Oxygen Demand (BOD, five (5) day, twenty (20) degree C); and
 - (b) Chemical Oxygen Demand (COD).
 - (4) Color (True and/or apparent).
 - (a) Source and causative agent(s);
 - (b) Variations; and,
 - (c) Treatability.
 - (5) pH (measured or anticipated fluctuations shall be provided).
 - (6) Alkalinity (Total and Phenolphthalein).
 - (7) Heavy Metals, Noxious, Toxic or Hazardous Compounds - Identification and Concentrations.
 - (8) Materials Resistant to Biological Degradation - Materials (e.g., Polyvinyl Alcohol) shall be identified and average concentrations (measured or anticipated) shall be provided.
 - (9) Surfactants, such as Methylene Blue Active Substances, or others.
 - (10) Phosphorous (total), Nitrogen (total), BOD:N:P Ratio and BOD:COD:TOC Ratio -Industrial Waters Only.
 - (11) Provide information on other chemical, physical, and/or biological parameters of importance in the design, evaluation, and successful operation of the proposed wastewater treatment facility otherwise not addressed in items one (1) through ten (10) above.

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- (12) A list of the industrial process chemicals that may affect the quality of the effluent shall be incorporated into the Engineering Report, where possible, and be accompanied by toxicity levels when such toxicity values have been reported in the literature (as applicable with domestic facilities with significant industrial contributions).
- (13) Section 48-1-270 of the Pollution Control Act states in part: “Upon a showing satisfactory to the Department by any person that records, reports or information, or particular parts thereof, other than effluent or emission data, if made public would divulge methods or processes entitled to protection as trade secrets of such person, the Department shall consider such record, report or information or particular portion thereof confidential in the administration of this Chapter”. If the Engineering Report submitted to this Department contains information or material reasonably considered by the owner of the proposed facility to be privileged information, the confidential portions of the Engineering Report shall be stamped “Confidential”.
- d. **Treatability of Waste.** This section shall include a discussion of the treatability of the wastewater based, where applicable, on treatability studies (pilot or bench scale) or secondarily, on a discussion of the literature concerning the treatability of the wastewater. Data from existing operating wastewater treatment facilities, which have similar wastewater and treatment systems as the proposed wastewater treatment facility, may also be used. Sufficient data shall be provided to show that the facilities are comparable, including influent and effluent characteristics. All literature referenced shall be cited and pertinent information quoted or provided. A conclusion shall be included as to the selected method of treatment and anticipated quality and characteristics of the effluent as identified by information provided pursuant to these provisions. Sludges generated by the proposed treatment system shall be characterized, and a specific method for treatment and disposal of these sludges (consistent with other Department regulations governing sludges) shall be presented. This section shall also address the feasibility and/or anticipated plans for segregating process wastewater for treatment, substitution of biodegradable for non-biodegradable process materials, substitution of non-toxic for toxic materials, and of recycle of a fraction or the whole of wastewater flows.
- e. **Location of Subject Area and Point of Discharge.** This section shall include a description of the proposed wastewater treatment facility location and the proposed point of discharge (give latitude and longitude) located on an appropriate map and referenced to named roads, physical sketch plan of receiving waters, and the existing wastewater treatment facility (if applicable). Such a map layout shall enable persons unfamiliar with the proposed areas to locate the site. Pretreatment facilities shall provide on a map the location of the connection of their sewer line(s) to the sewer line or wastewater treatment facility accepting their wastewater in lieu of the receiving waters. Projects with land application of effluent or sludge shall provide maps of the location(s) of each site.
- f. **Physical Characteristics of Proposed Site.** This section is applicable only to those projects proposing waste handling units and procedures which are directly influenced by local soil/groundwater characteristics. These projects include, but are not limited to, spray irrigation, absorption trench disposal, earthen containment and infiltration basins, composting, drip irrigation, and land application of sludge sites. The following shall be evaluated:
- (1) Soil type(s) and their distribution (U.S. Department of Agriculture Soil Conservation Service Report);
 - (2) Percolation test results and a map showing their location (include test procedure);

- (3) Drainage characteristics of surrounding area to include, but not limited to, a USGS topographic map, where available, aerial photo, and flood elevations;
 - (4) Distance(s) to nearby wastewater treatment facilities, property lines, inhabited structures, streams, waterbodies, and drainage ways;
 - (5) Location and description of nearest water wells;
 - (6) Shallowest seasonal depth of water table and soil description to first impermeable layer;
 - (7) Exact location of land system;
 - (8) Design calculation for the system;
 - (9) Location of right of ways, such as pipelines, and power lines;
 - (10) Proposed location(s) and description of groundwater monitoring well(s), where necessary; and,
 - (11) Location of buffer zones for spraying effluent (consistent with R.61-9.505).
- g. General Layout of Area(s) to be Served [where applicable, e.g., subdivisions].
- h. Receiving Waters. The following shall be evaluated:
- (1) Include name of all immediate and downstream receiving waters in such detail as to allow actual identification on a USGS quadrangle map. Pretreatment facilities shall include the name of the POTW or other facility accepting their wastewater and the receiving facility's effluent disposal permit number and ultimate receiving waters. Items identified in subsections 67.200.D.1.h.(2), 67.200.D.1.h.(3), and 67.200.D.1.h.(4) below are not required for pretreatment facilities.
 - (2) If not determined by the Department, the 7Q10 (or other applicable flow information) shall be provided and referenced to the information source. Where published information is not available, any currently published method of computing the 7Q10 by comparative or synthetic means may be acceptable. However, a description of the method employed and justification for the value derived shall be incorporated in this section. This information is not required for non-process wastewater discharges.
 - (3) Chemical and biological characteristics of receiving waters. This information may be obtained from the Department, when such information exists, for the proposed receiving waters in the vicinity of the proposed point of discharge. In the absence of adequate information on record concerning receiving stream conditions, the owner, through its engineer, has the responsibility of supplying this information in the Engineering Report. When the Department determines that additional stream information is needed, a sampling program shall be established by the owner, through its engineer, in accordance with specific guidance provided by the Department.

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- (4) Consideration shall be given to the zone of influence, as defined by the consultant, regarding contravention of water quality standards. Water usages to be considered shall include, but are not limited to, the following. Unless otherwise indicated at the preapplication conference the items listed below shall be located on a separate map:
- (a) Downstream water supply intakes (potable and non-potable);
 - (b) Downstream swimming areas;
 - (c) Downstream water impoundments;
 - (d) Shellfish areas; and,
 - (e) Names of other wastewater treatment facilities discharging to receiving waters both upstream and downstream which may have or tend to have an effect on the stream segment under consideration.
- i. Impact of Discharge on Receiving Waters. Water quality assessments and water quality modeling are the responsibility of the person requesting the Department's approval of a project. In some cases, the Department will provide these services. This section applies to all domestic discharges and those industrial facilities (except pretreatment facilities) whose wastewaters are expected to exhibit an oxygen demand on the receiving waters or as determined by the Department. This section shall contain a quantitative and qualitative assessment of the effects of the proposed discharge on the receiving stream. This determination shall consist of the projected effect the discharge shall have on the dissolved oxygen content of the receiving stream (e.g., dissolved oxygen profile of the stream). Stream models may not be completely applicable to small streams, intermittent streams and sluggish or impounded waters. The situation and surrounding facts shall be made known in the pre-design conference at which time a mutual decision may be made as to the best manner in which the impact on the receiving waters can be determined based on the current available technology and techniques. Consulting engineers and the permittees shall recognize the importance of the impact assessment and that, in some cases, a thorough stream study to be conducted by the owner through the consulting engineer may be required. Quantitative assessments shall be presented as to the anticipated concentrations of phenols, heavy metals, pesticides, herbicides, solids, petroleum byproducts, and other materials significant in nature, in the receiving stream after adequate mixing of the discharge with the design stream flow. This section shall also qualitatively address the effect the proposed discharge shall have on the parameter for which standards have been established (R.61-68) such as the pH, fecal coliform concentration, and nutrient levels in the receiving waters.
- j. Equipment and Service Failure or Shutdown. This section shall address the expected results of individual equipment or process failure or shutdown for maintenance of each major component within the system and for each major utility service. Major components include, (where applicable) but are not limited to, the following: lift station pump(s), clarifiers, aeration devices, disinfection devices, return sludge pumps, and tertiary treatment devices. Major utility services are considered to be, but are not limited to, electrical power and natural gas. The discussion shall also reflect consideration of those design measures which have been incorporated in the proposal or those that could be employed to eliminate or reduce the adverse effects of such failure or shutdown. This section shall discuss major problems that may exist upon failure or shutdown of each major component or utility service with regard to the following:
- (1) Quality of effluent to be discharged;
 - (2) Effect on receiving waters;
 - (3) Creation of health related problems;
 - (4) Creation of nuisance conditions; and,
 - (5) Creation of hazardous conditions to operator(s) or public.

k. Alternatives Analysis and Consolidation of Facilities

- (1) In accordance with R.61-68 rules on anti-degradation, the Department shall consider 67.200.D.1.k.(1)(a) and 67.200.D.1.k.(1)(b) below when evaluating any proposed expansion or new discharge to waters of the State that will lower water quality to a measurable effect. This includes, but is not limited to, the new or increased loading of any pollutant or pollutant parameter in the effluent regardless of whether the discharge flow changes.
 - (a) An alternatives analysis, conducted by the applicant, must demonstrate to the Department that none of the following applicable alternatives that would minimize or eliminate the lowering of water quality are economically and technologically reasonable:
 - (i) water recycle or reuse;
 - (ii) use of other discharge locations;
 - (iii) connection to other wastewater treatment facilities;
 - (iv) use of land application;
 - (v) product or raw material substitution; and
 - (vi) any other treatment option or alternative.
 - (b) After the alternatives analysis is completed, the Department shall evaluate whether a proposed discharge that will result in the lowering of water quality of a waterbody, and for which there are no economically or technologically reasonable alternatives, is necessary for important economic or social development. For this to be accomplished, several economic and social factors must be considered. If an evaluation of the economic and social factors reveals that affordable treatment options that, combined with any alternatives, would prevent the need for the lowering of water quality, the Department shall deny the request. Conformance of the proposed discharge with the applicable 208 Areawide Water Quality Management Plans may demonstrate importance to economic and social development as well as intergovernmental coordination and public participation. Activities requiring permits or certification by the Department shall provide for public participation through the Department's existing public notification processes. Economic and social factors to be considered may include the following:
 - (i) employment (increases, maintenance, or avoidance of reduction);
 - (ii) increased industrial production;
 - (iii) improved community tax base;
 - (iv) improved housing; and/or
 - (v) correction of an environmental or public health problem.
 - (2) Consolidation of Facilities. In some instances, where wastewater treatment facilities are proposed, there are other wastewater treatment facilities, either proposed or existing, that could incorporate and treat the waste flows from the subject establishment, subdivision or industry. This section of the Engineering Report shall address requirements of the applicable 208 Water Quality Management Plan.
- l. Pretreatment Facilities. For pretreatment facilities, a copy of the acceptance letter from the treatment facility accepting the wastewater and a copy of the pretreatment permit or industrial user permit, as applicable, issued by the POTW or other treatment facility accepting the wastewater, shall be provided to the Department.

2. Wastewater Collection and Transmission Facilities. Because of the nature of most collection/transmission systems a detailed Engineering Report is not usually required, unless specifically required by the Department. If required by the Department, the Engineering Report shall be submitted to the Department's appropriate wastewater division, along with the proposed plans for the collection system. This report shall include, but not be limited to, the following:
- a. A description of the area, facility or establishment the proposed collection/transmission system is to serve to include the name of the facility(s), the number of connections, computations of flows, location of the facility, and owner of the proposed collection/transmission system.
 - b. A description of the wastewater facilities to service the proposed system to include the name, location, and permit number for the wastewater treatment facility; the present hydraulic load (average and peak flows); identification and permit numbers of other collection/transmission systems served or that are permitted to feed into the facility; and actual performance of the existing wastewater treatment facility under the present loading conditions. Performance figures to include removal efficiencies for BOD and suspended solids (and other parameters of importance to subject wastewater treatment facility evaluation) as measured or as extracted from current composite facility operating records.
 - c. A letter, addressed to the Department, prepared by the owner of the wastewater treatment facility agreeing to accept and provide treatment for the waste flow from the proposed collection/transmission system.
 - d. A description of potential problems that could be reasonably anticipated (e.g., power failure or pump shutdown in lift stations), possible health, nuisance, or hazardous conditions that may result, possible adverse effects on nearby streams, and what measures are proposed to prevent such problems and to protect streams, property, and the public during any shutdown periods.
 - e. An updated, overall plan of collection/transmission system(s) with each submittal (especially appropriate where phase development is being practiced).

Section 67.300. Construction Permits**A. General Requirements.**

1. Facilities needing a construction permit include: Main Sewers, Wastewater Collection and Transmission Systems, Pump Stations and Force Mains, Wastewater Treatment Facilities, and Components. Activities not requiring a construction permit include replacement of a component (same or similar), as long as there is no change in capacity, routine maintenance, and the construction of buildings. However, for all other modifications, including relocation of sewers and revisions to existing construction permits, the Department shall be contacted for a decision on whether or not a construction permit is required.
2. Service connections which shall contribute more than five (5) percent of the existing wastewater treatment facility's design capacity, or fifty thousand (50,000) gpd, shall be approved by the Department. This approval is for the additional flow and not for the physical work or materials.
3. Individual service connections as defined in the regulation may require Department approval prior to connecting to a sewer system if the wastewater treatment facility receiving the flow from the individual service connection is under a tap moratorium imposed by the Department.
4. Double residential service connections are not considered main sewers and shall, therefore, not require a construction permit from the Department. However, the common line shall be owned, operated and maintained by the same entity that owns the main sewer system that the common line is tying onto. Other double service connections shall be reviewed by the Department on a case-by-case basis, to determine if a construction permit is required and to confirm ownership requirements are met.
5. Individual pressure connections to force mains are considered collectors and shall require that a construction permit be issued by the Department, unless the entity owning the sewer system is a Delegated Review Program entity with an approved Alternative Sewer Management Plan.
6. When the proposed system is located off the applicants property, easements or documentation of recorded easements, excluding encroachment permits and navigable waters easements, are required to be submitted to the Department prior to permitting for all applicants with the exception of public entities or other applicants that have the right of eminent domain.
7. No construction permit shall be issued for a wastewater treatment facility, including effluent disposal lines, unless the applicable effluent disposal permit has been issued and has not been appealed (or either the period to appeal has lapsed without appeal, or the appeal has been resolved to sustain the permit). In cases where the effluent disposal permit has been issued, but has been appealed according to applicable laws and regulations, the effluent disposal permit shall be considered not to have been issued for the purposes of determining whether a construction permit may be issued for proposed wastewater treatment facilities.
8. Proposed sewer systems shall connect to existing systems with available capacity or to another proposed sewer system, with available capacity (including considerations of infiltration and inflow), which has already received a construction permit from the Department. Where a construction permit has been issued on the downstream components though not yet operational, a construction permit on the proposed sewer system may be issued, but the approval to place in operation shall not be issued until all downstream components have received an approval to place in operation.

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- a. Downstream Sewer Systems. Construction permits shall not be issued in cases where adequate capacity in the downstream components of the wastewater facilities is not available to handle the design flow of the proposed project. Adequate capacity for sewer lines and pump stations means that the existing sewer facilities, including the wastewater treatment facility receiving the wastewater, have the capacity as currently permitted. An evaluation of available capacity may be made based on factors such as flow projections from previously permitted projects (including considerations of infiltration and inflow).
 - b. Downstream Treatment Systems. For public and private entities, available capacity in wastewater treatment facilities may be based on its effluent disposal permit capacity (i.e., capacity may be advanced where the effluent disposal capacity is greater than the actual facility capacity to treat and dispose of wastewater). This advancing of capacity is acceptable unless actual flows exceed the permit flow limits of the existing wastewater treatment facility or the facility has violated other limits that have led to Department's issuance of an order to remedy the problems (and the problem has not been corrected). For facilities seeking to have capacity advanced, the Department may require an agreement with the permittee to detail the conditions of advancing capacity. The permitted flow at a wastewater treatment facility may be adjusted based on a review of Discharge Monitoring Reports data or other data collected by independent sources to address issues such as infiltration and inflow.
 - c. Exceptions. A construction permit may be issued for a sewer system and/or pretreatment system where the downstream components have yet to be issued a construction permit, or do not presently have adequate capacity if:
 - (1) a preliminary engineering report has been submitted to and approved by the Department for the upgrade of the downstream facilities. The preliminary engineering report shall include target dates for submitting plans, starting construction and completing construction for the necessary upgrade to the downstream facilities;
 - (2) for a private entity, excluding industrial facilities, financial assurance (e.g., an escrow account), which includes adequate funds to complete the upgrade of the downstream facilities, has been established; and
 - (3) the increase to the effluent disposal permit has been issued and has not been appealed (or either the period to appeal has lapsed without appeal, or the appeal has been resolved to sustain the permit) for the wastewater treatment facility so that there is adequate permit capacity available for the proposed sewer system.
9. Prior to the issuance of a construction permit for a collection system, including pump stations and force mains, to serve more than one (1) parcel of deeded property (e.g., subdivisions, condominiums), with the exception of industrial facilities, the project owner shall provide the Department with documentation that the collection system, including the pump stations and force mains, shall be owned, operated and maintained by a public entity. An exception can be made where there are several platted properties with a common owner in an area (e.g., hospital complex) where there is not a reasonable expectation that the project area would later serve different owners. Proposals by private entities shall be evaluated on a case-by-case basis. The Department may evaluate the capability of reliable system operation in its evaluation.
 10. Average flow projections for all domestic wastewater facilities shall be based on the type of facility to be served, as stated in 61-67 Appendix A, unless otherwise justified by the applicant and approved by the Department.

11. Peak hourly flow projections shall be at least two and one half (2.5) times the average daily flow projection, unless otherwise justified by the applicant and approved by the Department. Where actual data are available, the Department may require its use in determining a peaking factor.
12. All sewers shall be constructed with a minimum of three (3) feet of cover, unless justified by the applicant and approved by the Department (e.g., use of ductile iron pipe may have cover less than three (3) feet).
13. Sewer lines, manholes, pump stations, force mains, and wastewater treatment facilities shall be located more than one hundred (100) feet from a public water supply well. Sewer lines, manholes, pump stations, and force mains shall be located at least twenty (20) feet from any other potable well, as defined in Regulation 61-71. Wastewater treatment facilities shall be located at least one hundred (100) feet from any other potable well, as defined in Regulation 61-71. Special designs may be considered which shall provide equivalent protection to the well when this requirement is not achievable.
14. When sewers are proposed adjacent to any existing or proposed potable water supply facilities, the following requirements apply:
 - a. Potable Water Supply Interconnections. There shall be no physical connections between a public or private potable water supply system and a sewer, or appurtenance thereto which may permit the passage of any sewage or polluted water into the potable supply. No potable water pipe shall pass through or come into contact with any part of a sewer manhole.
 - b. Horizontal and Vertical Separation from Potable Water Mains. Sewers shall be laid at least ten (10) feet horizontally from any existing or proposed potable water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten (10) foot separation, the Department may allow deviation on a case-by-case basis, if supported by data from the design engineer. Such deviation may allow installation of the sewer closer to a potable water main, provided that the potable water main is in a separate trench or on an undisturbed earth shelf located on one side of the sewer and at an elevation so the bottom of the potable water main is at least eighteen (18) inches above the top of the sewer.
 - c. Crossings. Sewers crossing potable water mains shall be laid to provide a minimum vertical separation of eighteen (18) inches between the outside of the potable water main and the outside of the sewer. This shall be the case where the potable water main is either above or below the sewer. Whenever possible, the potable water main shall be located above the sewer main. Where a new sewer line crosses a new potable water main, a full length of pipe shall be used for both the sewer line and potable water main and the crossing shall be arranged so that the joints of each line shall be as far as possible from the point of crossing and each other. Where a potable water main crosses under a sewer, adequate structural support shall be provided for the sewer line to prevent damage to the potable water main while maintaining line and grade.
 - d. Force Mains. There shall be at least a ten (10) foot horizontal separation between sanitary sewer force mains and potable water mains. There shall be an eighteen (18) inch vertical separation at crossing as required in subsection 67.300.A.14.b and subsection 67.300.A.14.c.

- e. Special Conditions. When it is impossible to obtain the distances specified in subsection 67.300.A.14.b, subsection 67.300.A.14.c, and subsection 67.300.A.14.d the Department may allow an alternative design. Any alternative design shall:
 - (1) maximize the distances between the sewer line and the potable water main and the joints of each;
 - (2) use pipe materials which meet the requirements as specified in Regulation 61-58.4(D)(1) for the sewer line; and
 - (3) allow enough distance to make repairs to one of the lines without damaging the other.
 - f. Sewer Manholes. No potable water pipe shall pass through or come into contact with any part of a sewer manhole.
15. [Reserved].
16. The construction permits issued by the Department shall be effective for a period of up to two (2) years to initiate construction from the issuance date, and up to three (3) years to complete construction from the issuance date. If there is adequate justification the Department may grant longer time frames when issuing the permit for initiating and completing construction. Once permitted, the Department will consider requests to extend dates for initiating and completing construction. Projects for which the construction permit has been expired for more than one (1) year are considered new projects and therefore must include a new application submittal.
17. Materials and installation for all gravity sewer lines and force mains shall comply with commonly accepted design standards such as ASTM (American Society for Testing and Materials), ANSI (American National Standard), AWWA (American Water Works Association) or other design standards as approved by the Department.
18. If a proposed wastewater system requires construction in State navigable waters and the Department determines that a permit shall be issued for the construction in navigable waters, considerations of the navigable waters permit process may be incorporated into the review for the wastewater construction permit.
19. If a proposed wastewater system requires construction within one of the eight coastal counties (Horry, Georgetown, Berkeley, Charleston, Dorchester, Colleton, Beaufort, and Jasper) Coastal Zone consistency review shall be provided by the Department's Office of Ocean and Coastal Resource Management (OCRM) as part of the wastewater construction permit process, unless a general certification applicable to the project from OCRM has already been provided.

B. Gravity Sewer Lines/Collection Systems.

1. Excluding service connections less than fifty thousand (50,000) gpd, sewer connections to gravity sewer lines shall be constructed such that the internal angle of deflection is equal to or greater than ninety (90) degrees, including connections at manholes. Angles less than the required ninety (90) degrees may be considered on a case-by-case basis, when there is adequate justification (e.g., drop through the manhole) provided.
2. For all domestic wastewaters and for industrial wastewaters with solids which are similar in size and nature to solids in domestic wastewater, no gravity sewer line conveying raw sewage shall be less than eight (8) inches in diameter. In cases where the flow and number of taps are limited to less than ten (10) percent of the design capacity of the receiving sewer line, as determined by the Department, and the line cannot be reasonably extended, the Department may consider the use of six (6) inch diameter lines.
3. For all domestic wastewaters and for industrial wastewaters with solids which are similar in size and nature to solids in domestic wastewater, all gravity sewers shall be designed and constructed to give mean velocities, when flowing full, of not less than two (2) feet per second, based on Manning's formula using an "n" value of thirteen thousandths (0.013). Slopes slightly less than those required for the two (2) feet per second velocity, when flowing full, may be permitted. Such decreased slopes shall only be considered where the depth of flow shall be three tenths (0.3) of the diameter or greater for average flows. Whenever such decreased slopes are selected, the design engineer shall furnish with the report design computations of the anticipated flow velocities of average and peak flows. The report shall indicate the actual velocity in the sewer lines at the proposed slope and the actual velocity at the required slope in order to achieve two (2) feet per second, when flowing full. The pipe diameter and slope shall be selected to obtain the greatest practical velocities to minimize settling problems. Oversized sewers shall not be approved to justify using flatter slopes. The operating authority of the sewer system shall give written assurance to the Department that any additional sewer maintenance required by reduced slopes shall be provided.
4. Sewers shall be designed with a uniform slope between manholes.
5. Sewers on twenty (20) percent slopes or greater shall be anchored securely with concrete anchors or equal, spaced as follows:
 - a. Not over thirty six (36) feet center-to-center on grades twenty (20) percent and up to thirty five (35) percent;
 - b. Not over twenty four (24) feet center-to-center on grades thirty five (35) percent and up to fifty (50) percent; and
 - c. Not over sixteen (16) feet center-to-center on grades exceeding fifty (50) percent.
6. Sewers twenty four (24) inches or less in diameter shall be laid with straight alignment between manholes. Consideration for curvilinear sewers in excess of twenty four (24) inches in diameter shall be evaluated on a case-by-case basis.
7. Manhole top elevations shall be greater than or equal to the fifty (50) year flood elevation, unless watertight covers are provided.

8. Manholes shall be installed: at the end of each line; at all changes in grade, size, or alignment; at all intersections of piping; and at distances not greater than four hundred (400) feet for sewers fifteen (15) inches or less, and five hundred (500) feet for sewers eighteen (18) inches to thirty (30) inches. Distances up to six hundred (600) feet may be approved, for sewers equal to or greater than eight (8) inches in diameter, in cases where adequate cleaning equipment for such spacing is provided. Greater spacing may be permitted in larger sewers. Cleanouts may be used only for special conditions and shall not be substituted for manholes except when installed at the end of laterals not greater than one hundred fifty (150) feet in length. A drop pipe shall be provided for a sewer entering a manhole at an elevation of twenty four (24) inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than twenty four (24) inches, the invert shall be filleted to prevent solids deposition. Manholes may not be required on sewer lines transporting special waste (e.g., volatile organic compounds) or effluent wastewater from a treatment facility.
9. The minimum inside diameter of manholes shall be forty eight (48) inches unless using an inside drop connection where a minimum inside diameter of sixty (60) inches shall be required for all new manholes. For modifications to existing manholes, a minimum diameter of forty eight (48) inches, for inside drop connections, may be provided if justified and approved by the Department. A minimum manhole access diameter of twenty two (22) inches shall be provided.
10. Each section of sewer pipe shall be specified to be laid to the appropriate line and grade, as designed, working in the upstream direction with the bell end laid upgrade.
11. All gravity sewers shall be designed and specified such that the leakage outward (exfiltration) or inward (infiltration) shall not exceed two hundred (200) gallons per inch of pipe diameter per mile per day. An air test may be utilized in lieu of an infiltration/exfiltration test, if approved by the Department.

C. Pump Stations.

1. Each pump station shall be fenced or secured in a locked building/enclosure or be located in a restricted access area to prevent access by unauthorized persons. The type of fencing or other means of controlling access shall be approved by the Department.
2. A weather durable sign, approved by the Department, with a twenty four (24) hour emergency telephone number, shall be located at a conspicuous point on the fence or structure of the pump station, unless the pump station is located in a restricted access area.
3. At least two (2) pumps or pneumatic ejectors shall be provided, unless the pump station serves only one (1) residential lot or one (1) building. An exception may be if the building serves a significant flow amount (e.g., apartment complex). If only two (2) units are provided, they shall have the same capacity and each shall be capable of handling the expected peak flow. Where three (3) or more units are provided, they shall be designed to fit actual flow conditions and shall be of such capacity that with any one unit out of service the remaining units shall have capacity to handle peak sewage flows. The Department may consider the effect of flow equalization, where applicable.
4. For domestic wastewaters and industrial wastewaters with solids which are similar in size and nature to solids in domestic wastewater, pump openings shall be capable of passing spheres of at least three (3) inches in diameter, for raw, unscreened wastewater, and pump suction and discharge piping shall be at least four (4) inches in diameter, except for grinder pumps.

5. Pump stations shall have an alarm system (e.g., audible and visible high water alarm, centralized automated alarm system). The alarm system shall be designed to function if power is not available for any pump. For pump stations located in remote and/or environmentally sensitive areas (e.g., adjacent to shellfish harvesting areas, designated recreational areas, and primary source water protection areas), the Department may require an automatic dialing system via dedicated phone line or equivalent systems to assure minimal impact in the event of pump station failures. In remote and/or environmentally sensitive areas, the Department may also require that a backup battery pack be provided in the control panel of the pump stations so that in the event of a power outage the audible/visible high water alarms and/or automatic dialing system shall still be activated.
6. The pump station wet well and dry well shall be ventilated, excluding the valve pit. The vent (e.g., a screened inverted “j” tube) shall be constructed of a weather durable material (e.g., stainless steel).
7. For pump stations with duplex pumps each pump shall be designed to operate in a lead lag sequence and be on an alternating cycle. For pump stations with more than two (2) pumps alternate designs may be considered.
8. A shutoff valve (e.g., gate valve) and a check valve shall be located on the discharge line from each pump. The check valve shall be located between the shutoff valve and the pump.
9. The shutoff valve(s) for the pump station, as required in subsection 67.300.C.8. above, or an additional shutoff valve on the common discharge line, shall be located outside of the wet well in a separate valve pit or other apparatus (e.g., valve box) to facilitate proper use of the valve. In certain cases, the Department may require watertight design of the pit or other apparatus for the purpose of capturing valve leakage. For watertight design, it shall have a means of dewatering (e.g., drain line) back to the wet well, with provisions for preventing gases from entering the pit from the wet well.
10. The check valves for the pump station shall be located outside the wet well in a separate valve pit or dry well, unless the check valves are an integral part to the pump and can be removed from the wet well for repair or replacement with the pump, without dewatering the wet well or disconnecting any piping in the wet well, or unless the following conditions are provided by the applicant, and approved by the Department:
 - a. The entity accepting the pump station for operation and maintenance shall apply for a waiver to the requirement stating reasons for the request.
 - b. The entity shall certify in writing to the Department that its employees are trained to use all appropriate safety equipment to allow entry to confined spaces in accordance with State and Federal OSHA/Labor laws and regulations.
 - c. The utility’s operation and maintenance record may be reviewed to determine that operation and maintenance problems with pump stations have not occurred or, if they have, the problems were rectified to the Department’s satisfaction. If problems with the operation and maintenance of pump stations have occurred and were not rectified to the Department’s satisfaction, then the Department may require the check valves to be located outside of the wet well, in a separate valve pit.
11. Common walls between the wet well and the valve pit or dry well shall be gas tight.

12. Pump stations shall be designed to be fully operational during flooding to the twenty five (25) year flood elevation unless the influent flow into the pump station can be stopped. For example, industrial facilities may select to cease operation during these periods in lieu of having the pump station fully operational. Pump station structures and equipment shall be protected from physical damage by flooding to the one hundred (100) year flood elevation. An all weather access road shall be provided to the pump station.
13. Suction lift pumps shall be of the self priming or vacuum priming type.
14. Electrical junction boxes shall be located outside of the wet well, unless the junction box and components are made of a material suitable for use under corrosive conditions.
15. An emergency operation plan on the sewer pump station(s) shall be provided. For areas determined by the Department to be environmentally sensitive (e.g., shellfish harvesting areas, designated recreational waters, or primary source water protection areas located in close proximity), the Department may require more extensive plans and equipment, including on site auxiliary power or a Department approved equivalent plan. The Department may evaluate the effect of power outages where the pump station serves sources such as businesses that would not be able to operate otherwise. The plan shall include one of the following methods showing how the pump station(s) shall be designed to provide continuous operability in the event of a power failure, natural disaster, etc.:
 - a. An on site standby generator, either permanently installed with capability to operate automatically or skid/trailer mounted types with appropriate connections provided.
 - b. Connecting the pump station to two (2) separate utility substations, with an automatic switching feature.
 - c. Providing sufficient capacity, in the wet well, above the pump on level, to contain the wastewater that may be generated during the longest power outage of the last five (5) years. A letter shall be submitted from the utility company that serves this pump station with electricity stating the longest power outage, in the service area of the pump station, that occurred during the last five (5) years, excluding a catastrophic storm.
 - d. Provide a method to pump around the pumps and control panel by using a pump and providing a way to pump into the force main downstream of the check valve.
 - e. Provide a transfer switch for a portable generator and demonstrate that the utility owns adequate generators and could reasonably respond during a power outage.
 - f. Industrial facilities need to provide back up power as specified above unless the industrial facility can show that their processes stop in the event of a power outage and that enough storage is available until power is restored, so an overflow shall not occur. Design calculations or other information shall be provided for justification.
16. For pump stations which are an integral part of a wastewater treatment facility the Department shall determine which of the above items shall apply.

D. Force Mains.

1. Velocity in force mains shall be at least two (2) feet per second at design flow. However, lower initial velocities may be permitted by the Department if provisions to maintain a flushing velocity can be made, or if the wastewater does not contain suspended solids.
2. Force mains carrying raw domestic sewage shall be at least four (4) inches in diameter, except force mains that follow grinder pump systems or solids interceptor tanks, for which a two (2) inch diameter force main is approvable.
3. Thrust blocking or restraint joints shall be provided at all changes in alignment greater than or equal to thirty (30) degrees.
4. An automatic air relief valve shall be placed at high points in the force main sewer to prevent air locking. Vacuum relief valves may be necessary to relieve negative pressures on force mains. The Department may require alternative designs in order to reduce possible odor problems from air relief valves located in highly populated areas.
5. Force mains tying onto manholes shall enter the manhole a vertical distance of not more than two (2) feet above the flow line of the receiving manhole. For connections to existing manholes, special consideration may be granted by the Department to allow the force main to enter the manhole at a higher elevation and be directed down on the inside of the manhole, if justified.
6. Design and construction of force mains shall be such that they satisfy a leakage test in accordance with American Water Works Association (AWWA) Standard C600.
7. When force mains serving individual residences (and other similar situations) connect to the primary force main serving the area, a check valve shall be placed on the individual customer's force main at the point where ownership changes in that force main.

E. Alternative Collection Systems. These types of systems may be considered to be an appropriate design when conventional sewers are not feasible based upon a site specific review.

1. General Requirements.
 - a. A public entity shall be responsible for the operation, maintenance, and replacement of all system components beginning with the solids interceptor tanks and pumping systems and vacuum system valve pits. Proposals by private entities shall be evaluated on a case-by-case basis. The Department may evaluate the capability of reliable system operation in its evaluation, including an evaluation of experience with operation and maintenance of wastewater facilities.
 - b. The responsible entity shall have the right of ingress/egress on each lot to be able to maintain the solids interceptor tanks and pumping systems.
 - c. Applications for construction of alternative sewer collection systems shall include a justification (e.g., topographic restrictions, low population density) of why a conventional gravity system (e.g., eight (8) inch diameter gravity sewers carrying raw wastewater) is not recommended.

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- d. If pumps are utilized for an alternative sewer collection system (e.g., solids interceptor tanks and effluent pumps, grinder pumps) then duplex pumps shall be provided if serving more than one (1) house. A simplex pump shall only be allowed if one (1) house is being served unless an operation and maintenance plan has been approved by the Department which then may allow a simplex pump to serve up to two (2) houses. Some factors that the Department may consider when reviewing this operation and maintenance plan include, but are not limited to, the entity agreeing to operate and maintain these systems: maintains a five (5) percent reserve stock of pumps (but not less than one (1)); maintains a reserve stock of replacement parts; and, has an inspection program established.
 - e. The Department may waive the design standards utilized for conventional wastewater facilities (e.g., minimum of eight (8) inch diameter sewer mains, manholes), since these types of sewer systems are carrying either effluent from solids interceptor tanks or grinder pump systems. Force mains serving individual sources utilizing a grinder or STEP system may be allowed to be less than the two (2) inches in diameter required under subsection 67.300.D.2, when adequately justified.
2. Additional Requirements for systems utilizing Solids Interceptor Tanks.
 - a. Ultimate disposal of residuals from the solids interceptor tanks shall be addressed during the permitting process via the approval of a residuals management plan. The residual or solids management plan shall comply with the appropriate sections of Regulation 61-9.
 - b. Design calculations shall be included with the submittal showing the velocity in the lines to be a minimum of one (1) foot/sec, for lines conveying effluent only (no solids) from the tanks.
 - c. An individual solids interceptor tank shall be provided to each house, unless an operation and maintenance plan has been approved by the Department, whereby an individual solid interceptor tank may be allowed to serve up to two (2) houses. The minimum size solids interceptor tank shall be one thousand (1,000) gallons, unless otherwise approved by the Department.
 3. Additional Requirements for systems utilizing Grinder Pump Stations. Design calculations shall be included with the submittal showing the velocity in the lines to be a minimum of two (2) feet per second, for lines conveying raw sewage (solids present).
 4. Vacuum Sewers.
 - a. General Requirements:
 - (1) The entire vacuum sewer system, including the individual valve pits, shall be owned, operated and maintained by a single public entity.
 - (2) The maximum lift in the vacuum sewer system shall be twenty (20) feet.
 - (3) To minimize the lift, minimize the length of the lines, and to equalize the flow, vacuum stations shall be centrally located with multiple branches, unless justified by the applicant and approved by the Department.
 - (4) The vacuum sewer system must be designed to remain operational during a loss of vacuum.

- (5) For routine and emergency operation and maintenance of a vacuum sewer system, the public entity responsible for the system shall have the right of access, an adequate supply of spare valves, pumps, parts, and service tools.
- (6) An operation and maintenance manual is required for each vacuum sewer system.
- (7) A minimum scouring velocity of two (2) fps is required in the vacuum sewer lines.
- (8) The vacuum sewer system air to liquid ratio shall be a minimum of two (2) parts air to one (1) part liquid.

b. Piping and Valve Requirements:

- (1) A minimum pipe diameter of four (4) inches is required for main vacuum sewer lines.
- (2) Vacuum sewer lines must have a minimum slope of 0.20%.
- (3) Two (2) forty-five (45) degree bends are required with a short section of piping, instead of a ninety (90) degree bend.
- (4) Shut off valves are required on both the suction and discharge piping and at every branch connection and at intervals no greater than one-thousand five-hundred (1,500) feet on main lines. Plug valves or resilient coated wedge gate valves shall be used. No butterfly valves are allowed.
- (5) Check valves are required on each pump discharge line.
- (6) Isolation valving is required between the vacuum connection tank, vacuum pump(s), influent line and raw sewage discharge pipe.
- (7) Gasketed type pipe shall be provided. The pipe and gaskets shall be certified for use under vacuum conditions.
- (8) To locate vacuum sewers, magnetic trace tape shall be provided in the top of the trench, or metal toning wires located above the pipe or color coding of the piping.
- (9) Division valves shall be used for isolation purposes. The valves shall be installed in a valve pit or other approved apparatus to facilitate proper use of the valve.
- (10) Gauge taps shall be provided just downstream of the division valves.
- (11) Thrust blocking or restraint joints shall be provided at all changes in alignment greater than or equal to thirty (30) degrees.
- (12) The maximum design flows (i.e., peak flows) for vacuum pipe sizing are as follows:
 - (a) Four (4) inch pipe shall be 38 GPM.
 - (b) Six (6) inch pipe shall be 105 GPM.
 - (c) Eight (8) inch pipe shall be 210 GPM.
 - (d) Ten (10) inch pipe shall be 375 GPM.
- (13) The maximum length of four (4) inch diameter lines, for any one run, is two-thousand (2,000) feet.

c. Vacuum Pit Requirements:

- (1) One valve pit may be allowed to serve up to two (2) houses.
- (2) Vacuum valve pits shall be designed to prevent entrance of water in the sump and for the vacuum valve to remain fully operational if submerged.
- (3) Vacuum valve pits shall be easily accessible so that valving may be easily removed and replaced.
- (4) Air vents, four (4) inches in diameter, shall be provided and shall extend a minimum of two (2) feet above the ground level and be protected against freezing and physical damage. The vent shall be located a minimum of twenty (20) feet from the valve pit.

d. Vacuum Pump Station Requirements:

- (1) A minimum peaking factor of three (3.0) is required.
- (2) The total volume of the vacuum collection tank shall be three (3) times the operating volume plus four-hundred (400) gallons, with a minimum size of one-thousand (1,000) gallons.
- (3) Standby power shall be required capable of handling 100% peak loadings. A standby generator is required for all vacuum stations.
- (4) A minimum of two (2) pumping units shall be provided for both the vacuum pumps and the wastewater pumps, with each being capable of handling peak flow conditions.
- (5) An alarm system with capability to notify staff operators remotely (e.g., telemetry system) shall be provided. The monitoring system shall be provided with continuously charged batteries for twenty-four (24) hour standby operation, in the case of a power outage.
- (6) Certification is required from the pump manufacturer stating that the wastewater pumps are suitable for use in a vacuum sewer installation.

F. Wastewater Treatment Facilities.

1. All wastewater treatment facilities shall be designed with effluent flow monitoring and effluent sampling. All domestic wastewater treatment facilities shall have influent screening. The Department may waive the requirement for influent screening for industrial treatment facilities. The design and location of the effluent flow monitoring system and effluent sampling point shall be to maximize confirmation that the effluent disposal permit limitations are being met. For new facilities, the flow monitoring location shall not be in a permit-entry-required confined space in accordance with 29 CFR 1910.146. For modifications of existing facilities consideration shall be given to the feasibility of compliance with 29 CFR 1910.146.
2. Each facility shall be fenced, or other means of controlling access by unauthorized persons shall be provided. The type of fencing or other means of controlling access shall be approved by the Department.

3. A weather durable sign, approved by the Department, with a twenty four (24) hour emergency telephone number, shall be located at a conspicuous point, typically located on the fence around the wastewater treatment facility, unless the wastewater treatment facility is located in a restricted access area.
4. All new wastewater treatment facilities shall be designed to be fully operational during flooding from a twenty five (25) year flood and shall be designed to be protected from physical damage from flooding from a one hundred (100) year flood. An all weather access road shall be provided to the wastewater treatment facility.
5. Facilities for the equalization of flows and/or mass loadings shall be provided for all wastewater treatment facilities which may be critically affected by surge or mass loadings, as determined by the Department.
6. For domestic wastewater treatment facilities, equipment shall be provided for flow equalization basins to maintain adequate mixing and aerobic conditions. Equalization or peak flow holding basins located in the collection system or at the treatment facility shall address issues to avoid odors at undesirable levels.
7. Aeration equipment for biological treatment shall be capable of maintaining a minimum of two (2.0) mg/l of dissolved oxygen in the mixed liquor at all times, unless the design specifically calls for a lower dissolved oxygen requirement. Thorough mixing of the mixed liquor shall be provided.
8. Aerobic digestors shall have sufficient aeration equipment provided to keep the solids in suspension and to maintain a dissolved oxygen between one (1.0) and two (2.0) mg/l, as a design condition.
9. All basins holding wastewater (treated or otherwise) shall be provided with a liner, designed with a permeability rate no greater than 10^{-6} cm/sec, to prevent seepage. The Department may consider alternatives to this requirement for basins holding treated domestic wastewater such that there is not a concern about groundwater standards being exceeded. Consideration can be given to the characteristics of the wastewater and variability of the quality of the treated wastewater. Basins using soils with low permeability rates (e.g., clay) shall require appropriate documentation to demonstrate that the computed soil permeability rates of the liner are sufficiently low to preclude inappropriate seepage. Basins used for mixing (e.g., complete mix aeration basins) shall not be allowed to have earthen liners.
10. For land application facilities, all holding ponds, for treated wastewater, shall have a minimum storage capacity of seven (7) days at average daily design flow, unless there exists an approved, year round, backup (e.g., a separate NPDES permit), that could receive the treated wastewater for disposal if the land application site could not be utilized.
11. For chlorination systems, a minimum contact time of thirty (30) minutes at average daily flow and fifteen (15) minutes at peak design flow, is required. Industrial wastewater treatment facilities may be approved for lower contact times, if supported by proper documentation.
12. All return flows (e.g., drainage, supernatant, filtrate) generated at the wastewater treatment facility shall be returned to an appropriate location at the headworks of the wastewater treatment facility. The facility shall account for the quantity and quality of these flows.
13. Excluding pretreatment facilities, a continuous flow recorder shall be required where the design flow of the wastewater treatment facility exceeds fifty thousand (50,000) gallons per day.

14. Adequate water shall be provided at the wastewater treatment facility for maintenance. The water supply line shall be equipped with an approved reduced pressure backflow preventer if the source is potable water. If maintenance water is not potable, each spigot or tap shall be clearly marked non-potable (non-drinking) water.
15. All wastewater treatment facilities shall be provided with an alternative source of electric power to allow continuous operation of the appropriate units. Methods of providing alternative sources include:
 - a. Electric power shall be provided to the treatment works from two (2) separate utility substations;
 - b. An on site standby generator, either permanently installed or skid/trailer mounted, capable of supplying electrical power to all required components, based on the Reliability Classification of the wastewater treatment facility; or
 - c. Industrial facilities need to provide back up power as specified above unless the industrial facility can show that their processes stop in the event of a power outage and that enough storage is available until power is restored, so an overflow and/or a discharge other than treated wastewater shall not occur. Design calculations or other information shall be provided for justification.
16. Ultimate disposal of wastewater treatment facility residuals, to include sludge and bar screenings shall be identified and approved by the Department before a wastewater treatment facility can be permitted. Disposal shall be consistent with applicable Department regulations.
17. All wastewater treatment facilities shall be closed out within one hundred eighty (180) days in accordance with applicable regulations, when the facility is closed or the effluent disposal permit is inactivated, terminated or revoked, unless determined by the Department that a greater time is necessary. The closure plan must be approved by the Department as a prerequisite to closure. Conversion of existing wastewater treatment facilities to other basins such as equalization basins or storage basins shall only be considered by the Department for approval when explicitly identified in the applicable 208 Water Quality Management Plan. In such cases, sludge disposal must comply with Regulation 61-9.503 and Regulation 61-9.504.
18. All activated sludge wastewater treatment facilities shall have a means of solids or sludge removal.
19. Chlorine contact chambers following sequencing batch reactors shall be sized on the basis of the maximum discharge rate from the batch reactor, unless the effluent from the batch reactor is equalized to achieve a flow equal to the average daily flow.
20. All wastewater treatment facilities submitted to the Department for a construction permit shall include appropriate design calculations for all unit processes. The Department may require any additional supplemental information as needed.

G. Pump and Haul Operations.

1. Domestic Wastewater Pump and Haul Operations. The following criteria shall apply:
 - a. The Department may waive some or all of the criteria in subsection 67.300.G.1.b if the project will address an existing water quality concern or problem.
 - b. Pump and haul operations shall not be used as a permanent means of wastewater handling. A pump and haul operation shall be allowed only for temporary sewer service, for a time period not to exceed thirty (30) days, unless otherwise approved by the Department. In addition, a pump and haul operation shall only be utilized for individual projects. Prior approval shall be obtained from the Department before initiating a pump and haul operation. Where there is no reasonable remedy for wastewater handling, pump and haul operations may be allowed in accordance with the following:
 - (1) The Department shall approve the entity responsible for pumping out, hauling, and disposing of the wastewater.
 - (2) All transporting of wastewater shall be in accordance with rules and regulations of the State Department of Transportation and other agencies as applicable.
 - (3) As a prerequisite for approval of a pump and haul operation, the permanent plan of wastewater handling and disposal shall be approved via the issuance of a construction permit by the Department. The completion of the permanent wastewater disposal system shall be properly bonded, or a financial assurance that the project shall be constructed.
 - (4) Weekly reports from the party responsible for the holding facility shall be submitted to the Department's local Environmental Quality Control District Office. The Department may specify a form to be used for reporting. Failure to submit these weekly reports or continuing the pump and haul operation beyond the approval date, without prior approval from the Department, may result in possible enforcement action by the Department. If the final disposal of this wastewater is at a wastewater treatment facility that is not owned by the party responsible for the pump and haul operation, a signed statement from the individual responsible for the wastewater treatment facility shall be included in the report. This statement shall give the time, date, and amount of wastewater received.
 - (5) The holding facility shall be inspected during each day's use by the responsible party, and pumped out as needed.
 - (6) A report containing the following information shall be submitted to the Department for approval:
 - (a) A discussion of the need for the pump and haul operation. Availability of sewer, NPDES permit options, or other options for the wastewater shall be discussed.
 - (b) A letter from the owner of the wastewater treatment facility receiving the wastewater shall be submitted agreeing to accept and treat the wastewater.
 - (c) The report shall discuss how spills and leaks shall be prevented during the transfer of wastewater and include best management practices.

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- (d) For private entities, some type of financial assurance (e.g., an escrow account) shall be established for payment to the party hauling and disposing of the wastewater (e.g., contract hauler). The sum to be placed in this escrow account shall be two (2) times the project cost for pumping and hauling the wastewater for thirty (30) days or other approved period of operation. If at any time the account is depleted to one third (a) the original amount and the pump and haul operation is still needed for more than ten (10) days, the owner of the project shall upon notice by the party responsible for this operation, bring the account up to two thirds (b) the original amount within five (5) days.
 - (e) The holding facility shall be sized to hold at least three (3) days of average daily flow from the project, based on the loadings as stated in 61-67 Appendix A. Consideration can be given to alternative storage capacity requirements for non-residential applications.
 - (f) The type of holding facility being proposed shall be approved by the Department, and shall be of watertight construction. The location of the holding facility shall be secured (e.g., fenced) to prevent access by unauthorized persons.
2. Industrial Wastewater Pump and Haul Operations. This applies to the storage of non-hazardous industrial and/or domestic wastewater generated by an industrial facility which is then hauled to a receiving facility at a rate of greater than fifty (50) gallons per day or three hundred fifty (350) gallons per week or one thousand five hundred (1,500) gallons per month. One-time/intermittent operations or those on-site operations are exempt from these requirements. On a case-by-case basis, the Department may also consider other exemptions on the requirement to obtain pump and haul approval for certain process wastewaters. Intermittent is defined for this part as less than one shipment of wastewater per month.
- a. Pump and haul operations may be allowed in accordance with the following:
 - (1) Approval by the Department shall be required before a facility can have its wastewater hauled by a tanker truck or other vehicle to the receiving facility or when an approved facility proposes to change its method or location of its wastewater disposal.
 - (2) All transporting of wastewater shall be in accordance with rules and regulations of the State Department of Transportation and other agencies as applicable.
 - (3) A back up receiving facility or other contingency plan for the wastewater may be required, as determined by the Department.
 - (4) Pump and haul operations may not be approved unless the proposed off-site receiving facility has the capability to appropriately manage and treat the waste.
 - (5) A report containing the following information shall be submitted to the Department for approval:
 - (a) The name and location of the industrial facility, the current (if applicable) receiving facility, and the proposed receiving facility.
 - (b) A brief description of the type and amount of waste and how it is generated.

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- (c) A discussion of the need for the pump and haul operation. Availability of sewer, NPDES permit options, or other options for the wastewater shall be discussed. Proposed pump and haul operations that have a reasonably available sewer (including consideration for sewer and treatment capacity and capability) may be considered not suitable for approval. An engineering estimate of the annualized cost (including treatment, piping, transportation, operations, etc.) of the current and proposed disposal methods, including any possible capital costs, may be required by the Department.
 - (d) A letter from the owner of the receiving treatment facility agreeing to accept and treat the wastewater.
 - (e) The corresponding limitations page(s) from the proposed receiving facility's discharge or pretreatment permit.
 - (f) The capacity of the holding facility, type and amount of wastewater, compatibility of the wastewater with the holding facility material and holding times. Analytical data or other information may also be required as determined by the Department.
 - (g) A discussion of how spills and leaks shall be prevented during the transfer of wastewater, including best management practices.
- (6) The Department may require the applicant to provide at least one alternate facility to receive the wastewater if there is a question of maintaining adequate capacity at the facility receiving the wastewater. A construction permit for the holding facility may be required by the Department (e.g., permanent holding facilities).
- b. Permanent industrial pump and haul operations shall not be allowed where an industry cannot obtain or has been denied sewer service by the entity designated through the 208 planning process as being responsible for providing sewer service to the area where the industry will be or is located.
 - c. Except as given in subsection 67.300.G.2.d. below, temporary pump and haul operations shall not be allowed when an industry has its local service disconnected because of violations of the local entity's industrial user permit or other violations.
 - d. When an industry has been cut off from sewer service, no additional wastewaters may be generated by the industry beyond the wastewater that was generated on the day of the cut off and the day after the cut off occurred. In these situations, the Department may approve temporary pump and haul for the wastewaters generated during those two (2) days and any contaminated storm water that will continue to occur up to final closure of the entire industrial facility.
 - e. When an industry has been cut off from sewer service because of violations of the local entity's industrial user permit or other violations, the industry must cease all manufacturing operations on the site within one (1) day after the cut off date unless a longer time period is allowed in writing by the Department. Additionally, an approvable shut down plan must be submitted to the Department within one (1) week of the sewer service cut off date. The shut down plan must include a wastewater facility closure plan for any wastewater facilities in accordance with SC Regulation 61-82.

H. Unit Contributory Loadings to All Domestic Wastewater Treatment Facilities. Refer to 61-67 Appendix A for the minimum design loadings that shall be utilized for all domestic wastewater treatment facilities and those industrial wastewater treatment facilities treating strictly domestic wastewater. These loadings shall be used in determining the average daily flow (ADF) for proposed sewer systems.

1. The loadings in 61-67 Appendix A may either be increased or decreased as determined by this Department. Where there exists by local ordinance or other acceptable means the requirement on the use of water saving devices, the Department may allow the use of seventy five (75) percent of these loadings.
2. A reduction in the loadings in 61-67 Appendix A may be granted in the following circumstances:
 - a. Consideration to other unit contributory loadings may be granted when properly substantiated by the consulting engineer in its engineering report for a new wastewater treatment facility.
 - b. For existing systems, a reduction may be granted to the wastewater treatment facility when supported with proper documentation. The proper documentation shall be continuously monitored flow at the wastewater treatment facility for several years, including dry and wet years as determined by rainfall data, unless flows are not representative, as determined by the Department. A reduction in the unit contributory loading, if approved, shall be made to the wastewater treatment facility in question, and not a particular project discharging to the wastewater treatment facility. If approved, the reduction in the unit contributory loading shall be approved for all future projects discharging to the wastewater treatment facility (and would be used to revise the current level of remaining capacity). The decision to reduce the loadings shall be made by this Department on an individual basis.

Section 67.400. Reliability Classifications**A. Purpose.**

1. The Department has authority to establish reliability classification requirements for wastewater treatment facilities, for the primary purpose of protecting surface waters and their usage, such as shellfish harvesting areas, and designated recreational waters, as determined by the Department, as well as water supply intake areas.
2. The secondary purpose of this requirement is to provide standards for reasonable reliability of treatment performance.

B. Applicability.

1. These requirements shall not apply to pretreatment facilities or to existing facilities which are not subject to a construction permit.
2. The Department shall determine which reliability classification applies to individual wastewater treatment facilities.
3. The requirements of this regulation shall apply to:
 - a. All new wastewater treatment facilities.
 - b. Expanding facilities. (An expansion in discharge capacity makes the entire plant subject to this section.)
4. For modifications which do not increase the capacity of a facility, the requirements of this regulation shall apply to the component(s) being added, modified or upgraded at the wastewater treatment facility.
5. Specific requirements of various classifications may be applied to treatment systems not specifically described in the classification requirements.
6. Facilities such as industrial operations that can reasonably shut down their operations to provide equivalent protection to the receiving waterbody may be exempt from specific requirements of this section if justified by the permittee and approved by the Department.
7. These reliability classification requirements may be waived for wastewater treatment facilities less than five hundred thousand (500,000) GPD, or for non-process industrial wastewater, if determined by the Department that they need not apply, based on site conditions and the absence of shellfish harvesting areas, designated recreational waters, water supply intake areas, and other areas that could be impacted by the subject wastewater treatment facility.
8. Influent and effluent pumping systems are considered part of the wastewater treatment facilities for the purposes of applying reliability classification criteria.

C. Sludge Management Requirements. For components included in the design of the sludge handling and disposal system of Reliability Classifications I, II, or III, the following backup requirements apply:

1. Holding tanks or other storage components are permissible as an alternative to component or system backup capability, where justified.
2. A backup pump shall be provided for each set of pumps which performs the same function. The capacity of the pumps shall be such that with any one (1) pump out of service, the remaining pumps shall have capacity to handle peak flow. It is permissible for one (1) pump to serve as a backup to more than one (1) set of pumps in a typical pump station. Backup pump requirements for wastewater treatment facilities shall be determined on an individual project basis. It is also permissible for the backup pump to be un-installed, provided that the installed pump can be easily removed and replaced.
3. When anaerobic digestion is utilized, at least two (2) anaerobic digestion tanks shall be provided, for all domestic wastewater treatment facilities and industrial wastewater treatment facilities as determined by the Department.
4. For aerobic digestion, at least two (2) blowers and/or mechanical aerators shall be provided. If only one (1) blower and/or aerator is installed, the backup shall be of equal size and the installed blower and/or aerator shall be easily removed and replaced.
5. When vacuum filters are used there shall be a sufficient number of vacuum filters provided to enable the design sludge flow to be dewatered with the largest capacity vacuum filter out of service. Each vacuum filter shall be serviced by two (2) vacuum pumps and two (2) filtrate pumps. It is permissible for the backup to the normal vacuum or filtrate pump to be an un-installed unit, provided that the installed unit can be easily removed and replaced with the un-installed unit.
6. When centrifuges or belt presses are used there shall be a sufficient number of centrifuges and belt presses provided to enable the design sludge flow to be dewatered with the largest unit out of service. An alternative sludge management plan (e.g., use of existing sand drying beds as a backup) may be proposed for the purpose of justifying the need for only one (1) unit, subject to the Department's approval. It is permissible for the backup unit to be an un-installed unit, provided that the installed unit can be easily removed and replaced with the un-installed unit.

D. Reliability Classification I Requirements.

1. Reliability Classification I requirements provide maximum protection for the waters of the State, by requiring backup components and auxiliary power for those wastewater treatment facilities discharging into waters of the State that may be in environmentally sensitive areas due to the close proximity to, but not limited to, shellfish harvesting areas, and designated recreational waters. Reliability Classification I requirements would apply to those facilities discharging within water supply intake areas. When a discharge is within such an area, the Department may consider the effect downstream lakes may have in providing additional protection within the water supply intake areas and the Department may consider the reduced risk associated with a discharge located downstream of a water supply intake point where the discharge would only affect the intake in certain limited tidal situations.

2. Wastewater treatment facilities shall have a holding basin or equivalent design feature to augment the storage capacity of the collection and interceptor system (i.e., at the influent of the plant, with consideration given to untreated wastewater storage basins located at other locations). Capacity shall accommodate the twenty four (24) hour average design flow of the wastewater treatment facility. The system shall be designed such that the wastewater retained by the holding basin shall be fully treated prior to discharge. A holding basin that can accommodate the twelve (12) hour average design flow may be considered (in lieu of twenty four (24) hour capacity) by the Department in cases where flow equalization at the head of a treatment facility is incorporated.
3. Excluding lagoon systems, when an aeration basin is utilized, at least two (2) aeration basins shall be provided.
4. When mechanically cleaned bar screens (or equivalent devices) are utilized, provisions for a backup bar screen, which may be designed for manual cleaning, shall be provided.
5. Backup pumps shall be provided for each set of pumps which performs the same function. The capacity of the pumps shall be such that with any one (1) pump out of service, the remaining pumps shall have capacity to handle the peak flow. It is permissible for one (1) pump to serve as a backup to more than one (1) set of pumps in a typical pump station.
6. When clarifiers are utilized, all domestic wastewater treatment facilities and industrial wastewater treatment facilities as determined by the Department, shall have at least two (2) clarifiers provided when the design flow of the wastewater treatment facility exceeds one hundred thousand (100,000) gallons per day.
7. Primary, intermediate and final sedimentation basins, trickling filters, and tertiary filters shall be designed with a sufficient number of units such that with the largest flow capacity unit out of service, the remaining units shall have a design capacity such that the appropriate design criteria are not exceeded, based on seventy five (75) percent of design flow.
8. Aeration blowers and/or mechanical aerators shall be provided in sufficient number to enable the design oxygen transfer to be maintained with the largest capacity unit out of service. It is permissible for the backup unit to be an un-installed unit, provided that the installed unit can be easily removed and replaced. However, at least two (2) units shall be installed.
9. Air diffusion systems shall be designed such that the largest section of diffusers can be isolated without measurably impairing the oxygen transfer capability of the system.
10. Where proposed or required, all domestic wastewater treatment facilities and industrial wastewater treatment facilities as determined by the Department, shall have at least two (2) chemical flash mixer basins provided, or a backup means of adding and mixing chemicals, separate from the basin, shall be provided. If only one (1) basin is provided, at least two (2) mixing devices and a bypass around the basin shall be provided. It is permissible for one of the mixing devices to be un-installed, provided that the installed unit can be easily removed and replaced.
11. Disinfection components, including basins shall have sufficient number of units such that with the largest flow capacity unit out of service, the remaining units shall have a design flow capacity of seventy five (75) percent of the total design average flow to the unit operation.
12. The backup power source shall be sufficient to operate all vital components required to meet effluent disposal permit limitations during peak wastewater flow conditions, together with critical lighting and ventilation.

E. Reliability Classification II Requirements. Reliability Classification I requirements apply except as modified below:

1. Reliability Classification II requirements provide protection for the waters of the State by requiring backup components and auxiliary power for those wastewater treatment facilities discharging into waters of the State that may be near, but not limited to, shellfish harvesting areas, designated recreational waters, and water supply intake areas, but based on circumstances, may not require as much system reliability as Reliability Classification I.
2. Backup components may not be required to provide treatment in excess of typical biological or equivalent physical/chemical treatment and disinfection. This may include not providing backup for such components as: chemical flash mixers, chemical sedimentation basins, and filters.
3. Primary and final sedimentation basins and trickling filters shall be designed with sufficient number of units such that with the largest flow capacity unit out of service, the remaining units shall have a design flow capacity of at least fifty (50) percent of the design basis flow to that unit operation.
4. The backup power source shall be the same as Reliability Classification I, except that vital components used to support the secondary processes (e.g., mechanical aerators or aeration basin air compressors) need not be included as long as treatment equivalent to sedimentation and disinfection is provided.
5. Disinfection components, including basins shall have sufficient number of units such that with the largest flow capacity unit out of service, the remaining units shall have a design flow capacity of fifty (50) percent of the total design average flow to the unit operation.
6. Holding basins or equivalent design features may not be required.
7. Backup pump requirements for wastewater treatment facilities shall be determined on an individual project basis.

F. Reliability Classification III Requirements. These requirements apply to all facilities not designated as Reliability Classification I or II and systems with discharges via land application. Reliability Classification II requirements apply except as modified below:

1. Reliability Classification III requirements provide protection for the waters of the State, by requiring backup components and auxiliary power for those wastewater treatment facilities discharging in areas not identified by the Department as being more appropriately covered under Reliability Classification I or II.
2. Backup components shall not be required for trickling filters.
3. When blowers or mechanical aerators are utilized, all domestic wastewater treatment facilities and industrial wastewater treatment facilities as determined by the Department, shall have at least two (2) aeration blowers and/or mechanical aerators available for service. One (1) of the units can be uninstalled, if the installed unit can be easily removed and replaced.
4. For all domestic wastewater treatment facilities and industrial wastewater treatment facilities as determined by the Department, a single aeration basin is permissible.

5. When sedimentation basins are utilized, all domestic wastewater treatment facilities and industrial wastewater treatment facilities as determined by the Department, shall have at least two (2) primary, intermediate, and final sedimentation basins provided.
6. For all domestic wastewater treatment facilities and industrial wastewater treatment facilities as determined by the Department, the backup power source shall be sufficient to operate the screening facilities, the main wastewater pumps, the primary sedimentation basins, and the disinfection facility during peak wastewater flow condition, together with critical lighting and ventilation.

61-67, Appendix A

Unit Contributory Loadings to All Domestic Wastewater Treatment Facilities	
Type of Establishment	Hydraulic Loading (GPD)
A. Airport:	
1. Per Employee	10
2. Per Passenger	5
B. Apartments, Condominiums, Patio Homes:	
1. Three (3) Bedrooms (Per Unit)	400
2. Two (2) Bedrooms (Per Unit)	300
3. One (1) Bedroom (Per Unit)	200
C. Assembly Halls: (Per Seat)	5
D. Barber Shop:	
1. Per Employee	10
2. Per Chair	100
E. Bars, Taverns:	
1. Per Employee	10
2. Per Seat, Excluding Restaurant	40
F. Beauty Shop:	
1. Per Employee	10
2. Per Chair	125
G. Boarding House, Dormitory: (Per Resident)	50
H. Bowling Alley:	
1. Per Employee	10
2. Per Lane, No Restaurant, Bar or Lounge	125
I. Camps:	
1. Resort, Luxury (Per Person)	100
2. Summer (Per Person)	50
3. Day, with Central Bathhouse (Per Person)	35
4. Travel Trailer (Per Site)	175
J. Car Wash: (Per Car Washed)	75
K. Churches: (Per Seat)	3
L. Clinics, Doctor's Office:	
1. Per Employee	15
2. Per Patient	5
M. Country Club, Fitness Center, Spa: (Per Member)	50

N.	Dentist Office:	
	1. Per Employee	15
	2. Per Chair	8
	3. Per Suction Unit; Standard Unit	370
	4. Per Suction Unit; Recycling Unit	95
	5. Per Suction Unit; Air Generated Unit	0
O.	Factories, Industries:	
	1. Per Employee	25
	2. Per Employee, with Showers	35
	3. Per Employee, with Kitchen	40
	4. Per Employee, with Showers and Kitchen	45
P.	Fairgrounds: (Average Attendance, Per Person)	5
Q.	Grocery Stores: (Per one thousand (1,000) Square Feet, No Restaurant)	200
R.	Hospitals:	
	1. Per Resident Staff	100
	2. Per Bed	200
S.	Hotels: (Per Bedroom, No Restaurant)	100
T.	Institutions: (Per Resident)	100
U.	Laundries: (Self Service, Per Machine)	400
V.	Marinas: (Per Slip)	30
W.	Mobile Homes: (Per Unit)	300
X.	Motels: (Per Unit, No Restaurant)	100
Y.	Nursing Homes:	
	1. Per Bed	100
	2. Per Bed, with Laundry	150
Z.	Offices, Small Stores, Business, Administration Buildings: (Per Person, No Restaurant)	25
AA.	Picnic Parks: (Average Attendance, Per Person)	10
BB.	Prison/Jail:	
	1. Per Employee	15
	2. Per Inmate	125
CC.	Residences: (Per House, Unit)	400
DD.	Rest Areas, Welcome Centers:	
	1. Per Person	5
	2. Per Person, with Showers	10

EE.	Rest Homes: 1. Per Bed 2. Per Bed, with Laundry	100 150
FF.	Restaurants: 1. Fast Food Type, Not Twenty Four (24) Hours (Per Seat) 2. Twenty Four (24) Hour Restaurant (Per Seat) 3. Drive-In (Per Car Served) 4. Vending Machine, Walk-up Deli (Per Person)	40 70 40 40
GG.	Schools, Day Care: 1. Per Person 2. Per Person, with Cafeteria 3. Per Person, with Cafeteria, Gym and Showers	10 15 20
HH.	Service Stations: 1. Per Employee 2. Per Car Served 3. Car Wash (Per Car Washed)	10 10 75
II.	Shopping Centers, Large Department Stores, Malls: (Per one thousand (1,000) Square Feet, No Restaurant)	200
JJ.	Stadiums, Coliseums: (Per Seat, No Restaurant)	5
KK.	Swimming Pools: (Per Person, with Sewer Facilities and Showers)	10
LL.	Theaters: Indoor (Per Seat), Drive In (Per Stall)	5

61-67, Appendix B
General Construction Permits

1. The Department may implement the provisions of this regulation by means of a general construction permit, in accordance with the following:
 - a. Coverage.
 - (1) Area. The general construction permit shall be written to cover a category of construction activities identified in this regulation or disposal practices or facilities described in the permit under subsection 61-67 Appendix B, 1.a.(2)(b) below, except those covered by individual construction permits, within a geographical area. The area shall correspond to existing geographic or political boundaries, such as:
 - (a) Designated planning areas under section 208 and 303 of CWA;
 - (b) Sewer districts, sewer authorities, municipalities or POTW's;
 - (c) City, county, or State political boundaries;
 - (d) State highway systems;
 - (e) Standard metropolitan statistical areas as defined by the Federal Office of Management and Budget;
 - (f) Urbanized areas as designated by the Federal Bureau of the Census according to criteria in 30 Fed. Reg. 15202 (May 1, 1974), or as subsequently amended;
 - (g) Any other appropriate division or combination of boundaries; or
 - (h) Watershed boundaries.
 - (2) Sources. The general construction permit may be written to regulate, within the area described in subsection 61-67 Appendix B, 1.a.(1) above.
 - (a) [Reserved]; or
 - (b) A category of sources or a category of "treatment works treating domestic sewage," if the sources or "treatment works treating domestic sewage" all:
 - (i) Involve the same or substantially similar types of operations;
 - (ii) Discharge the same types of wastes or engage in the same types of sludge use or disposal practices;
 - (iii) Require the same operating conditions, or standards for construction or operation; and
 - (iv) In the opinion of the Department are more appropriately controlled under a general construction permit than under individual construction permits.
 - b. Administration.
 - (1) In general. General construction permits may be issued, modified, revoked and reissued, or terminated in accordance with applicable requirements of Regulation 61-9.124.
 - (2) General construction permits shall specify the deadlines for submitting notices of intent to be covered and the date(s) when an applicant is authorized to begin construction under the permit.

- (3) General construction permits shall specify whether an activity covered by this regulation where the applicant has submitted a complete and timely Notice of Intent (NOI) to be covered in accordance with the general construction permit and that is eligible for coverage under the permit, is authorized to begin construction in accordance with the permit. This could be either upon receipt of the NOI by the Department, after a waiting period specified in the general construction permit, on a date specified in the general construction permit, or upon receipt of notification of inclusion by the Department. Coverage may be terminated or revoked in accordance with subsection 61-67 Appendix B, 1.b.(6) below.
- (4) Applicants may, at the discretion of the Department, be authorized to begin construction under a general construction permit without submitting a NOI where the Department finds that a NOI requirement is inappropriate. The Department shall provide in the public notice of the general construction permit the reasons for not requiring a NOI.
- (5) The Department may notify an applicant that it is covered by a general construction permit, even if the applicant has not submitted a NOI to be covered. An applicant so notified may request an individual construction permit under subsection 61-67 Appendix B, 1.b.(6)(c) below.
- (6) Requiring an individual permit.
 - (a) The Department may require any person who otherwise qualifies for or has been lawfully issued a general construction permit to apply for and obtain an individual construction permit. An applicant or any other interested person may petition the Department to take action under this paragraph. The petition shall indicate specific reasons why an individual construction permit is requested and the interest in or relationship of the petitioner to the applicant. Cases where an individual construction permit may be required include, but are not limited to, the following:
 - (i) The applicant is not in compliance with the conditions of the general construction permit;
 - (ii) A change has occurred in the availability of demonstrated technology or practices for the control or abatement of pollutants applicable to the treatment works treating domestic sewage;
 - (iii) A Water Quality Management plan containing requirements applicable to such construction permits is approved;
 - (iv) Circumstances have changed since the time of the request to be covered so that the construction activity is no longer appropriately controlled under the general construction permit, or either a temporary or permanent reduction or elimination of the authorized activity is necessary; and
 - (v) The applicant is a significant contributor of pollutants. In making this determination, the Department may consider the following factors:
 - (aa) The location of the construction activity with respect to waters of the State;
 - (bb) The size of the construction activity;
 - (cc) The quantity and nature of the pollutants; and
 - (dd) Other relevant factors.
 - (b) [Reserved].

- (c) Any owner or operator authorized by a general construction permit may request to be excluded from the coverage of the general construction permit by applying for an individual construction permit. The owner or operator shall submit an application under this regulation, with reasons supporting the request, to the Department no later than ninety (90) days after the publication of the general construction permit in the State Register. The request shall be processed in accordance with Regulation 61-9.124. The request shall be granted by issuing of an individual construction permit if the reasons cited by the owner or operator are adequate to support the request.
- (d) When an individual construction permit is issued to an owner or operator otherwise subject to a general construction permit, the applicability of the general construction permit to the individual construction permit is automatically terminated on the effective date of the individual construction permit.
- (e) A construction activity excluded from a general construction permit solely because it already has an individual construction permit may request that the individual construction permit be revoked, and that it be covered by the general construction permit. If the individual construction permit is revoked by the Department, the general construction permit shall apply to the construction activity.

c. Submittal and Signatory Requirements.

- (1) A NOI shall be on forms as may be prescribed and furnished from time to time by the Department. An NOI shall be accompanied by all pertinent information as the Department may require in order to establish requirements in accordance with this regulation, including, but not limited to, complete engineering reports, schedule of progress, plans, specifications, maps, measurements, quantitative and qualitative determinations, records, and all related materials.
- (2) Engineering reports, plans, and specifications submitted to the Department shall be signed by a Professional Engineer registered in the State.
- (3) Material submitted shall be complete and accurate.
- (4) Any NOI form submitted to the Department shall be signed in accordance with this regulation.
- (5) All other reports or requests for information required by the Department shall be signed by a person designated in this regulation or a duly authorized representative of such person, if:
 - (a) The representative so authorized is responsible for the overall operation of the facility served by the construction activity;
 - (b) The authorization is made in writing by the person designated; and
 - (c) The written authorization is submitted to the Department.
- (6) Any changes in the written authorization submitted to the Department which occur after the issuance of a permit shall be reported to the Department by submitting a copy of a new written authorization that meets the requirements of subsection 61-67 Appendix B, 1.c.(5) above.

- (7) Any person signing any document under subsection 61-67 Appendix B, 1.c. above shall make the following certification: “I certify under penalty of law that I have personally examined and am familiar with the information submitted in the attached document; and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

d. Other Requirements.

- (1) Notice and Public Participation. Public notice and participation requirements shall be in accordance with Regulation 61-9.
- (2) Terms and Conditions of Permits. General construction permits issued shall be subject to the terms and conditions contained in this regulation.
- (3) Duration, Continuation, and Transferability of Permits. General construction permits shall be issued for a fixed term, as determined by the Department.