000. LEGAL AUTHORITY.
Under Chapters 1 and 36, Title 39, Idaho Code, the Idaho Legislature has granted the Board of Environmental Quality the authority to promulgate these rules. ( )

001. TITLE AND SCOPE.

01. Title. These rules are titled IDAPA 58.01.16, "Wastewater Rules." ( )

02. Scope. These rules establish the procedures and requirements for the planning, design and operation of wastewater facilities and the discharge of wastewaters and human activities which may adversely affect public health and water quality in the waters of the state. ( )

002. WRITTEN INTERPRETATIONS.
As described in Section 67-5201(19)(b)(iv), Idaho Code, the Department of Environmental Quality may have written statements which pertain to the interpretation of these rules. If available, such written statements can be inspected and copied at cost at the Department of Environmental Quality, 1410 N. Hilton, Boise, Idaho 83706-1255. ( )

003. ADMINISTRATIVE PROVISIONS.
Persons may be entitled to appeal agency actions authorized under these rules pursuant to IDAPA 58.01.23, "Rules of Administrative Procedure Before the Board of Environmental Quality." ( )

004. INCORPORATION BY REFERENCE.
Sections 401.2.9, 401.3.4 and 401.3.6, 501.3.4, and 505.3.3 of "Idaho Standards for Public Works Construction," 2007 Edition, are incorporated by reference into these rules. These documents are available for review at the Department of Environmental Quality, 1410 N. Hilton, Boise, ID 83706-1255, (208)373-0502 or can be purchased for a fee from the Local Highway Technical Assistance Council (LHTAC) at LHTAC, 3330 Grace Street, Boise, ID, 83703, (208) 344-0565. ( )

005. OFFICE HOURS – MAILING ADDRESS AND STREET ADDRESS.
The state office of the Department of Environmental Quality and the office of the Board of Environmental Quality are located at 1410 N. Hilton, Boise, Idaho 83706-1255, telephone number (208) 373-0502. The office hours are 8 a.m. to 5 p.m. Monday through Friday. ( )

006. CONFIDENTIALITY OF RECORDS.
Information obtained by the Department under these rules is subject to public disclosure pursuant to the provisions of Title 74, Chapter 1, Idaho Code, and IDAPA 58.01.21, "Rules Governing the Protection and Disclosure of Records in the Possession of the Idaho Department of Environmental Quality." ( )

007. USE OF GUIDANCE IN DESIGN AND REVIEW.
Guidance documents are to be used to assist both designers and reviewers in determining a reasonable way to achieve compliance with the rules. Nothing in these rules makes the use of a particular guidance or guidance document mandatory. If the plans and specifications comply with applicable facility and design standards as set out in these rules, Section 39-118, Idaho Code, requires that the Department not substitute its judgment for that of the design engineer concerning the manner of compliance. If the design engineer needs assistance as to how to comply with a particular rule, the design engineer may use the referenced guidance documents listed in Section 008 for that assistance. However, the design engineer may also use other guidance or provide documentation to substantiate his or her own professional judgment. ( )

008. REFERENCED MATERIAL.

01. "Recommended Standards for Wastewater Facilities." A Report of the Wastewater Committee of the Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers. This document is available through Health Education Services at http://www.healthresearch.org/store. ( )

02. Memorandum of Understanding. The Memorandum of Understanding between the Idaho Department of Environmental Quality and the Idaho Division of Building Safety Plumbing Bureau provides assistance in determining juridiction over water and sewer service lines. Copies of the document are available at the Idaho Department of Environmental Quality, 1410 N. Hilton, Boise, ID 83706-1255, on the DEQ website at http://www.deq.idaho.gov. ( )

03. "Idaho Standards for Public Works Construction." This document is available for a fee through the Local Highway Technical Assistance Council (LHTAC) at LHTAC, 3330 Grace Street, Boise, ID, 83703, (208) 344-0565. ( )

04. Water Environment Federation (WEF) Manuals of Practice. Water Environment Federation, 601 Wythe Street, Alexandria, VA, 22314-1994, 1-800-666-0206, http://www.wef.org. ( )

05. American Society of Civil Engineers (ASCE) Manuals and Reports on Engineering Practices. American Society of Civil Engineers, 1801Alexander Bell Drive, Reston, VA 20191, 800-548-2723, http://www.asce.org. ( )

06. "Design Criteria for Mechanical, Electric, and Fluid System and Component Reliability." U.S. EPA (EPA-430-99-74-001), http://www.epa.gov. ( )

07. American National Standard Institute/Hydraulic Institute ANSI/HI 9.8, American National Standard for Centrifugal and Vertical Pump Intake Design. 1819 L Street NW Suite 600, Washington, DC 20036, (202) 293-8020, www.ansi.org. ( )

08. The Compressed Gas Association Publication CGA G-3-1995, "Sulfur Dioxide." ( )

09. "Wastewater Engineering, Treatment and Reuse," Metcalf and Eddy. ( )

10. "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse," National Water Research Institute/American Water Works Association (AWWA) Research Foundation, 6666 West Quincy Avenue, Denver, CO 80235, (800)926-7337, http://www.awwa.org. ( )

11. Pumping Station Design - Third Edition 2006. Garr M. Jones. Elsevier Publications. ( )

12. Plan and Specification Dispute Resolution Policy. PM05-2: Plan and Specification Review Dispute Resolution Advisory Panel for Engineering Disputes can be found on the DEQ website at http://www.deq.idaho.gov. ( )

13. Nutrient-Pathogen Evaluation Program for On-Site Wastewater Treatment Systems. Nutrient-Pathogen Evaluation Program for On-Site Wastewater Treatment Systems can be found on the DEQ website at http://www.deq.idaho.gov. ( )

14. Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater. The Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater can be found on the DEQ website at http://www.deq.idaho.gov. ( )

009. LAWS AND CODES OUTSIDE OF THESE RULES.
Compliance with the following laws and codes are not required by these rules, but may be required by other regulatory entities. ( )

01. International Building Code. ( )

02. Uniform Plumbing Code. ( )

03. National Fire Protection Association Code (NFPA). ( )

04. Requirements of National Institute for Occupational Safety and Health (NIOSH). ( )

05. Requirements of the Occupational Safety and Health Administration (OSHA). ( )

06. National Electrical Code. ( )

07. International Fire Code. ( )

010. DEFINITIONS.
For the purpose of the rules contained in IDAPA 58.01.16, "Wastewater Rules," the following definitions apply: ( )

01. Available. Based on public wastewater system size, complexity, and variation in raw waste, a licensed wastewater operator must be on site, on call, or able to be contacted as needed to initiate the appropriate action for normal or emergency conditions in a timely manner. ( )

02. Adequate Emergency Storage Capacity. The emergency storage capacity of a lift station wet well is the volume of the wet well measured between the high water alarm and the gravity sewer invert into the wet well. The collection system shall not be used in the calculation for emergency storage. For the purpose of this definition, "adequate" is defined as twice the estimated emergency response time multiplied by the peak hour flow to the wet well. The high water alarm shall be placed at an elevation below the wet well invert sufficient to achieve the defined volumetric emergency storage capacity. ( )

03. Average Day Flow. The average day flow is the average of daily volumes to be received for a continuous twelve (12) month period expressed as a volume per unit time. However, the average day flow for design purposes for facilities having critical seasonal high hydraulic loading periods, such as recreational areas or industrial facilities, shall be based on the average day flow during the seasonal period. See also the definition of Wastewater Flows. ( )

04. Beneficial Use. Any of the various uses which may be made of the water of Idaho, including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, navigation, recreation in and on the water, wildlife habitat, and aesthetics. The beneficial use is dependent upon actual use, the ability of the water to support a non-existing use either now or in the future, and its likelihood of being used in a given manner. The use of water for the purpose of wastewater dilution or as a receiving water for a waste treatment facility effluent is not a beneficial use. ( )

05. Biochemical Oxygen Demand (BOD). The measure of the amount of oxygen necessary to satisfy the biochemical oxidation requirements of organic materials at the time the sample is collected; unless otherwise specified, this term will mean the five (5) day BOD incubated at twenty (20) degrees C. ( )

06. Blackwaste. Human body waste, such as excreta or urine. This includes toilet paper and other products used in the practice of personal hygiene. ( )

07. Blackwater. A wastewater whose principal pollutant is blackwaste; a combination of blackwaste and water. ( )

08. Board. The Idaho Board of Environmental Quality. ( )

09. Capacity. The capabilities required of a wastewater system in order to achieve and maintain compliance with these rules. It is divided into three (3) main elements: ( )

a. Technical capacity means the system has the physical infrastructure to safely collect wastewater and consistently meet discharge standards and treatment requirements, and is able to meet the requirements of routine and emergency operations. It further means the ability of system personnel to adequately operate and maintain the system and to otherwise implement technical knowledge. Training of operator(s) is required, as appropriate, for the system size and complexity. ( )

b. Financial capacity means the financial resources of the wastewater system, including an appropriate budget; rate structure; cash reserves sufficient for current operation and maintenance, future needs and emergency situations; and adequate fiscal controls. ( )

c. Managerial capacity means that the management structure of the wastewater system embodies the aspects of wastewater system operations, including, but not limited to; ( )

i. Short and long range planning; ( )

ii. Personnel management; ( )

iii. Fiduciary responsibility; ( )

iv. Emergency response; ( )

v. Customer responsiveness; and ( )

vi. Administrative functions such as billing and consumer awareness. ( )

10. Class A Effluent. Class A effluent is treated municipal reclaimed wastewater that must be oxidized, coagulated, clarified, and filtered, or treated by an equivalent process and adequately disinfected. For comprehensive Class A Effluent criteria and permitting requirements refer to IDAPA 58.01.17, "Recycled Water Rules." ( )

11. Class A Effluent Distribution System. The delivery system for Class A effluent. The distribution system does not include any of the collection or treatment portions of the wastewater facility and is not subject to operator licensing requirements in Section 203 of these rules. ( )

12. Collection System. That portion of the wastewater system or treatment facility in which wastewater is received from the premises of the discharger and conveyed to the point of treatment through a series of lines, pipes, manholes, pumps/lift stations and other appurtenances. ( )

13. Compliance Schedule or Compliance Agreement Schedule. A schedule of remedial and preventative measures and sequence of actions leading to compliance with a regulation, statute or rule, enforceable as set forth in Sections 39-116 and 39-116A, Idaho Code, respectively. ( )

14. Department. The Idaho Department of Environmental Quality. ( )

15. Design Flow. The critical flow used for steady-state wasteload allocation modeling. ( )

16. Designated Beneficial Use or Designated Use. Those beneficial uses assigned to identify waters in Idaho Department of Environmental Quality Rules, IDAPA 58.01.02, "Water Quality Standards," Sections 110 through 160, whether or not the uses are being attained. ( )

17. Director. The Director of the Idaho Department of Environmental Quality or his authorized agent. ( )

18. Discharge. When used without qualification, any spilling, leaking, emitting, escaping, leaching, or disposing of a pollutant into the waters of the state. ( )

19. Disinfection. A method of reducing the pathogenic or objectionable organisms by means of chemicals or other acceptable means. ( )

20. Disposal Facility. Any facility used for disposal of any wastewater. Facilities for the disposal of sludge are regulated under Section 650 of these rules. ( )

21. Effluent. Any treated wastewater discharged from a treatment facility. ( )

22. Environmental Review. An environmental review document for a specific project includes a description of purpose and need for the project; a description of the affected environment and environmental impacts including, but not limited to, endangered species, historical and archaeological impacts, air impacts, surface and ground water impacts, and noise and visual impacts; a description of the planned mitigation for these impacts; and descriptions of the public process, agencies consulted, referenced documents, and a mailing list of interested parties. A checklist, which can be used as guidance, can be found on the DEQ website at http://www.deq.idaho.gov. This

checklist is for Department grant and loan projects, but can be used in part or in whole as a guide. ( )

23. **EPA**. The United States Environmental Protection Agency. ( )

24. **Equivalent Dwelling Unit (EDU)**. A measure where one (1) unit is equivalent to wastewater generated from one (1) single-family detached housing unit. For example, a business generating three (3) times as much wastewater as an average single-family detached housing unit would be considered three (3) equivalent dwelling units. ( )

25. **Facility Plan**. The facility plan for a municipal wastewater treatment and disposal facility describes the overall system, including the collection system, the treatment systems, and the disposal systems. It is a comprehensive planning document for the existing infrastructure and includes the plan for the future of the systems, including upgrades and additions. It is usually updated on a regular basis due to anticipated or unanticipated growth patterns, regulatory requirements, or other infrastructure needs. A Facility Plan is sometimes referred to as a master plan or facilities planning study. In general, a Facility Plan is an overall system-wide plan as opposed to a project specific plan. ( )

26. **Facility and Design Standards**. Facility and design standards are described in Sections 400 through 599 of these rules. Facility and design standards found in Sections 400 through 599 of these rules must be followed in the planning, design, construction, and review of municipal wastewater facilities. ( )

27. **Geometric Mean**. The geometric mean of "n" quantities is the "nth" root of the product of the quantities. ( )

28. **Gray Water**. Domestic wastewater that does not contain wastewater from toilets, kitchen sinks, dishwashers, cloth washing machines, and water softeners. ( )

29. **Ground Water**. Any water of the state which occurs beneath the surface of the earth in a saturated geological formation of rock or soil. ( )

30. **Industrial Wastewater**. Any waste, together with such water as is present, that is the by-product of industrial processes including, but not limited to, food processing or food washing wastewater. ( )

31. **Land Application**. A process or activity involving application of wastewater, surface water, or semi-liquid material to the land surface for the purpose of disposal, pollutant removal, or ground water recharge. ( )

32. **License**. A physical document issued by the Idaho Bureau of Occupational Licenses certifying that an individual has met the appropriate qualifications and has been granted the authority to practice in Idaho under the provisions of Chapter 24, Title 54, Idaho Code. ( )

33. **Major Wastewater Collection System Project**. A wastewater collection system project that is not a simple wastewater main extension. ( )

34. **Material Deviation**. A change from the design plans that significantly alters the type or location of facilities, requires engineering judgment to design, or impacts the public safety or welfare. ( )

35. **Material Modification**. Material modifications are those that are intended to increase system capacity or to alter the methods or processes employed. Any project that increases the pumping capacity of a system, increases the potential population served by the system or the number of service connections within the system, adds new or alters existing wastewater system components, or affects the wastewater flow of the system is considered to be increasing system capacity or altering the methods or processes employed. Maintenance and repair performed on the system and the replacement of valves, pumps, or other similar items with new items of the same size and type are not considered a material modification. ( )

36. **Maximum Day Flow**. The design maximum day flow is the largest volume of flow to be received during a continuous twenty four (24) hour period expressed as a volume per unit time. See also Wastewater Flows. ( )

37. Maximum Month Flow. The maximum month flow is the largest volume of flow to be received during any calendar month expressed as a volume per unit time. See also the definition of Wastewater Flows. ( )

38. Mixing Zone. A defined area or volume of the receiving water surrounding or adjacent to a wastewater discharge where the receiving water, as a result of the discharge, may not meet all applicable water quality criteria or standards. It is considered a place where wastewater mixes with receiving water and not as a place where effluents are treated. ( )

39. Municipal Wastewater. Unless otherwise specified, sewage and associated solids, whether treated or untreated, together with such water that is present. Also called domestic wastewater. Industrial wastewater may also be present, but is not considered part of the definition. ( )

40. National Pollutant Discharge Elimination System (NPDES). Point source permitting program established pursuant to Section 402 of the federal Clean Water Act. ( )

41. Natural Background Conditions. No measurable change in the physical, chemical, biological, or radiological conditions existing in a water body without human sources of pollution within the watershed. ( )

42. Non-Contact Cooling Water. Water used to reduce temperature which does not come into direct contact with any raw material, intermediate product, waste product (other than heat) or finished product. Non-contact cooling water is not considered wastewater. Non-contact cooling water can be land applied as recharge water as discussed in Section 600 based on a Department approval as described in Subsections 600.04 and 600.05. ( )

43. Nuisance. Anything which is injurious to the public health or an obstruction to the free use, in the customary manner, of any waters of the state. ( )

44. Nutrients. The major substances necessary for the growth and reproduction of aquatic plant life, consisting of nitrogen, phosphorus, and carbon compounds. ( )

45. Non-Potable Mains. The pipelines that collect and convey non-potable discharges from or to multiple service connections. Examples would include sewage collection and interceptor mains, storm sewers, non-potable irrigation mains, and reclaimed wastewater mains. ( )

46. Non-Potable Services. The pipelines that convey non-potable discharges from individual facilities to a connection with the non-potable main. This term also refers to pipelines that convey non-potable water from a pressurized irrigation system, reclaimed wastewater system, and other non-potable systems to individual consumers. ( )

47. Operating Personnel. Any person who is employed, retained, or appointed to conduct the tasks associated with the day-to-day operation and maintenance of a public wastewater system. Operating personnel shall include every person making system control or system integrity decisions about water quantity or water quality that may affect public health. ( )

48. Owner. The person, company, corporation, district, association or other organizational entity that owns the public wastewater system, and who provides, or intends to provide, wastewater service to system users and is ultimately responsible for the public wastewater system operation. ( )

49. Peak Instantaneous Flow. The design peak instantaneous flow is the instantaneous maximum flow rate to be received. See also the definition of Wastewater Flows. ( )

50. Peak Hour Flow. The design peak hour flow is the largest volume of flow to be received during a one (1) hour period expressed as a volume per unit time. See also the definition of Wastewater Flows. ( )

51. Person. An individual, public or private corporation, partnership, association, firm, joint stock company, joint venture, trust, estate, state, municipality, commission, political subdivision of the state, state or federal

agency, department or instrumentality, special district, interstate body or any legal entity, which is recognized by law as the subject of rights and duties. ( )

52. Point Source. Any discernible, confined, and discrete conveyance, including, but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are, or may be, discharged to surface waters of the state. This term does not include return flows from irrigated agriculture, discharges from dams and hydroelectric generating facilities or any source or activity considered a nonpoint source by definition. ( )

53. Pollutant. Dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, silt, cellar dirt; and industrial, municipal and agricultural waste, gases entrained in water; or other materials which, when discharged to water in excessive quantities, cause or contribute to water pollution. Provided however, biological materials shall not include live or occasional dead fish that may accidentally escape into the waters of the state from aquaculture facilities. ( )

54. Potable Water. A water which is free from impurities in such amounts that it is safe for human consumption without treatment. ( )

55. Potable Mains. Pipelines that deliver potable water to multiple service connections. ( )

56. Potable Service. Pipelines that convey potable water from a connection to the potable water main across private property to individual consumers. ( )

57. Preliminary Engineering Report. The preliminary engineering report for the municipal wastewater treatment or disposal facility is the report that addresses specific portions of the systems as they are being contemplated for design. These reports address specific purpose and scope, design requirements, alternative solutions, costs, operation and maintenance requirements, and other requirements as described in Section 411. Preliminary engineering reports are generally project specific as opposed to an overall system-wide plan, such as a facility plan. ( )

58. Primary Treatment. Processes or methods that serve as the first stage treatment of wastewater, intended for removal of suspended and settleable solids by gravity sedimentation; provides no changes in dissolved and colloidal matter in the sewage or wastes flow. ( )

59. Private Municipal Wastewater Treatment Plant. A wastewater facility that treats municipal wastewater and is under private ownership. These systems are typically initially owned, operated, and maintained by a developer with the ownership, operation and maintenance transferring to a homeowners association, or similar entity as lots are sold within the development. ( )

60. Public Wastewater System or Wastewater System. A public wastewater system or wastewater system is any publicly or privately owned collection system or treatment system that generates, collects, treats, or disposes of two thousand five hundred (2,500) or more gallons of wastewater per day. This does not include: ( )

a. Any animal waste system used for agricultural purposes that have been constructed in part or whole by public funds; or ( )

b. Any industrial or other nonmunicipal wastewater system which is covered under Section 401 of these rules. ( )

61. Qualified Licensed Professional Engineer (QLPE). A professional engineer licensed by the state of Idaho; qualified by education or experience in the specific technical fields involved in these rules; and retained or employed by a city, county, quasi-municipal corporation, or regulated public utility for the purposes of plan and specification review. ( )

62. Quasi-Municipal Corporation. A public entity, other than community government, created or authorized by the legislature to aid the state in, or to take charge of, some public or state work for the general welfare.

For the purpose of these rules, this term refers to wastewater or sewer districts. ( )

63. Receiving Waters. Those waters which receive pollutants from point or nonpoint sources. ( )

64. Recharge. The process of adding water to the zone of saturation. ( )

65. Recharge Water. Water that is specifically utilized for the purpose of adding water to the zone of saturation. ( )

66. Redundancy. Redundancy for wastewater treatment and disposal facilities is generally focused on supplying or installing backup equipment and facilities to make the operation of the systems more reliable. These redundant systems are sometimes required to provide backup for emergencies, taking certain processes off-line, or for treating spikes in wastewater flow or strength. ( )

67. Reliability. Reliability for wastewater collection and treatment and disposal facilities is usually based on its ability to consistently handle the wastewater flows in the community and to meet the requirements of its permit. This reliability is in part based on the redundancy built into the wastewater infrastructure and proper maintenance of the system. ( )

68. Reasonably Accessible. The following criteria shall be used to determine whether a project proposing a new private municipal wastewater treatment plant, or a material modification or expansion of an existing private municipal wastewater treatment plant, is reasonably accessible to a public municipal wastewater collection system. ( )

a. For an existing private municipal wastewater treatment plant, reasonably accessible means the public municipal wastewater collection system becomes located within a minimum of one thousand (1,000) feet of any portion of the discharge piping of a private municipal wastewater treatment plant, and the owner of the public municipal wastewater collection system will provide a "will serve" letter. ( )

b. For a proposed project which includes a new private municipal wastewater treatment plant, reasonably accessible means the public municipal wastewater collection system is located within a minimum of one thousand (1,000) feet of any portion of the proposed development or existing development property boundary, and the owner of the public municipal wastewater collection system will provide a "will serve" letter. ( )

c. The Department may determine that a private municipal wastewater treatment plant may be reasonably accessible to the public municipal wastewater collection system at distances greater than those distances specified in Paragraphs a. or b. of this Subsection based on site-specific factors. ( )

69. Responsible Charge (RC). For purposes of Sections 202 through 204, responsible charge means, active, daily on-site or on-call responsibility for the performance of operations or active, on-going, on-site or on-call direction of employees and assistants. ( )

70. Responsible Charge Operator. For purposes of Sections 202 through 204, a responsible charge operator is an operator licensed at a class equal to or greater than the classification of the system and who has been designated by the system owner to have direct supervision of and responsibility for the performance of operations of a specified wastewater treatment system(s) or wastewater collection system(s) and the direction of personnel employed or retained at the same system. The responsible charge operator has an active daily on-site or on-call presence at the specified facility. ( )

71. Reuse. The use of reclaimed wastewater for beneficial uses including, but not limited to, land treatment, irrigation, ground water recharge using surface spreading, seepage ponds, or other unlined surface water features. ( )

72. Reviewing Authority. For those projects requiring preconstruction approval by the Department, the Department is the reviewing authority. For those projects allowing for preconstruction approval by others, pursuant to Subsection 400.03.b. of these rules, the Qualified Licensed Professional Engineer (QLPE) is also the

reviewing authority. ( )

73. Sanitary Sewer Extension. As used in Section 400, an extension of an existing wastewater collection system that does not require a lift station or force main and is intended to increase the service area of the wastewater collection system. ( )

74. Secondary Treatment. Processes or methods for the supplemental treatment of wastewater, usually following primary treatment, to affect additional improvement in the quality of the treated wastes by biological means of various types which are designed to remove or modify organic matter. ( )

75. Septage. Septage is a general term for the contents removed from septic tanks, portable vault toilets, privy vaults, wastewater holding tanks, very small wastewater treatment plants, or semi-public facilities (i.e., schools, motels, mobile home parks, campgrounds, small commercial endeavors) receiving wastewater from domestic sources. Non-domestic (industrial) wastes are not included in this definition. This does not include drinking water treatment residuals that may be held in a holding tank. ( )

76. Septage Transfer Station. A place where septage from more than one (1) hauler is accumulated for collection and subsequent removal without processing to a treatment facility. ( )

77. Sewage. The water-carried human or animal waste from residences, buildings, industrial establishments or other places, together with such ground water infiltration and surface water as may be present. ( )

78. Simple Wastewater Main Extension. New or replacement wastewater main(s) that require plan and specification review per these rules and that will be connected by gravity, without the use of pumps or lift stations, to existing wastewater collection facilities that have the capacity to carry the additional wastewater flow. ( )

79. Sludge. The semi-liquid mass produced and removed by the wastewater treatment process. ( )

80. Special Resource Water. Those specific segments or bodies of water which are recognized as needing intensive protection: ( )

a. To preserve outstanding or unique characteristics; or ( )

b. To maintain current beneficial use. ( )

81. State. The state of Idaho. ( )

82. Substitute Responsible Charge Operator. A public wastewater operator holding a valid license at a class equal to or greater than the public wastewater system classification, designated by the system owner to replace and to perform the duties of the responsible charge operator when the responsible charge operator is not available or accessible. ( )

83. Surface Water Body. All surface accumulations of water, natural or artificial, public or private, or parts thereof which are wholly or partially within, which flow through or border upon the state. This includes, but is not limited to, rivers, streams, canals, ditches, lakes, and ponds. It does not include private waters as defined in Section 42-212, Idaho Code. ( )

84. Total Maximum Daily Load (TMDL). The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources, and natural background. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality. ( )

85. Treatment. A process or activity conducted for the purpose of removing pollutants from

wastewater. ( )

86. Treatment Facility. Any physical facility or land area for the purpose of collecting, treating, neutralizing or stabilizing pollutants including treatment plants; the necessary collecting, intercepting, outfall and outlet sewers; pumping stations integral to such plants or sewers; disposal or reuse facilities; equipment and furnishing thereof; and their appurtenances. For the purpose of these rules, a treatment facility may also be known as a treatment system, a wastewater system, wastewater treatment system, wastewater treatment facility, or wastewater treatment plant. ( )

87. User. Any person served by a public wastewater system. ( )

88. Very Small Wastewater System. A public wastewater system that serves five hundred (500) connections or less and includes a collection system with a system size of six (6) points or less on the system classification rating form (Section 202) and is limited to only one (1) of the following wastewater treatment processes: ( )

a. Aerated lagoons; ( )

b. Non-aerated lagoon(s); ( )

c. Primary treatment; or ( )

d. Primary treatment discharging to a large soil absorption system (LSAS). ( )

89. Wastewater. Any combination of liquid or water and pollutants from activities and processes occurring in dwellings, commercial buildings, industrial plants, institutions and other establishments, together with any ground water, surface water, and storm water that may be present; liquid or water that is chemically, biologically, physically or rationally identifiable as containing blackwater, gray water or commercial or industrial pollutants; and sewage. ( )

90. Wastewater Flows. The following flows for the design year shall be identified as required and used as a basis for design of sewer systems including sewer mains, lift stations, wastewater treatment plants, treatment units, and other wastewater handling facilities. The definition contained in this Subsection applies where any of the terms defined in Paragraphs a. through e. are used in these rules. ( )

a. Average Day Flow. The average day flow is the average of daily volumes to be received for a continuous twelve (12) month period expressed as a volume per unit time. However, the average day flow for design purposes for facilities having critical seasonal high hydraulic loading periods, such as recreational areas or industrial facilities, shall be based on the average day flow during the seasonal period. ( )

b. Maximum Day Flow. The design maximum day flow is the largest volume of flow to be received during a continuous twenty-four (24) hour period expressed as a volume per unit time. ( )

c. Maximum Month Flow. The maximum month flow is the largest volume of flow to be received during any calendar month expressed as a volume per unit time. ( )

d. Peak Instantaneous Flow. The design peak instantaneous flow is the instantaneous maximum flow rate to be received. ( )

e. Peak Hour Flow. The design peak hour flow is the largest volume of flow to be received during a one (1) hour period expressed as a volume per unit time. ( )

91. Wastewater Lagoon. Manmade impoundments for the purpose of storing or treating wastewater. ( )

92. Wastewater Pipelines. The pipelines that collect and convey non-potable discharges from or to multiple service connections. ( )

93. Wastewater Pumping Station. A wastewater facility that collects wastewater from the collection system or the treatment system and pumps it to a higher elevation. Also called lift station or wastewater lift station. ( )

94. Wastewater System Operator. The person who is employed, retained, or appointed to conduct the tasks associated with routine day to day operation and maintenance of a public wastewater treatment or collection system in order to safeguard the public health and environment. ( )

95. Water Main Extension. An extension of the distribution system of an existing public water system that does not require a booster pumping station and is intended to increase the service area of the water system. ( )

96. Water Pollution. Any alteration of the physical, thermal, chemical, biological, or radioactive properties of any waters of the state, or the discharge of any pollutant into the waters of the state, which will or is likely to create a nuisance or to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to fish and wildlife, or to domestic, commercial, industrial, recreational, aesthetic, or other beneficial uses. ( )

97. Waters and Waters of the State. All the accumulations of water, surface and underground, natural and artificial, public and private, or parts thereof which are wholly or partially within, which flow through or border upon the state. ( )

98. Watershed. The land area from which water flows into a stream or other body of water which drains the area. ( )

011. -- 200. (RESERVED)

201. POINT SOURCE WASTEWATER TREATMENT REQUIREMENTS.

01. Appropriate Control Measures. The Department, through approval or disapproval of plans for wastewater treatment and disposal facilities, the issuance of wastewater discharge permits, orders, compliance schedules, directives or any of the mechanisms at its disposal, will require persons to apply appropriate control measures necessary to achieve and maintain the water quality standards contained in IDAPA 58.01.02, "Water Quality Standards." ( )

02. Degree of Treatment. The degree of wastewater treatment required to restore and maintain the standards of quality will be determined in each instance by the Department, based upon the following: ( )

a. The uses which are made or desired of the receiving water; ( )

b. The volume and nature of flow of the receiving water; ( )

c. The quantity and quality of the wastewater to be treated; and ( )

d. The presence or absence of other sources of water pollution on the same watershed, stream segment or aquifer. ( )

03. Operation. Any person who owns or operates any sewage or other wastewater treatment facility must at all times: ( )

a. Ensure that such facility is operated under competent supervision and with the highest efficiency that can reasonably be expected; and ( )

b. Maintain such facility in good repair. ( )

04. Treatment Records. Any person who owns or operates any facility or carries out any operation

which results in the discharge of wastewater must furnish to the Department such information concerning quality and quantity of discharged wastewaters and maintain such treatment records as the Department requires to evaluate the effects of any receiving waters. Required information can include, but is not limited to: ( )

a. Treated wastewater discharge volumes; and ( )

b. Treated wastewater discharge biochemical oxygen demand (BOD); and ( )

c. Treated wastewater discharge suspended solid concentration; and ( )

d. Discharge pH; and ( )

e. Discharge temperatures. ( )

05. Falsification of Records. It is a violation of these rules for any person to falsify or knowingly render inaccurate any treatment record which can be required as provided in these regulations. ( )

202. CLASSIFICATION OF PUBLIC WASTEWATER SYSTEMS.

01. Classification Requirement. All public wastewater systems shall be classified based on indicators of potential health risks. ( )

a. Classification rating forms developed in accordance with the criteria in Subsection 202.02 must be completed by the public wastewater system owner or designee for every public wastewater treatment system and wastewater collection system no later than July 1, 2008. Public wastewater treatment and wastewater collection system owners or designee shall submit additional classification rating forms at five (5) year intervals or when directed by the Department to submit a revised classification rating form. ( )

b. The Department shall review system classification rating forms and issue the final system classification. ( )

02. Classification Criteria. Public wastewater treatment systems and wastewater collection systems shall be classified under a system that uses the following criteria: ( )

a. Complexity, size, volume and variability in raw waste for treatment systems using guidelines established by the Department. ( )

b. Complexity or size of collection systems. ( )

c. Other criteria deemed necessary to completely classify systems. ( )

203. PUBLIC WASTEWATER SYSTEM OPERATOR LICENSURE REQUIREMENTS.

01. System Operator Licensure Requirement. Owners of all public wastewater systems must place the direct supervision of their wastewater system(s), including each treatment system and each collection system or each very small wastewater system, under the responsible charge of an operator who holds a valid license equal to or greater than the classification of each treatment system and each collection system or each very small wastewater system. An operator in responsible charge of both a wastewater treatment system and a collection system shall hold two (2) licenses, one (1) for wastewater treatment and one (1) for collection, with the exception of a very small wastewater system for which the responsible charge operator may hold a single very small wastewater system license. Owners shall notify the Department in writing of any change of responsible charge or substitute responsible charge operator within thirty (30) days of such change. ( )

02. Responsible Charge Operator License Requirement. An operator in responsible charge of a public wastewater system in Idaho must hold a valid license equal to or greater than the classification of the wastewater system(s), including each treatment system and each collection system or each very small wastewater system, as determined by the Department. ( )

03. Substitute Responsible Charge Operator. At such times as the responsible charge operator is not available, a substitute responsible charge operator shall be designated to replace the responsible charge operator. ( )

04. Wastewater System Operator Licensure. All other operating personnel at public wastewater systems, including each treatment system and each collection system or each very small wastewater system, must hold a valid license issued by the Idaho Bureau of Occupational Licenses. ( )

05. Wastewater System Operator Licensure Exceptions. ( )

a. Any public wastewater system operating personnel that exclusively operate a Class A Effluent Distribution System of a Class A Municipal Reclaimed Wastewater System permitted in accordance with IDAPA 58.01.17, "Recycled Water Rules," are not subject to operator licensure requirements as outlined in these rules. ( )

b. Any non-pressurized drainfield and associated septic tank and collection system operating personnel are not subject to operator licensure requirements. ( )

06. General Compliance Deadline. All public wastewater systems addressed in Sections 202 and 203 shall be in compliance with these rules by April 15, 2006. ( )

07. Land Application/Reuse Operator Compliance Deadline. Each public wastewater land application/reuse system addressed in these rules shall employ, retain or contract with licensed land application/reuse operating personnel by April 15, 2007. ( )

204. CONTRACTING FOR SERVICES.
Public wastewater systems may contract with properly licensed operating personnel to provide responsible charge operators and substitute responsible charge operators. Proof of such contract shall be submitted to the Department prior to the contracted operating personnel performing any services at the public wastewater system. ( )

205. -- 259. (RESERVED)

260. SUBSURFACE SEWAGE OR WASTE DISPOSAL.
Subsurface sewage or wastewater disposal facilities must be designed and located so that pollutants cannot be reasonably expected to enter water of the state in concentrations resulting in injury to beneficial uses. See also IDAPA 58.01.03, "Individual/Subsurface Sewage Disposal Rules." ( )

261. -- 399. (RESERVED)

400. REVIEW OF PLANS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES.
Plans and specifications for municipal wastewater treatment or disposal facilities must comply with the facility and design standards set forth in Sections 410 through 599. If design issues are not addressed by the facility and design standards, then guidance documents, some of which are listed in Section 008, shall be used as guidance in the design and review of plans and specifications for municipal wastewater treatment or disposal facilities. See also Section 007. ( )

01. Ownership. Documentation of the ownership and responsibility for operating the proposed system shall be made available to the Department prior to or concurrent with the submittal of plans and specifications as required in Subsection 400.03. The documentation must show the financial arrangements adequate to demonstrate the ability for construction and operation and maintenance of the system according to these rules. Documentation shall also include the name of the wastewater system; the name, address, and phone number of the wastewater treatment facility; and the name, address, and phone number of the responsible charge operator. ( )

02. Connection to Existing System. If the proposed project is to be connected to an existing wastewater system, a letter from the existing system must be submitted to the Department stating that the existing

system will be able to provide services to the proposed project. The Department may require further documentation showing the ability of the existing system to provide service to the new system. This letter must be submitted prior to or concurrent with the submittal of plans and specifications as required in Subsection 400.03. ( )

03. Plan and Specification Review. ( )

a. Except as provided in Subsection 400.03.b., all plans and specifications for the construction of new sewage systems, sewage treatment plants or systems, other municipal wastewater treatment or disposal facilities, or for material modifications to existing sewage treatment plants or systems, municipal wastewater treatment or disposal facilities shall be submitted to the Department for review and approval before construction may begin and all construction shall be in substantial compliance therewith. This does not include plan and specifications for facilities for sludge disposal, but does include plans and specifications for treatment or storage of sludge. If construction does not commence within twelve (12) months of the Department's final approval of plans and specifications, the Department may require resubmittal of all or part of the plans and specifications for review. The Department shall review plans and specifications and endeavor to resolve design issues within forty-two (42) calendar days of submittal such that approval can be granted. If the Department and applicant have not resolved design issues within forty-two (42) calendar days or at any time thereafter, the applicant may file a written demand to the Department for a decision. Upon receipt of such written demand, the Department shall deliver a written decision to the applicant within no more than seven (7) calendar days explaining any reasons for disapproval. The Department shall maintain records of all written demands for decision made pursuant to Subsection 400.03.a. with such records including the final decision rendered and the timeliness thereof. No material deviation shall be made to the approved plans and specifications without the prior approval of the Department. ( )

b. Plans developed for simple wastewater main extensions, when such facilities will be owned and operated by a city, county, quasi-municipal corporation or regulated public utility, shall not require preconstruction approval by the Department, provided that such plans and specifications are reviewed and approved by a QLPE to verify compliance with the requirements of these rules prior to initiation of construction. At the discretion of the city, county, quasi-municipal corporation or regulated public utility, the plans addressed by this subsection may be referred to the Department for review and approval prior to initiation of construction. The Department has the authority to review plans and specifications approved by a QLPE and can require modifications if the plans and specifications do not meet facility and design standards. Any plans and specifications approved pursuant to Subsection 400.03.b. shall be transmitted to the Department at the time construction is authorized and shall be marked or stamped as "Approved for Construction." Along with the plans and specifications, the transmittal must include the items listed in Subsections 400.03.b.i. through 400.03.b.vii. The plans and specifications must be sealed, signed, and dated by the professional engineer in responsible charge of their preparation, and the approval or transmittal letter must be sealed, signed, and dated by the QLPE that is approving the plans and specifications. ( )

i. A statement that the author of the transmittal letter is the QLPE representing the city, county, quasi-municipal corporation or regulated public entity. ( )

ii. A statement that the extension project complies with the current facility plan or preliminary engineering report, or a statement that the sewer system/treatment facility has adequate capacity. ( )

iii. A statement from the city, county, quasi-municipal corporation or regulated public entity or its authorized agent that the wastewater system owner will serve the project. ( )

iv. A statement from the city, county, quasi-municipal corporation or regulated public entity or its authorized agent that the wastewater system owner will own and operate the project after construction is complete. ( )

v. A statement by the QLPE that the plans and specifications are approved for construction. ( )

vi. A statement by the QLPE that the plans and specifications comply with the facility standards within these rules. ( )

vii. A statement recommending whether sanitary restrictions can be released or should remain in force. ( )

c. Subsections 400.03.c.i. through 400.03.c.vi. outline the projects which QLPEs may approve and which QLPEs may not approve. ( )

i. A QLPE may approve plans and specifications for simple wastewater main extensions that will be able to discharge to an existing wastewater system owned by a city, county, quasi-municipal corporation, or regulated public utility at the time the extension is approved for construction by the QLPE. ( )

ii. A QLPE may approve plans for simple wastewater main extensions which will discharge to an existing wastewater system owned by a city, county, quasi-municipal corporation, or regulated public utility, but are unable to connect to the system at the time the extension is approved for construction by the QLPE, provided sanitary restrictions remain in force for the proposed extension. ( )

iii. A QLPE may not approve plans and specifications which include mechanical systems such as lift stations or treatment works. ( )

iv. A QLPE may not approve plans and specifications for projects which the QLPE was the design engineer or otherwise involved in the design. ( )

v. A QLPE employed by a city, county, quasi-municipal corporation, or regulated public utility may approve a design that was prepared by a subordinate engineer or an engineer from a separate design group within the city, county, quasi-municipal corporation, or regulated public utility. ( )

vi. A QLPE who is not employed by a city, county, quasi-municipal corporation, or regulated public utility, but is retained by a city, county, quasi-municipal corporation, or regulated public utility for the purpose of plan and specification review may not approve projects designed by the company with which the QLPE is employed. ( )

04. Professional Engineer. Plans and specifications for construction, alteration or expansion of any sewage system, sewage treatment plant or system, or other municipal wastewater treatment or disposal facility shall be prepared by or under the supervision of an Idaho licensed professional engineer and shall bear the imprint of the engineer's seal. Construction shall be observed by an Idaho licensed professional engineer or a person under the supervision of an Idaho licensed professional engineer. ( )

05. Record Plans and Specification. ( )

a. Within thirty (30) calendar days of the completion of construction of facilities covered by Subsection 400.03, record plans and specifications based on information provided by the construction contractor and field observations made by the engineer or the engineer's designee depicting the actual construction of facilities performed, must be submitted to the Director by the engineer representing the city, county, quasi-municipal corporation or regulated public utility that owns the project, or by the design engineer or owner-designated substitute engineer if the constructed facilities will not be owned and operated by a city, county, quasi-municipal corporation or regulated public utility. Such submittal by the engineer must confirm material compliance with the approved plans and specifications or disclose material deviations therefrom. If the construction does not materially deviate from the approved plans and specifications, the owner may have a statement to that affect prepared by an Idaho licensed professional engineer and filed with the Department in lieu of submitting a complete and accurate set of record drawings. ( )

b. Record plans and specifications, or a statement submitted in lieu of record plans and specifications, must be sealed, signed, and dated by the professional engineer in responsible charge of their preparation. ( )

06. Compliance With Applicable Standards and Rules. All plans and specifications submitted to satisfy the requirements of Sections 400 through 599 or approved in compliance with Sections 400 through 599, shall be in compliance with the requirements of these rules and shall conform in style and quality to regularly accepted engineering standards. The Department shall review plans and specifications to determine compliance with these rules and engineering standards of care. If the plans and specifications comply with these rules and engineering standards of care, the Department shall not substitute its judgment for that of the owner's design engineer concerning

the manner of compliance with these rules. ( )

07. Waiver of Approval Requirement. The Department may waive the plan and specification approval for any particular facility or category of facilities which will have no significant impact on the environment or on the public health. ( )

08. Requirement to Have Approved Plans and Specifications and Approval Letter On-site During Construction. It is the responsibility of the owner to maintain one (1) copy of the approved plans and specifications and the approval letter from the reviewing authority on-site during construction at all times. ( )

09. Construction Inspection Requirement. Except as provided in Subsection 400.03.b., no construction shall commence until all of the necessary approvals have been received from the Department. The owner shall provide for the inspection of the construction of a municipal wastewater treatment or disposal facility by an Idaho licensed professional engineer to the extent required to confirm material compliance with the approved plans and to produce accurate record documents as required by Subsection 400.05. ( )

401. REVIEW OF PLANS FOR NONMUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES.

01. Plan and Specification Approval Required. The construction, alteration or expansion of any nonmunicipal wastewater treatment or disposal facility must not begin before plans and specifications for the proposed facility have been submitted to and approved by the Department. Deviations may be allowed as provided in Subsection 401.02. The Department does not require review of industrial in-plant processes. ( )

02. Deviations from Approved Plans. No material deviations are to be made from the approved plans and specifications without prior approval of the Department. ( )

03. Professional Engineer. Plans and specifications for construction, alteration or expansion of any nonmunicipal wastewater treatment or disposal facility shall be prepared by or under the supervision of an Idaho licensed professional engineer and shall bear the imprint of the engineer's seal. Construction shall be observed by an Idaho licensed professional engineer or a person under the supervision of an Idaho licensed professional engineer. ( )

04. Record Plans and Specifications. ( )

a. If actual construction deviates from the approved plans and specifications, complete and accurate plans and specifications depicting the actual construction, alteration, or modification performed, shall be submitted to the Department for review and approval within thirty (30) days of completion of construction. If the construction does not materially deviate from the approved plans and specifications, the owner may have a statement to that effect prepared by an Idaho licensed professional engineer and filed with the Department in lieu of submitting a complete and accurate set of record drawings. ( )

b. Record plans and specifications, or a statement submitted in lieu of record plans and specifications, must be sealed, signed, and dated by the professional engineer in responsible charge of their preparation. ( )

05. Waiver of Approval Requirement. The Department can waive the plan and specification approval required in Subsection 401.01 for any particular facility or category of facilities which will have no significant impact on the environment or on the public health. ( )

06. Applicability of Standards. The facility and design standards for municipal wastewater treatment or disposal facilities set out in these rules do not apply to nonmunicipal wastewater treatment or disposal facilities covered under Section 401. ( )

402. PLAN AND SPECIFICATION REVIEW DISPUTE RESOLUTION.

The Department's plan and specification review dispute resolution policy is set out in PS20-08 at https://www.deq.idaho.gov. ( )

403. -- 408. (RESERVED)

409. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: DEMONSTRATION OF TECHNICAL, FINANCIAL, AND MANAGERIAL CAPACITY.

No person shall proceed, or cause to proceed, with construction of a new public wastewater system, a new private municipal treatment plant, a new wastewater treatment facility, or a new privately owned wastewater pumping station until it has been demonstrated to the Department that the wastewater system will have adequate technical, financial, and managerial capacity, as defined in Section 010 of these rules. Demonstration of capacity shall be submitted to the Department prior to or concurrent with the submittal of plans and specifications, as required in Section 39-118, Idaho Code, and Subsection 400.03 of these rules. The Department shall issue in writing its approval of the new system capacity demonstration. ( )

01. Technical Capacity. In order to meet this requirement, the public wastewater system shall submit documentation to demonstrate the following: ( )

a. The system meets the relevant design, construction, and operating requirements of these rules; ( )

b. A plan is in place to deal with emergencies; ( )

c. A plan exists for replacement or improvement of infrastructure as necessary; and ( )

d. The system has trained personnel with an understanding of the technical and operational characteristics of the system. ( )

02. Financial Capacity. A demonstration of financial capacity must include, but is not limited to, the following information: ( )

a. Documentation that organizational and financial arrangements are adequate to construct and operate the wastewater system in accordance with these rules. This information can be provided by submitting estimated construction, operation, and maintenance costs, letters of credit, or other access to financial capital through public or private sources and, if available, a certified financial statement; ( )

b. Demonstration of revenue sufficiency, that includes, but is not limited to, billing and collection procedures; a proposed rate structure which demonstrates the availability of operating funds; revenues for depreciation and reserves; and the ability to accrue a capital replacement fund. A preliminary operating budget shall be provided; and ( )

c. Adequate fiscal controls must be demonstrated. ( )

d. For private municipal wastewater treatment plants, a performance bond, maintenance bond, or cash reserve of one (1) year of operation and maintenance costs is required to ensure continuous and adequate operation and maintenance. ( )

03. Managerial Capacity. In order to demonstrate adequate managerial capacity, the owner or operator of a new wastewater system shall submit at least the following information to the Department: ( )

a. Clear documentation of legal ownership and any plans that may exist for transfer of that ownership upon completion of construction or after a period of operation; ( )

b. The name, address, and telephone number of the person who will be accountable for ensuring that the wastewater system is in compliance with these rules; ( )

c. The name, address, and telephone number of the responsible charge operator; ( )

d. A description of the manner in which the wastewater system will be managed. Information such as

by-laws, restrictive covenants, articles of incorporation, or procedures and policy manuals which describe the management organizational structure shall be provided; ( )

e. A recommendation of staff qualifications, including training, experience, certification or licensing, and continuing education; ( )

f. An explanation of how the wastewater system will establish and maintain effective communications and relationships between the wastewater system management, its customers, professional service providers, and any applicable regulatory agencies; and ( )

g. Evidence of planning for future growth, equipment repair and maintenance, and long term replacement of system components. ( )

04. Consolidation. In demonstrating new system capacity, the owner of the proposed new system must investigate the feasibility of obtaining wastewater service from an established public wastewater system. If such service is available, but the owner elects to proceed with an independent system, the owner must explain why this choice is in the public interest in terms of environmental protection, affordability to wastewater users, and protection of public health. ( )

410. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: FACILITY PLANS.

01. Facility Plans Required. All new municipal wastewater treatment or disposal facilities, and all existing municipal wastewater treatment or disposal facilities undergoing material modification or expansion, are required to have a current facility plan that shall address all applicable issues specifically required in Sections 410 and 420 through 599 of these rules including, but not limited to, hydraulic capacity, treatment capacity, project financing, and operation and maintenance considerations. The facility plan shall address these issues sufficiently to determine the effects of the project on the overall wastewater infrastructure. Material modification or expansion that requires a facility plan includes upgraded, or rehabilitated municipal wastewater treatment or disposal facilities and major collection, interceptor sewer, pump station projects, and septage transfer station projects. Facility plans must address the entire potential service area of the project. A facility plan may be completed for collection systems only. If such a collection system facility plan is prepared, and flows increase in excess of the design capacity of downstream collection and treatment facilities, the impact of the flow shall be addressed in the facility plan. ( )

a. Department-reviewed simple wastewater main extension projects. A facility plan is not required if the Department is provided documentation supporting the ability of the wastewater system to provide service for the simple wastewater main extension without adding wastewater pumping stations or treatment capacity to the system and without overloading the existing collection system. Documentation may be in the form of: ( )

i. Hydraulic modeling; ( )

ii. Usage data and flow calculations; ( )

iii. Declining balance reports that demonstrate the system has the capacity to supply the service area of the system served by the extension; or ( )

iv. Other documentation acceptable to the Department. ( )

b. QLPE-Reviewed Simple Wastewater Main Extension Projects. A Department-approved facility plan is not required to be in place prior to the QLPE approving simple wastewater main extensions pursuant to Subsection 400.03.b., provided that the system is in compliance with the facility and design standards in the area served by the extension. If the Department has not approved a facility plan which covers the proposed simple wastewater main extension, then the system owner or the QLPE must include with the transmittal letter documentation supporting the ability of the system owner to provide service for the simple wastewater main extension without adding wastewater pumping stations or treatment capacity to the system and without overloading the existing collection system. The system owner shall provide this documentation to the QLPE as necessary. Documentation may be in the form of: ( )

i. Hydraulic modeling; ( )

ii. Usage data and flow calculations; ( )

iii. Declining balance reports that demonstrate the system has the capacity to supply the service area of the system served by the extension; or ( )

iv. Other documentation acceptable to the Department. ( )

02. Submittal to Department. Facility plans shall be submitted to the Department for review and approval prior to the submission of plans and specifications for a project related to the facility plan. ( )

03. Engineer's Seal Required. Facility plans submitted to the Department shall bear the imprint of an Idaho licensed professional engineer's seal that is both signed and dated by the engineer. ( )

04. Facility Plan Contents. The facility plan shall assemble basic information, present criteria and assumptions, and examine alternative solutions with preliminary layouts and cost estimates. The facility plan is intended to address system wide growth, to identify system deficiencies, and to lay out a plan for system upgrades and expansion. The minimum requirements for a facility plan are located in Subsections 410.04.a. through 410.04.c. If specific items are not applicable to a particular facility plan, then the engineer shall state this in the facility plan and state the reason why it is not applicable. ( )

a. New Wastewater System Facility Plan. The facility plan for a new wastewater system must include sufficient detail to support the requirements of Sections 410 through 520 and address the items listed in Subsections 410.04.a.i. through 410.04.a.vii. of this rule. ( )

i. Location. Provide a general description and location of the system including service boundaries. ( )

ii. Population. Provide the estimated design population of the system. ( )

iii. Wastewater flows. Provide design data for domestic, commercial, and industrial wastewater generation, including average day, maximum day, maximum month, or peak hour flows. ( )

iv. Collection. Identify and describe any anticipated or proposed wastewater collection systems. Include specific detail on any anticipated or proposed wastewater pumping stations and on any anticipated or proposed wastewater interceptor or trunk lines. ( )

v. Treatment. Identify and describe any anticipated or proposed treatment works. Provide specific detail on the type and level of treatment and the required capacity of the treatment system. ( )

vi. Disposal. Identify and describe any anticipated or proposed wastewater disposal system(s). Include specific information on the location and method of disposal and information on any existing disposal permits or estimated timelines to obtain anticipated required permits. ( )

vii. Drinking water. Describe the drinking water distribution system with reference to the relationship to existing or proposed wastewater structures which may affect the operation and location of the wastewater system. ( )

b. Existing Wastewater System Facility Plan. The facility plan for an existing wastewater system must include sufficient detail to support the requirements of Sections 410 through 520, address all items in Subsections 410.04.a.i. through 410.04.a.vii., and address all items in Subsections 410.04.b.i. through 410.04.b.viii. ( )

i. Provide a hydraulic analysis of the collection system if requested by the Department. Any analysis of an existing collection system shall be properly calibrated. The type and sophistication of the analysis shall be dependent on the type of the system. ( )

ii. Identify and evaluate problems or deficiencies related to the wastewater system. ( )

iii. Identify the design capacity of existing facilities and the current operating flows. ( )

iv. Describe financing options for projects identified in the facility plan. ( )

v. Set forth anticipated charges for users. ( )

vi. Review organizational and staffing requirements. ( )

vii. Offer a project(s) recommendation for client consideration. ( )

viii. Outline official actions and procedures to implement the project. ( )

c. Wastewater System Facility Plan Funded by the State Revolving Fund. If the project is funded by the state revolving fund or a state grant, the facility plan must meet the requirements of Subsections 410.04.a. and 410.04.b., and other requirements that may also apply. See IDAPA 58.01.12 "Rules for Administration of Water Pollution Control Loans," and IDAPA 58.01.04, "Rules for Administration of Wastewater Treatment Facility Grants." ( )

d. Facility Plan Guidance. A checklist which can be used for guidance can be found on the DEQ website at http://www.deq.idaho.gov. This checklist is for Department grant and loan projects, but may be used in part or in whole as a guide to assist in the development of any facility plan. ( )

411. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: PRELIMINARY ENGINEERING REPORTS.

01. Preliminary Engineering Reports Required. Preliminary engineering reports are required for municipal wastewater treatment or disposal facility projects that require plan and specification review and approval pursuant to Subsection 400.03 and shall address all applicable issues specifically required in Sections 411 through 599 of these rules including, but not limited to, purpose, scope, hydraulic capacity, treatment capacity, and operation and maintenance considerations sufficiently to determine the effects of the project on the overall wastewater infrastructure. Preliminary engineering reports must be completed for major wastewater collection system projects, all pump station projects, all treatment plant designs and upgrades, and all septage transfer stations. Preliminary engineering reports are not required for simple wastewater main extensions that are approved in accordance with Subsections 410.01.a. or 410.01.b. ( )

02. Submittal to Reviewing Authority. Preliminary engineering reports shall be submitted to the Department for review and must be approved by the Department prior to the submission of plans and specifications. ( )

03. Preliminary Engineering Report Contents. The preliminary engineering report must include sufficient detail to demonstrate that the proposed project meets applicable criteria. The preliminary engineering report generally addresses project specific issues rather than the overall system-wide plan. The preliminary engineering report shall identify and evaluate wastewater related problems; assemble basic information; present criteria and assumptions; examine alternative solutions with preliminary layouts and cost estimates; offer a conclusion with a proposed project; and outline official actions and procedures to implement the project. The items included in Subsections 411.03.a. through 411.03.c., and other items specifically called for in Sections 426 through 599, shall be addressed in detail in the preliminary engineering report. If specific items are not applicable to a particular design, then the designer shall state this in the preliminary engineering report and state the reason why it is not applicable. Items adequately addressed in the facility plan under which the project is being designed, may be addressed by reference for purposes of the preliminary engineering report. ( )

a. Major Wastewater Collection System Projects. Items applicable to preliminary engineering reports for major wastewater collection system projects are listed in Subsections 411.03.a.i. through 411.03.a.vi. ( )

i. Coordination with Facility Plan. The preliminary engineering report shall discuss or reference items provided in the Department-approved facility plan. These items include, but are not limited to: ( )

(1) Location of project; ( )

(2) Population served by project; ( )

(3) Existing and proposed wastewater flows; ( )

(4) Existing and proposed collection system; ( )

(5) Existing and proposed treatment works; ( )

(6) Existing and proposed disposal methods; ( )

(7) Drinking water system impacts; ( )

(8) Hydraulic analysis; and ( )

(9) Financing methods. ( )

ii. Design criteria. The preliminary engineering report shall discuss and present the design criteria applicable to the proposed project. The design criteria includes, but is not limited to: ( )

(1) Wastewater flow rates including peak hour flows; ( )

(2) Current project fifty (50) year design and build-out conditions; ( )

(3) Piping size, material, and installation methods; ( )

(4) Depth of bury and slope; ( )

(5) Soil and ground water conditions; ( )

(6) Corrosion protection; and ( )

(7) Odor control. ( )

iii. Code provisions. The preliminary engineering report shall include a summary of applicable codes and standards that apply to the proposed project. ( )

iv. Cost estimate. The preliminary engineering report shall provide as applicable estimated construction costs for public works projects or projects funded by public monies. ( )

v. Construction schedule. The preliminary engineering report shall include the proposed construction schedule. ( )

vi. Environmental review. The preliminary engineering report shall include an environmental review. See the definition for environmental review in Section 010 for additional information. ( )

b. Wastewater Pump Station Projects. Items applicable to preliminary engineering reports for wastewater pump station projects include all items listed in Subsection 411.03.a. and items listed in Subsections 411.03.b.i. through 411.03.b.iv. ( )

i. Design criteria. The preliminary engineering report shall discuss and present the design criteria applicable to the proposed project. The design criteria includes, but is not limited to: ( )

(1) Wastewater flow rates including average day, maximum day, and peak hour flows; ( )

(2) Influent wastewater characteristics, including characteristics during periods of wet weather flows; ( )

(3) Size and configuration; and ( )

(4) Redundancy provisions. ( )

ii. Site evaluation and layout. The preliminary engineering report shall describe the proposed site and layout of the wastewater pumping station. This information includes, but is not limited to: ( )

(1) Currently proposed facilities; ( )

(2) Geotechnical investigation and provisions including buoyancy calculations if required; ( )

(3) Flood control provisions; ( )

(4) Security; ( )

(5) Operations and maintenance assessments; and ( )

(6) Odor management plans. ( )

iii. Instrumentation and control system. The preliminary engineering report shall discuss instrumentation and control that will be provided. This information includes, but is not limited to: ( )

(1) System configuration; ( )

(2) Operator interface; ( )

(3) Process and instrumentation diagrams; and ( )

(4) Alarm systems. ( )

iv. Emergency operation. The preliminary engineering report shall describe how the system will be operated during power outages, equipment failures, or other unforeseen system failures. ( )

c. Wastewater Treatment Plants. Items applicable to preliminary engineering reports for wastewater treatment plant designs and upgrades include all items listed in Subsection 411.03.a., Subsection 411.03.b., and Subsections 411.03.c.i. through 411.03.c.iv. ( )

i. Design criteria. The preliminary engineering report shall discuss and present the design criteria applicable to the proposed project. The design criteria includes, but is not limited to: ( )

(1) Wastewater flow rates including average day, maximum day, maximum month, and peak hour flows; ( )

(2) Effluent requirements; ( )

(3) Solids production, disposal, or recycling requirements; ( )

(4) Process units design criteria, process selection, and support data; ( )

(5) Mass balance calculations for process units including, but not limited to, flow and solids; and ( )

(6) Monitoring and reporting requirements. ( )

ii. Site evaluation and layout. The preliminary engineering report shall describe the proposed site and layout of the wastewater system. This information includes, but is not limited to: ( )

(1) Currently proposed facilities; ( )

(2) Facilities for twenty (20) year design conditions; ( )

(3) Facilities for build-out conditions; ( )

(4) Space for facilities potentially necessary to meet higher levels of treatment; ( )

(5) Liquid process facilities and conveyance; ( )

(6) Solids process facilities and conveyance; ( )

(7) Plant access and on-site roads and walkways; ( )

(8) Process piping and utilities; ( )

(9) Buffer zones; ( )

(10) Landscaping; ( )

(11) Administration and operations buildings; ( )

(12) Onsite laboratory facilities; and ( )

(13) Treatment during construction. ( )

iii. Hydraulic profile. The preliminary engineering report shall provide a hydraulic profile for the proposed system. This information includes, but is not limited to: ( )

(1) Twenty (20) year design facilities; ( )

(2) Provision for higher levels of treatment; ( )

(3) Receiving stream one hundred (100) year surface water elevation; and ( )

(4) Hydraulics and pipe sizing for build-out conditions. ( )

iv. Process units. The preliminary engineering report shall describe in detail the proposed process units and discuss how the proposed units will interface with any existing process units. This information includes, but is not limited to: ( )

(1) Current project and twenty (20) year design and build-out conditions; ( )

(2) Size and number of units and loading rates; ( )

(3) Redundancy provisions; ( )

(4) Equipment type, size, performance criteria, and power requirements; ( )

(5) Structure, equipment, and piping layout; ( )

(6) Special code requirements; ( )

(7) Cold temperature operation; and ( )

(8) Procedures required for initial start-up of process unit(s), including procedures required for handling initial system flows that are less than minimum flow requirements for the process unit(s). ( )

04. Engineer's Seal Required. Preliminary engineering reports submitted to the Department shall bear the imprint of an Idaho licensed professional engineer's seal that is both signed and dated by the engineer. ( )

412. -- 419. (RESERVED)

420. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: SUBMISSION OF PLANS AND SUPPORT DOCUMENTS.
Submissions to the reviewing authority for construction of municipal wastewater treatment or disposal facilities shall include sealed plans and specifications, design criteria, the appropriate construction permit applications, review forms, and permit fee if required. The plans and specifications shall contain sufficient detail to allow for the contracting and construction of the wastewater systems. ( )

421. -- 424. (RESERVED)

425. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: OPERATION AND MAINTENANCE MANUALS.

01. Manual Contents. An operation and maintenance manual or manuals shall be provided for all wastewater systems. The manual shall include, but is not limited to, the following contents: daily operating instructions, operator safety procedures, location of valves and other key system features, a parts list and parts order form(s), and information for contacting the responsible charge operators. An operational trouble-shooting section shall be supplied to the wastewater works as part of any proprietary unit installed in system facilities. ( )

02. Approval Required. Final operation and maintenance manuals for construction of wastewater systems that include lift stations or treatment works must be submitted to the Department for review and approval prior to start-up of the proposed system unless the system components are already covered in an existing manual. ( )

426. -- 429. (RESERVED)

430. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES -- DESIGN AND CONSTRUCTION OF WASTEWATER PIPELINES.

01. Design Capacity and Design Flow. In general, sewer capacities shall be designed for the estimated ultimate tributary population, except in considering parts of the systems that can be readily increased in capacity. ( )

02. Details of Design and Construction. ( )

a. Minimum Pipe Size. Minimum pipe size for gravity sewer mains shall be eight (8) inches in diameter. Minimum pipe size for gravity sewer services shall be four (4) inches in diameter. Pipe diameters larger than these minimums shall be based on cleaning capability and hydraulic capacity, and shall conform with the required planning documents. ( )

b. Depth. Wastewater pipelines shall be installed sufficiently deep or specifically designed to prevent freezing and to protect the facilities from surface loading. ( )

c. Buoyancy. Buoyancy of wastewater pipelines shall be considered and flotation of the pipe shall be prevented with appropriate construction where high groundwater conditions are anticipated. ( )

d. Slope. Gravity wastewater pipelines shall be designed to have sufficient slope and velocity to "self

clean" or transport constituent solids to the treatment facility. Justification for these slopes shall be included in the preliminary engineering report and shall be based on widely used guidance documents or published friction coefficients and Manning's formula. ( )

i. If the current or future ownership of the system is by a city, county, quasi-municipal corporation or regulated public utility and the velocities are less than self cleaning, the owner shall, as a condition of the Department's approval of plans and specifications, provide justification for the lower velocities and commit to, at a minimum, annually service wastewater pipelines to flush, transport, or remove solids from wastewater pipelines. This would include the use of cutting tools for roots, vactor trucks, and any other method required to keep the pipelines clean, intact and flowing. That commitment shall be in the form of a letter from both the owner and the future owner entity stating said commitment, and shall include a discussion of the current and future owners' capacity to do said flushing. ( )

ii. If the current or future ownership of the system is by a developer that is passing the operation and maintenance on to a homeowner's association or other similar entity, then the design shall not allow for velocities that are less than self cleaning. ( )

e. Materials. ( )

i. Any generally accepted material for wastewater pipelines will be given consideration. The material selected should be adapted to local conditions, such as: character of industrial wastes, possibility of septicity, soil characteristics, exceptionally heavy external loadings, abrasion, corrosion, and similar problems. ( )

ii. Couplings complying with applicable standard specifications shall be used for joining dissimilar materials. ( )

iii. For new pipe materials for which standards have not been established, the design engineer shall provide complete pipe specifications and installation specifications developed on the basis of criteria adequately documented and certified in writing by the pipe manufacturer to be satisfactory for the specific application. ( )

f. Installation. Installation specifications shall contain appropriate requirements based on the criteria, standards, and requirements established by industry in its technical publications. Reference current edition of the Idaho Standards for Public Works Construction for assistance in designing such specifications. ( )

g. Joints and Infiltration. ( )

i. The installation of joints and the materials used shall be included in the specifications. Wastewater pipeline joints shall be designed to minimize infiltration and to prevent the entrance of roots throughout the life of the system. Reference current edition of the Idaho Standards for Public Works Construction for assistance in designing such specifications. ( )

ii. Service connections to the wastewater pipeline main shall be water tight and not protrude into the wastewater pipelines. If a saddle type connection is used, it shall be a device designed to join with the types of pipe which are to be connected. All materials used to make service connections shall be compatible with each other and with the pipe materials to be joined and shall be corrosion proof. ( )

h. Manholes. Manholes shall be installed at the end of each line; at all changes in grade, size, or alignment; at all intersections. Cleanouts may be used only for special conditions and shall not be substituted for manholes nor installed at the end of laterals greater than one hundred fifty (150) feet in length. ( )

i. Testing. Testing shall conform with Section 501.3.4 of the "Idaho Standards for Public Works Construction," incorporated by reference into these rules at Section 004. ( )

j. Inverted Siphons. Inverted siphons shall have not less than two (2) barrels or pipes. They shall be provided with necessary appurtenances for maintenance, convenient flushing, and cleaning equipment. Design shall provide sufficient head and appropriate pipe sizes to secure sufficient velocities for design average flows. ( )

k. Wastewater Pipelines in Relation to Surface Water Bodies. The top of all wastewater pipelines entering or crossing surface water bodies shall be at a sufficient depth below the natural bottom of the bed or otherwise designed to protect the wastewater pipeline. ( )

i. Wastewater pipelines located adjacent to surface water bodies shall be located outside of the bed and sufficiently removed therefrom to provide for future possible stream widening and to prevent pollution by siltation during construction. ( )

ii. Structures. Wastewater pipeline outfalls, headwalls, manholes, gate boxes, or other structures shall be designed to address anticipated flood flows of the surface water bodies. ( )

iii. Alignment. Wastewater pipelines crossing surface water bodies should be designed to cross the surface water body as nearly perpendicular to the surface water body flow as possible and shall be free from change in grade. ( )

iv. Materials. Wastewater pipelines entering or crossing surface water bodies shall be constructed of water transmission pressure rated pipe with restrained joints conforming to Section 401.2.9 of the "Idaho Standards for Public Works Construction," incorporated by reference into these rules at Section 004, or other suitable pipe with restrained joints capable of being installed to remain watertight and free from changes in alignment or grade. Material used to back-fill the trench shall be concrete slurry, stone, coarse aggregate, washed gravel, or other materials which will not readily erode, cause siltation, damage pipe during placement, or corrode the pipe. ( )

v. Siltation and Erosion. Construction methods that will minimize siltation and erosion shall be employed. ( )

l. Aerial Crossings. Support shall be provided for all joints in pipes utilized for aerial crossings. Restrained joints or structural casings are required. ( )

m. Cross Connections Prohibited. There shall be no physical connections between a public or private potable water supply system and a wastewater pipeline, or appurtenance thereto, which would permit the passage of any wastewater or polluted water into the potable supply. No water pipe shall pass through or come into contact with any part of a wastewater pipeline manhole. ( )

n. Protection of Water Sources, Supplies. When wastewater pipelines are proposed in the vicinity of any drinking water sources or supplies or other drinking water facilities, requirements of IDAPA 58.01.08, "Idaho Rules for Public Drinking Water Systems," shall be used to confirm acceptable isolation distances. ( )

o. Non-Potable Pipelines in Relation to Potable Water Pipelines. The Department will use the Memorandum of Understanding with the Plumbing Bureau as guidance in determining the relative responsibilities for reviewing service lines. The conditions of Subsections 430.02.o.i. and 430.02.o.ii. shall apply to all potable services constructed or reconstructed after April 15, 2007 and where the Department or the QLPE is the reviewing authority. ( )

i. Parallel installation requirements. ( )

(1) Non-potable mains in relation to potable mains: ( )

(a) Greater than ten (10) feet separation: no additional requirements based on separation distance. ( )

(b) Ten (10) feet to six (6) feet separation: separate trenches, with potable main above non-potable main, and non-potable main constructed with potable-water class pipe. ( )

(c) Less than six (6) feet separation: design engineer to submit data to the Department for review and approval that this installation will protect public health and environment and non-potable main constructed with potable-water class pipe. ( )

(d) Non-potable mains are prohibited from being located in the same trench as potable mains. ( )

(e) Pressure sewage mains shall be no closer horizontally than ten (10) feet from potable mains. ( )

(2) New non-potable services in relation to potable services, new non-potable services in relation to potable mains, and new potable services in relation to non-potable mains. ( )

(a) Greater than six (6) feet separation: no additional requirements based on separation distances. ( )

(b) Less than six (6) feet separation: design engineer to submit data that this installation will protect public health and the environment and non-potable service constructed with potable water class pipe. ( )

(c) New potable services are prohibited from being located in the same trench as non-potable mains or non-potable services. ( )

ii. Requirements for potable water mains or services crossing non-potable mains or services. For the purposes of Subsection 430.02.o.ii., the term "pipeline" applies to both mains and services. ( )

(1) Eighteen (18) inches or more vertical separation with potable pipeline above non-potable pipeline: non-potable pipeline joint to be as far as possible from the potable water pipeline. ( )

(2) Eighteen (18) inches or more vertical separation with potable water pipeline below non-potable pipeline: Non-potable pipeline joint to be as far as possible from the potable water pipeline, and non-potable pipeline must be supported through the crossing to prevent settling. ( )

(3) Less than eighteen (18) inches vertical separation: ( )

(a) Non-potable pipeline joint to be as far as possible from the potable water pipeline; and either ( )

(b) Non-potable pipeline constructed with potable water class pipe for a minimum of ten (10) feet either side of potable pipeline with a single twenty (20) foot section of potable water class pipe centered on the crossing; or ( )

(c) Sleeve non-potable or potable pipeline with potable water class pipe for ten (10) feet either side of crossing. Use of hydraulic cementitious materials such as concrete, controlled density fill, and concrete slurry encasement is not allowed as a substitute for sleeving. ( )

(d) If the potable pipeline is below non-potable pipeline, the non-potable pipeline must also be supported through the crossing to prevent settling. ( )

(4) Pressure sewage mains shall be no closer vertically than eighteen (18) inches from potable mains. ( )

iii. Existing potable services in relation to new non-potable mains, existing non-potable services in relation to new potable mains, and existing potable services in relation to new non-potable services shall meet the requirements of Subsection 430.02.o.ii., where practical, based on cost, construction factors, and public health significance. If the Department determines that there are significant health concerns with these services, such as where a large existing service serves an apartment building or a shopping center, then the design shall conform with Subsection 430.02.o.ii. ( )

431. -- 439. (RESERVED)

440. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: WASTEWATER PUMPING STATIONS.

01. General. Section 440 regulates both public and private municipal wastewater collection pump stations and does not regulate individual residence pump stations, individual residence grinder pump stations, or individual residence septic tank effluent pump stations. See Section 441 for regulation of those types of pump stations. ( )

a. Flooding. Wastewater pumping station structures and electrical and mechanical equipment shall be protected from physical damage by the one hundred (100) year flood. Wastewater pumping stations shall remain fully operational and accessible during the twenty-five (25) year flood. Regulations of state and federal agencies regarding flood plain obstructions shall be considered. ( )

b. Accessibility and Security. The pumping station shall be accessible by maintenance vehicles during all weather conditions. ( )

c. Grit. The wet well and pump station piping shall be designed to avoid operational problems from the accumulation of grit. ( )

d. Safety. Provisions shall be made to consider the protection of maintenance personnel and visitors from typical and foreseeable hazards in accordance with the engineering standards of care. See also Subsection 450.07. ( )

02. Design. Design of wastewater pumping stations shall meet the applicable requirements of Subsections 440.02.a. through 440.02.i. ( )

a. Type. Wastewater pumping stations in general use fall into four types: wet well/dry well, submersible, suction lift, and screw pump. ( )

b. Structures. ( )

i. Separation. Dry wells shall be completely separated from the wet well. Common walls must be gas tight. ( )

ii. Equipment Removal. Provision shall be made to facilitate removing pumps, motors, and other mechanical and electrical equipment. Individual pump and motor removal must not interfere with the continued operation of remaining pumps. ( )

iii. Access and Safety Landings. ( )

(1) Access. Suitable means of access for maintenance personnel wearing self-contained breathing apparatus shall be provided to dry wells and to wet wells. See also Subsection 450.07. ( )

(2) Safety Landings. Section 009 provides a reference to requirements of the Occupational Safety and Health Administration (OSHA), compliance with which may be required by other law. ( )

iv. Buoyancy. Where high groundwater conditions are anticipated, buoyancy of the wastewater pumping station structures shall be considered and, if necessary, adequate provisions shall be made for protection. ( )

v. Construction Materials. Materials shall be selected that are appropriate under conditions of exposure to hydrogen sulfide and other corrosive gases, greases, oils, and other constituents frequently present in wastewater. This is particularly important in the selection of metals and paints. ( )

c. Pumps. ( )

i. Multiple Units. Multiple pumps shall be provided. Units shall have capacity such that, with any

unit out of service, the remaining units will have capacity to handle the design peak hourly flow. ( )

ii. Protection Against Clogging. Pumps (except screw pumps) handling separate sanitary wastewater from thirty (30) inch or larger diameter sewers shall be protected by bar racks. Appropriate protection from clogging shall also be considered for small pumping stations. ( )

iii. Pump Openings. Pumps handling unscreened raw wastewater shall be capable of passing spheres of at least three (3) inches in diameter or be a grinder pump. ( )

iv. Priming. The pump shall be placed so that, under normal operating conditions, it will operate under a positive suction head, except as specified in Subsection 440.03. ( )

v. Electrical Equipment. Section 009 provides a reference to the requirements of the National Electrical Code, compliance with which may be required by other law. ( )

vi. Intake. Section 008 provides a reference to the American National Standard Institute/Hydraulic Institute ANSI/HI 9.8, American National Standard for Centrifugal and Vertical Pump Intake Design. ( )

vii. Dry Well Dewatering. Dry wells shall be equipped with a positive means for dewatering. ( )

viii. Pumping Rates. The pumps and controls of main pumping stations shall be selected to operate with varying rates. The pump control system design shall take into account, and minimize as needed, downstream impact of pump discharge hydraulic surges. The station design capacity shall be based on peak hourly flow as determined in accordance with Section 411 and shall be adequate to maintain a velocity in the force main sufficient to avoid solids deposition. See Subsection 440.09. ( )

d. Controls. Water level control sensing devices shall be designed to allow for automatic control of pumps. ( )

e. Valves. ( )

i. Suction Line. Suitable shutoff valves shall be placed on the suction lines of dry pit pumps. ( )

ii. Discharge Line. Suitable shutoff and check valves shall be placed on the discharge line of each pump (except on screw pumps). The check valve shall be located between the shutoff valve and the pump. Check valves shall be suitable for the material being handled and shall be placed on the horizontal portion of the discharge piping except for ball checks, which may be placed in the vertical run. Valves shall be capable of withstanding normal pressure and water hammer. All shutoff and check valves shall be operable from the floor level and accessible for maintenance. Outside levers are recommended on swing check valves. ( )

f. Wet Wells. ( )

i. Section 008 provides a reference to the American National Standard Institute/Hydraulic Institute ANSI/HI 9.8, American National Standard for Centrifugal and Vertical Pump Intake Design as a guidance document. ( )

ii. Air Displacement. Covered wet wells shall have provisions for air displacement to the atmosphere, such as an inverted "j" tube or other means. ( )

g. Safety Ventilation. Adequate ventilation shall be provided for all pump stations unless access is provided using confined space entry procedures. Where the dry well is below the ground surface, mechanical ventilation is required. If screens or mechanical equipment requiring maintenance or inspection are located in the wet well, permanently installed ventilation is required. There shall be no interconnection between the wet well and dry well ventilation systems. Section 008 provides a reference to guidance documents; see Subsection 008.11. ( )

h. Flow Measurement. Suitable methods for measuring wastewater flow shall be addressed at all pumping stations. ( )

i. Water Supply. There shall be no physical connection between any potable water supply and a wastewater pumping station which, under any conditions, might cause contamination of the potable water supply. If a potable water supply connection is made to the station, the connection shall comply with IDAPA 58.01.08, "Idaho Rules for Public Drinking Water Systems." ( )

03. Suction Lift Pump Stations - Special Considerations. Suction lift pumps shall meet the applicable requirements of Subsection 440.02. ( )

a. Pump Priming and Lift Requirements. Suction lift pumps shall be of the self-priming or vacuum-priming type. Suction lift pump stations using dynamic suction lifts exceeding the limits outlined in Subsections 440.03.b. through 440.03.d. may be approved upon submission of factory certification of pump performance and detailed calculations indicating satisfactory performance under the proposed operating conditions. ( )

b. Self-Priming Pumps. Self-priming pumps shall be capable of rapid priming and re-priming at the "lead pump on" elevation. Such self-priming and re-priming shall be accomplished automatically under design operating conditions. ( )

c. Vacuum-Priming Pumps. Vacuum-priming pump stations shall be equipped with dual vacuum pumps capable of automatically and completely removing air from the suction lift pump. The vacuum pumps shall be adequately protected from damage due to wastewater. The combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions shall not exceed twenty-two (22) feet. ( )

d. Equipment, Wet Well Access, and Valving Location. The pump equipment compartment shall be above grade or offset and shall be effectively isolated from the wet well to prevent a hazardous and corrosive sewer atmosphere from entering the equipment compartment. Wet well access shall not be through the equipment compartment and shall be at least twenty-four (24) inches in diameter. Gasketed replacement plates shall be provided to cover the opening to the wet well for pump units removed for servicing. Valving shall not be located in the wet well. ( )

04. Submersible Pump Stations - Special Considerations. Submersible pump stations shall meet the applicable requirements of Subsection 440.02, except as modified in Subsection 440.04. ( )

a. Construction. Submersible pumps and motors shall be designed specifically for raw wastewater use, including totally submerged operation during a portion of each pumping cycle. An effective method to detect shaft seal failure or potential seal failure shall be provided. ( )

b. Pump Removal. Submersible pumps shall be readily removable and replaceable without personnel entering or dewatering the wet well, or disconnecting any piping in the wet well. ( )

c. Electrical Equipment. Section 009 provides a reference to the requirements of the National Electrical Code, compliance with which may be required by other law. ( )

i. Power Supply and Control Circuitry. Electrical supply, control, and alarm circuits shall be designed to provide strain relief and to allow disconnection from outside the wet well. Terminals and connectors shall be protected from corrosion by location outside the wet well or through use of watertight seals. ( )

ii Controls. The motor control center shall be located outside the wet well, be readily accessible, and be protected by a conduit seal or other appropriate measures to prevent the atmosphere of the wet well from gaining access to the control center. The seal shall be located so that the motor may be removed and electrically disconnected without disturbing the seal. When such equipment is exposed to weather, it is recommended that it meet the requirements of weatherproof equipment NEMA 3R or 4. ( )

iii. Power Cord. Pump motor power cords shall be designed for flexibility and serviceability under conditions of extra hard usage. Ground fault interruption protection shall be used to de-energize the circuit in the event of any failure in the electrical integrity of the cable. Power cord terminal fittings shall be corrosion-resistant and

constructed in a manner to prevent the entry of moisture into the cable, shall be provided with strain relief appurtenances, and shall be designed to facilitate field connecting. ( )

d. Valves. Valves required under Subsection 440.02 shall be located in a separate valve chamber. Provisions shall be made to remove or drain accumulated water from the valve chamber. The valve chamber may be dewatered to the wet well through a drain line with a gas and water tight valve. Check valves that are integral to the pump need not be located in a separate valve chamber provided that the valve can be removed from the wet well in accordance with Subsection 440.04. Access shall be provided in accordance with Subsection 440.02. ( )

05. Screw Pump Stations - Special Considerations. Screw pump stations shall meet the applicable requirements of Subsection 440.02. ( )

a. Covers. Covers or other means of excluding direct sunlight shall be provided as necessary to eliminate adverse effects from temperature changes. ( )

b. Pump Wells. A positive means of isolating individual screw pump wells shall be provided. ( )

c. Bearings. Submerged bearings shall be lubricated by an automated system without pump well dewatering. ( )

06. Alarm Systems. Alarm systems with a backup power source shall be provided for pumping stations. The alarm shall be activated in cases of power failure, dry well sump and wet well high water levels, pump failure, unauthorized entry, or other cause of pump station malfunction. Pumping station alarms, including identification of the alarm condition, shall be transmitted to a twenty-four (24) hour response center. Audio-visual alarm systems may be acceptable in some cases in lieu of a transmitting system depending upon location, station holding capacity, and inspection frequency. ( )

07. Emergency Operation. ( )

a. Objective. The objective of emergency operation is to prevent the unintended discharge of raw or partially treated wastewater to any waters or land surface and to protect public health by preventing back up of wastewater and subsequent discharge to basements, streets, and other public and private property. ( )

b. Emergency Pumping Capability. Emergency pumping capability is required for all new lift stations constructed after April 15, 2007. Emergency pumping capability is required for all existing lift stations that undergo a material modification or expansion unless overall system reliability can be proven adequate to the Department as shown in Subsections 440.07.b.i. and 440.07.b.ii. or overflow prevention is provided by adequate emergency storage capacity as defined in these rules. If required, emergency pumping capability shall be accomplished by connection of the station to at least two (2) independent utility substations as determined by and stated in a letter from the appropriate power provider, by provision of portable or in-place internal combustion engine equipment which will generate electrical or mechanical energy, or by the provision of portable pumping equipment. Such emergency standby systems shall have sufficient capacity to start up and maintain the total rated running capacity of the station. Regardless of the type of emergency standby system provided, a portable pump connection to the force main with rapid connection capabilities and appropriate valving shall be provided outside the dry well and wet well. ( )

i. System reliability is considered adequate if power grid outages average three (3) or less per year based on data for the three (3) previous years with no more than six (6) outages in a single year. ( )

ii. Outage duration averages less than four (4) hours based on data for the three (3) previous years, with not more than one (1) outage during the three (3) previous year period exceeding eight (8) hours. Power loss for at least thirty (30) minutes qualifies as an outage. ( )

c. Equipment Requirements. ( )

i. General. The following general requirements shall apply to all internal combustion engines used to drive auxiliary pumps, service pumps through special drives, or electrical generating equipment: ( )

(1) Engine Protection. The engine must be protected from operating conditions that would result in damage to equipment. Unless continuous manual supervision is planned, protective equipment shall be capable of shutting down the engine and activating an alarm on site and as provided in Subsection 440.06. Protective equipment shall monitor for conditions of low oil pressure and overheating, except that oil pressure monitoring will not be required for engines with splash lubrication. ( )

(2) Size. The engine shall have adequate rated power to start and continuously operate under all connected loads. ( )

(3) Fuel Type. Reliability and ease of starting, especially during cold weather conditions, shall be addressed in the selection of the type of fuel. ( )

(4) Fuel Storage. Fuel storage and piping facilities if provided shall be constructed in accordance with applicable state and federal regulations. ( )

(5) Engine Ventilation. The engine shall have adequate ventilation of fuel vapors and exhaust gases. ( )

(6) Routine Start-up. All emergency equipment shall be provided with instructions indicating the need for regular starting and running of such units at full loads. ( )

(7) Protection of Equipment. Emergency equipment shall be protected from damage at the restoration of regular electrical power. ( )

ii. Engine-Driven Pumping Equipment. Where permanently-installed or portable engine-driven pumps are used, the following requirements in addition to general requirements shall apply. ( )

(1) Pumping Capacity. Engine-driven pumps shall meet the design pumping requirements unless storage capacity is available for flows in excess of pump capacity. Pumps shall be designed for anticipated operating conditions, including suction lift if applicable. ( )

(2) Operation. The engine and pump shall be equipped to provide automatic start-up and operation of pumping equipment unless manual start-up and operation is justified. Provisions shall also be made for manual start-up. Where manual start-up and operation is justified, storage capacity and alarm system must meet the requirements of Subsection 440.07.c.ii(3). ( )

(3) Portable Pumping Equipment. Where part or all of the engine-driven pumping equipment is portable, adequate emergency storage capacity with alarm system shall be provided to allow time for detection of pump station failure and transportation and hookup of the portable equipment. ( )

iii. Engine-Driven Generating Equipment. Where permanently-installed or portable engine-driven generating equipment is used, the following requirements shall apply in addition to the general requirements of Subsection 440.07. ( )

(1) Generating Capacity. ( )

(a) Generating unit size shall be adequate to provide power for pump motor starting current and for lighting, ventilation, and other auxiliary equipment necessary for safety and proper operation of the lift station. ( )

(b) The operation of only one pump during periods of auxiliary power supply must be justified. Such justification may be made on the basis of the design peak hourly flows relative to single-pump capacity, anticipated length of power outage, and storage capacity. ( )

(c) Manual or special sequencing controls shall be provided to start pump motors unless the generating equipment has capacity to start all pumps simultaneously with auxiliary equipment operating. ( )

(2) Operation. Provisions shall be made for automatic and manual startup and load transfer unless only manual start-up and operation is justified. Automatic transfer switches shall be UL listed and meet NEC requirements. The generator must be protected from operating conditions that would result in damage to equipment. Provisions shall be made to allow the engine to start and stabilize at operating speed before assuming the load. Where manual start-up and transfer is justified, storage capacity and alarm system must meet the requirements of Subsection 440.07.c.iii.(3). ( )

(3) Portable Generating Equipment. Where portable generating equipment and manual transfer is provided, adequate emergency storage capacity with alarm system shall be provided to allow time for detection of pump station failure and transportation and connection of generating equipment. Special electrical connections and double throw switches shall be provided for connecting portable generating equipment. Manual transfer switches shall be UL listed and meet NEC requirements. ( )

iv. Independent Utility Substations. Where independent substations are used for emergency power, each separate substation and its associated transmission lines shall be capable of starting and operating the pump station at its rated capacity. ( )

08. Instructions and Equipment. Wastewater pumping stations and portable equipment shall be supplied with a complete set of operational instructions, including emergency procedures, maintenance schedules, tools, and such spare parts as may be necessary. ( )

09. Operation and Maintenance. ( )

a. An operation and maintenance manual shall be submitted to and approved by the Department as required by Section 425. Adherence to the terms of this approved manual shall be required. The owner shall be responsible for maintaining the wastewater facility in a manner that assures its designed operation. ( )

b. For private municipal wastewater collection pump stations, documents that detail the technical, managerial, and financial capabilities of the private entity to properly operate and maintain said pump station for the long term shall be submitted to the Department for approval prior to operation. ( )

10. Force Mains. ( )

a. Velocity and Diameter. At design pumping rates, a cleansing velocity of at least two (2) feet per second shall be maintained. ( )

b. Air and Vacuum Relief Valve. An air relief valve shall be placed at high points in the force main to prevent air locking. The force main configuration and head conditions shall be evaluated as to the need for and placement of vacuum relief valves. ( )

c. Termination. The force mains from other than individual grinder pump stations shall enter a receiving manhole. Corrosion protection for the receiving manhole shall be provided. Control of odors at such discharge points shall be evaluated. ( )

d. Pipe and Design Pressure. Pipe and joints shall be equal to water main strength materials suitable for design conditions. The force main, reaction blocking, thrust restraint, and station piping shall be designed to withstand water hammer pressures and associated cyclic reversal of stresses that are expected with the cycling of wastewater lift stations. The use of surge valves, surge tanks, or other suitable means to protect the force main against severe pressure changes shall be evaluated. ( )

e. Special Construction. Force main construction near streams or water works structures and at water main crossings shall meet applicable provisions of Section 430. ( )

f. Design Friction Losses. ( )

i. Friction Coefficient. Friction losses through force mains shall be based on the Hazen and Williams

formula or other acceptable methods. When the Hazen and Williams formula is used, the friction losses for varying values of "C" shall be evaluated for different types and ages of pipe. ( )

ii. Maximum Power Requirements. When initially installed, force mains will have a significantly higher "C" factor. The effect of the higher "C" factor shall be considered in calculating maximum power requirements and duty cycle time to prevent damage to the motor. The effects of higher discharge rates on selected pumps and downstream facilities shall also be considered. ( )

g. Identification. Where force mains are constructed of material which might cause the force main to be confused with potable water mains, the force main shall be appropriately identified using trench tape saying "raw sewage," "biohazard," or other appropriate wording. ( )

h. Leakage Testing. Leakage tests shall be specified including testing methods and leakage limits. Testing shall conform with Sections 401.3.6 and 505.3.3 of the "Idaho Standards for Public Works Construction," incorporated by reference into these rules at Section 004. ( )

i. Thrust Blocking or Restraint. Thrust blocking or restraint shall conform with Sections 401.3.4 of the "Idaho Standards for Public Works Construction," incorporated by reference into these rules at Section 004, or specific calculations reviewed and approved by the Department. ( )

j. Maintenance Considerations. Isolation valves shall be used if force mains connect into a common force main. ( )

k. Cover. Force mains shall be covered with sufficient earth or other insulation to prevent freezing or other physical damage. ( )

441. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: INDIVIDUAL RESIDENCE WASTEWATER PUMPING STATIONS.

01. General. Section 441 regulates individual residence pump stations, individual residence grinder pump stations, and individual residence septic tank effluent pump stations. However, this rule does not regulate grinder pumps or their vaults that are inside of individual residences or other structures. Certain individual residence wastewater pumping stations may be under the jurisdiction of the Idaho Division of Building Safety, Plumbing Bureau. For further defining and delineating of the Plumbing Bureau's and the Department's statutory and regulatory duties and responsibilities with respect to individual residence wastewater pumping stations, see the Memorandum of Understanding referred to in Section 008. ( )

a. Flooding. Wastewater pumping station structures and electrical and mechanical equipment shall be protected from physical damage by the one hundred (100) year flood. Wastewater pumping stations shall remain fully operational and accessible during the twenty-five (25) year flood. Local, state and federal flood plain regulations shall be considered. ( )

b. Accessibility and Security. The pumping station shall be accessible by maintenance vehicles during all weather conditions. ( )

02. Design. Design of wastewater pumping stations shall meet the applicable requirements of Subsections 441.02.a. through 441.02.c. ( )

a. Pumps. ( )

i. Multiple Units. Duplex pumps for individual residence wastewater pump stations are not required. However, for developments having five (5) or more similar facilities, one (1) working spare pump for each size shall be provided and be readily available at all times. ( )

ii. Pump Openings. Pumps handling raw wastewater shall be capable of passing spheres of at least three (3) inches in diameter or be a grinder pump. ( )

iii. Priming. The pump shall be placed so that, under normal operating conditions, it will operate under a positive suction head. ( )

b. Controls. Water level control sensing devices shall be designed to allow for automatic control of pumps. ( )

c. Valves. Suitable means to facilitate pump removal and to prevent backflow shall be provided. All shutoff and check valves shall be accessible for maintenance. ( )

03. Submersible Pump Stations - Special Considerations. ( )

a. Construction. Submersible pumps and motors shall be designed specifically for raw wastewater use, including totally submerged operation during a portion of each pumping cycle. An effective method to detect shaft seal failure or potential seal failure shall be provided. ( )

b. Pump Removal. Submersible pumps shall be readily removable and replaceable without personnel entering or dewatering the wet well, or disconnecting any piping in the wet well. ( )

c. Electrical Equipment. Section 009 provides a reference to the requirements of the National Electrical Code, compliance with which may be required by other law. ( )

i. Power Supply and Control Circuitry. Electrical supply, control, and alarm circuits shall be designed to provide strain relief and to allow disconnection from outside the wet well. Terminals and connectors shall be protected from corrosion by location outside the wet well or through use of watertight seals. ( )

ii. Controls. The motor control center shall be located outside the wet well, be readily accessible, and be protected by a conduit seal or other appropriate measures to prevent the atmosphere of the wet well from gaining access to the control center. The seal shall be located so that the motor may be removed and electrically disconnected without disturbing the seal. When such equipment is exposed to weather, it is recommended that it meet the requirements of weatherproof equipment NEMA 3R or 4. ( )

iii. Power Cord. Pump motor power cords shall be designed for flexibility and serviceability under conditions of extra hard usage. Ground fault interruption protection shall be used to de-energize the circuit in the event of any failure in the electrical integrity of the cable. Power cord terminal fittings shall be corrosion-resistant and constructed in a manner to prevent the entry of moisture into the cable, shall be provided with strain relief appurtenances, and shall be designed to facilitate field connecting. ( )

04. Alarm Systems. Audio-visual alarm systems with a backup power source shall be provided for pumping stations. The alarm shall be activated in cases of wet well high water levels and shall be visible from the outside of the structure. ( )

05. Emergency Operation. The pumping station must be sized to allow for one (1) day's flow between the high water alarm and the building service invert or the pressure discharge pipe, whichever is closer to the high water alarm. ( )

06. Instructions and Equipment. Wastewater pumping stations shall be supplied with a complete set of operational instructions, including emergency procedures, maintenance schedules, tools, and such spare parts as may be necessary. ( )

07. Operation and Maintenance. An operation and maintenance manual shall be submitted to and approved by the Department as required by Section 425. Adherence to the terms of this approved manual shall be required. The owner shall be responsible for maintaining the wastewater facility in a manner that assures its designed operation. ( )

08. Force Mains. ( )

a. Velocity and Diameter. At design pumping rates, a cleansing velocity of at least two (2) feet per

second shall be maintained. ( )

b. Special Construction. Force main construction near streams or water works structures and at water main crossings shall meet applicable provisions of Section 430. ( )

c. Design Friction Losses. ( )

i. Friction Coefficient. Friction losses through force mains shall be based on the Hazen and Williams formula or other acceptable methods. When the Hazen and Williams formula is used, the friction losses for varying values of "C" shall be evaluated for different types and ages of pipe. ( )

ii. Maximum Power Requirements. When initially installed, force mains will have a significantly higher "C" factor. The effect of the higher "C" factor shall be considered in calculating maximum power requirements and duty cycle time to prevent damage to the motor. The effects of higher discharge rates on selected pumps and downstream facilities shall also be considered. ( )

d. Identification. Where force mains are constructed of material which might cause the force main to be confused with potable water mains, the force main shall be appropriately identified using trench tape saying "raw sewage," "biohazard," or other appropriate wording. ( )

e. Leakage Testing. Leakage tests shall be specified including testing methods and leakage limits. Testing shall conform with Sections 401.3.6 and 505.3.3 of the "Idaho Standards for Public Works Construction," incorporated by reference into these rules at Section 004. ( )

f. Thrust Blocking. Thrust blocking shall conform with Sections 401.3.4 of the "Idaho Standards for Public Works Construction," incorporated by reference into these rules at Section 004. ( )

g. Maintenance Considerations. Isolation valves shall be used if force mains connect into a common force main. ( )

h. Cover. Force mains shall be covered with sufficient earth or other insulation to prevent freezing or other physical damage. ( )

442. – 449. (RESERVED)

450. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: WASTEWATER TREATMENT FACILITIES: GENERAL.

01. Plant Location. ( )

a. General. The preliminary engineering report or facility plan shall include a detailed discussion for new facilities regarding site selection criteria and alternatives considered. See Sections 410 and 411. ( )

b. Flood protection. The treatment plant structures, electrical, and mechanical equipment shall be protected from physical damage by the one hundred (100) year flood. Treatment plants shall be designed to remain fully operational and accessible during the one hundred (100) year flood. This requirement applies to new construction and to existing facilities undergoing major modification. Local, state and federal flood plain regulations shall be considered. ( )

c. Setback distances. Facilities open to the atmosphere such as lagoons, open clarifiers, open aeration basins, and other such facilities shall be placed a minimum of two hundred (200) feet from residential property lines. If such open facilities are adjacent to property zoned as commercial or industrial, a lesser setback will be considered by the Department on a case by case basis. For totally enclosed facilities with noise and odor controls, the minimum setback shall be fifty (50) feet if approved by the Department. Neighboring property owners may grant long term easements or other types of legal documents tied to the land to allow for similar setbacks from future development or public use. ( )

02. Quality of Effluent. The required degree of wastewater treatment shall be based on the effluent requirements and water quality standards established by the responsible state agency and appropriate federal regulations including discharge permit requirements. Combined sewer overflows are not allowed. ( )

03. Design. ( )

a. Type of Treatment. The preliminary engineering report or facility plan shall include a detailed discussion regarding criteria and alternatives considered in selection of the appropriate type of treatment. See Sections 410 and 411. The plant design shall provide the necessary flexibility to perform satisfactorily within the expected range of waste characteristics and volumes. ( )

b. Required Engineering Data for New Process and Application Evaluation. The policy of the Department is to encourage rather than obstruct the development of any valid methods or equipment for treatment of wastewater. The lack of inclusion in these standards of some types of wastewater treatment processes or equipment should not be construed as precluding their use. The Department may approve other types of wastewater treatment processes and equipment that meet the performance standards set forth in these rules under the condition that the operational reliability and effectiveness of the process or device shall have been demonstrated under similar conditions with a suitably-sized unit operating at its design load conditions, to the extent required. To determine that such new processes and equipment or applications have a reasonable and substantial chance of success, the Department may require the following: ( )

i. Monitoring observations, including test results and engineering evaluations, demonstrating the efficiency of such processes. ( )

ii. Detailed description of the test methods. ( )

iii. Testing, including appropriately-composited samples, under various ranges of strength and flow rates (including diurnal variations) and waste temperatures over a sufficient length of time to demonstrate performance under climatic and other conditions which may be encountered in the area of the proposed installations. ( )

iv. Other appropriate information. The Department may require that appropriate testing be conducted and evaluations be made under the supervision of a competent process engineer other than those employed by the manufacturer or developer. ( )

c. Design period. The design period shall be clearly identified in the preliminary engineering report or facility plan as required in Sections 410 and 411. ( )

d. Design Loads. ( )

i. Hydraulic Design. ( )

(1) Critical Flow Conditions. Flow conditions critical to the design of the treatment plant shall be as described in the preliminary engineering report required by Section 411. Initial low flow conditions must be evaluated in the design to minimize operational problems with freezing, septicity, flow measurements and solids dropout. The appropriate design flows must be considered in evaluating unit processes, pumping, piping, etc. ( )

(2) Treatment Plant Design Capacity. The treatment plant design capacity shall be as described in Section 411. The plant design flow selected shall meet the appropriate effluent and water quality standards that are set forth in the discharge or other appropriate permit. For plants subject to high wet weather flows or overflow detention pump-back flows, the design maximum flows that the plant is to treat on a sustained basis shall be specified. ( )

(3) Flow Equalization. Facilities for the equalization of flows and organic shock load shall be considered at all plants which are critically affected by surge loadings. ( )

ii. Organic Design. Organic loadings for wastewater treatment plant design shall be based on the information provided in the preliminary engineering report required by Section 411. The effects of septage flow which may be accepted at the plant shall be given consideration and appropriate facilities shall be included in the design. See Section 520. ( )

iii. Shock Effects. The shock effects of high concentrations and diurnal peaks for short periods of time on the treatment process, particularly for small treatment plants, shall be considered. ( )

e. Conduits. All piping and channels shall be designed to carry the maximum expected flows. Conduits shall be designed to avoid creation of pockets and corners where solids can accumulate. ( )

f. Gates or Valves. Suitable gates or valves shall be placed in channels to seal off unused sections which might accumulate solids. The use of shear gates, stop plates or stop planks is permitted where they can be used in place of gate valves or sluice gates. Non-corrodible materials shall be used for control gates and conduits. ( )

g. Arrangement of Units. Component parts of the plant shall be arranged for appropriate operating and maintenance convenience, flexibility, economy, continuity of maximum effluent quality, and ease of installation of future units. ( )

h. Flow Division Control. Flow division control facilities shall be provided as necessary to ensure organic and hydraulic loading control to plant process units and shall be designed for easy operator access, change, observation, and maintenance. Appropriate flow measurement facilities shall be incorporated in the flow division control design. ( )

i. Odor Management. An odor management plan shall be submitted to and approved by the Department as a part of the preliminary engineering report described in Section 411. The Water Environment Federation Guidance referenced in Section 008 of these rules provides guidance for use in developing an odor management plan that is inclusive of the facilities being designed. ( )

j. Cold Weather. Facilities shall be designed with regard for proper operation and maintenance and protection during cold weather temperatures expected at the specific location. The Water Environment Federation Guidance referenced in Section 008 of these rules provides guidance for use in designing, operating and maintaining facilities in cold weather. ( )

04. Plant Details. ( )

a. Unit Bypasses. ( )

i. Removal from Service. Properly located and arranged bypass structures and piping shall be provided so that each unit of the plant can be removed from service independently. The bypass design shall facilitate plant operation during unit maintenance and emergency repair so as to minimize deterioration of effluent quality and ensure rapid process recovery upon return to normal operational mode. The actuation of all bypasses shall require manual action by operating personnel. All power-actuated bypasses shall be designed to permit manual operation in the event of power failure. ( )

ii. Unit Bypass During Construction. Unit bypassing during construction shall be in accordance with the preliminary engineering report required by Section 411. ( )

b. Unit dewatering, flotation protection, and plugging. Drains or sumps shall be provided to completely dewater each unit to an appropriate point in the process. Due consideration shall be given to the possible need for hydrostatic pressure relief devices to prevent flotation of structures. Pipes subject to plugging shall be provided with means for mechanical cleaning or flushing. ( )

c. Construction materials. Materials shall be selected that are appropriate under conditions of exposure to hydrogen sulfide and other corrosive gases, greases, oils, and other constituents frequently present in wastewater. This is particularly important in the selection of metals and paints. ( )

d. Painting. The contents and direction of flow shall be identified on the piping in a contrasting color. ( )

e. Operating equipment. Tools, accessories, and spare parts necessary for the plant operator's use shall be provided. ( )

f. Storage and work space facilities. Readily accessible storage and work space facilities shall be provided, and consideration shall be given to provision of a garage for large equipment storage, maintenance, and repair. ( )

g. Erosion control during construction. Effective site erosion control shall be provided during construction. ( )

h. Grading and landscaping. Upon completion of the plant, the ground shall be graded and landscaped in accordance with the preliminary engineering report developed in the preliminary engineering report required by Section 411. ( )

05. Plant Outfalls. ( )

a. Discharge impact control. The outfall shall be designed to discharge to the receiving stream in a manner acceptable to various reviewing authorities including, but not limited to, EPA, the Idaho Department of Environmental Quality, U.S. Army Corp of Engineers, Idaho Department of Water Resources, and local jurisdictions. ( )

b. Protection and Maintenance. The outfall shall be so constructed and protected against the effects of floodwater, ice, or other hazards as to reasonably ensure its structural stability and freedom from stoppage. Hazards to navigation shall be considered in designing outfalls. ( )

c. Sampling Provisions. All outfalls shall be designed so that a sample of the effluent can be obtained at a point after the final treatment process and before discharge to or mixing with the receiving waters. ( )

06. Essential Facilities. ( )

a. Emergency Power Facilities. ( )

i. General. All wastewater treatment plants shall be provided with an alternate source of electric power or pumping capability to allow continuity of operation during power failures. Refer to Subsection 440.07.c. for design requirements. Methods of providing alternate sources include: ( )

(1) The connection of at least two (2) independent power sources such as substations. A power line from each substation is required if this method is used. The determination of the independent power sources shall be done by the appropriate power provider and stated in a letter from that provider. ( )

(2) In-place internal combustion engine equipment which will generate electrical or mechanical energy. ( )

(3) Portable pumping equipment when only emergency pumping is required. Where part or all of the engine-driven pumping equipment is portable, adequate emergency storage capacity with alarm system shall be provided to allow time for detection of pump station failure and transportation and hookup of the portable equipment. ( )

ii. Power for Aeration. Standby generating capacity normally is not required for aeration equipment used in the activated sludge process. In cases where a history of chronic, long-term (four (4) hours or more) power outages have occurred, auxiliary power for minimum aeration of the activated sludge will be required as provided in Subsections 450.06.a.i.(1) or 450.06.a.i.(2). ( )

iii. Power for Disinfection. Standby generating capacity, as provided in Subsections 450.06.a.i.(1) or

450.06.a.i.(2), is required for disinfection facilities and dechlorination facilities. ( )

b. Water Supply. Section 009 provides a reference to the Uniform Plumbing Code, compliance with which may be required by other law. ( )

c. Sanitary Facilities. Section 009 provides a reference to the Uniform Plumbing Code, compliance with which may be required by other law. ( )

d. Stairways. Stairways shall be installed in lieu of ladders for top access to units requiring routine inspection and maintenance (such as digesters, trickling filters, aeration tanks, clarifiers, tertiary filters, etc.). ( )

e. Flow Measurement. ( )

i. Location. Flow measurement devices shall be provided to measure the following flows: ( )

(1) Plant influent or effluent flow. ( )

(2) If influent flow is significantly different from effluent flow, both shall be measured or otherwise accounted for by other flow measurement facilities. ( )

(3) Other flows required to be monitored under the provisions of the discharge permit. ( )

(4) Other flows such as return activated sludge, waste activated sludge, and recycle required for plant operational control. ( )

ii. Devices. Indicating, totalizing, and recording flow measurement devices for all influent or effluent flows shall be provided for all plants. Any other flow measurement device may be indicating and totalizing only. All flow measurement equipment must be sized to function to a satisfactory level of accuracy over the full range of flows expected and shall be protected against freezing. ( )

iii. Hydraulic Conditions. Flow measurement equipment including approach and discharge conduit configuration and critical control elevations shall be designed to ensure the required hydraulic conditions necessary for the measurement accuracy needed for the specific application. ( )

iv. Calibration and Certification. The flow measurement devices specified in Subsections 450.06.e.i.(1) through 450.06.e.i.(3) shall be calibrated and certified at manufacturer-specified frequencies. ( )

f. Sampling Equipment. Effluent composite sampling equipment shall be provided at all mechanical plants and at other facilities where necessary to meet discharge permit monitoring requirements. Composite sampling equipment shall also be provided as needed for influent sampling and for monitoring plant operations. The influent sampling point shall be located prior to any process return flows. ( )

07. Safety. ( )

a. General. Provisions shall be made to consider the protection of maintenance personnel and visitors from typical and foreseeable hazards in accordance with the engineering standards of care. Enclosure of the plant site with a fence and signs designed to discourage the entrance of unauthorized persons and animals is required. ( )

b. Hazardous Chemical Handling. The materials utilized for storage, piping, valves, pumping, metering, splash guards, etc., shall be specially selected considering the physical and chemical characteristics of each hazardous or corrosive chemical. ( )

08. Laboratory. ( )

a. All treatment plants shall include a laboratory for making the necessary analytical determinations and operating control tests, except for those plants utilizing only processes not requiring laboratory testing for plant

control and where satisfactory off-site laboratory provisions are made to meet the permit monitoring requirements. The laboratory shall have sufficient size, bench space, equipment, and supplies to perform all self-monitoring analytical work required by discharge permits, and to perform the process control tests necessary for good management of each treatment process included in the design. ( )

b. Treatment plant laboratory needs may be divided into the following three (3) general categories: ( )

i. Plants performing only basic operational testing; this typically includes pH, temperature, dissolved oxygen, and chlorine residual. ( )

ii. Plants performing more complex operational and permit laboratory tests including biochemical oxygen demand, suspended solids, and fecal coliform analysis. ( )

iii. Plants performing more complex operational, permit, industrial pretreatment, and multiple plant laboratory testing. ( )

c. Expected minimum laboratory needs for the three (3) plant classifications set out in Subsection 450.08.b. must be addressed in the preliminary engineering report. ( )

09. Instructions and Equipment. Wastewater treatment equipment shall be supplied with a complete set of operational instructions, including emergency procedures, maintenance schedules, tools and such spare parts as may be necessary. ( )

10. Operation and Maintenance. An operation and maintenance manual shall be submitted to and approved by the Department as required by Section 425. Adherence to the terms of this approved manual shall be required. The owner shall be responsible for maintaining the wastewater facility in a manner that assures its designed operation. ( )

451. -- 454. (RESERVED)

455. PRIVATE MUNICIPAL WASTEWATER TREATMENT PLANTS.

01. Scope. Section 455 includes additional requirements for approval of private municipal wastewater treatment plants. Individual extended treatment package systems for on-site systems are not covered by these rules, but are covered by IDAPA 58.01.03, "Individual/Subsurface Sewage Disposal Rules." See Technical Guidance Manual for Individual and Subsurface Sewage Disposal Systems at http://www.deq.idaho.gov/. Private municipal wastewater treatment plants may be considered if no other viable alternative is available. ( )

02. Preliminary Engineering Report. A preliminary engineering report as described in Section 411 must be submitted to the Department for review and must be approved by the Department prior to submittal of plans and specifications. The preliminary engineering report for private municipal wastewater treatment plants shall include the information listed in Subsections 455.02.a. and 455.02.b., as well as information specified in Section 411. ( )

a. The preliminary engineering report shall evaluate the following alternatives: ( )

i. Wastewater treatment plants (possibly several technologies). ( )

ii. Self-contained lagoon. ( )

iii. Conventional septic tank and drainfield (or alternate drainfield design). ( )

iv. Surface water discharge including impact on TMDLs. ( )

v. Gravity or pressure sewer into nearby community (see Subsection 455.04.e. for distances to community systems and required hook-up.) ( )

vi. Recirculating or intermittent sand filter. ( )

vii. Annual operation and maintenance costs. ( )

viii. Land application/reuse. ( )

b. The preliminary engineering report must thoroughly analyze the effect of the treatment plant discharge on ground water quality, especially bacteria, viruses, phosphorus and nitrates as compared to the alternatives listed in Subsection 455.02.a. ( )

03. Plan and Specification Approval. ( )

a. Plans and specifications for the collection and treatment systems will not be approved until the owner is in receipt of one of the following (whichever is applicable): ( )

i. A draft NPDES permit from EPA for proposed surface water discharges; or ( )

ii. A draft wastewater land application/reuse permit from the Department for proposed land application or reuse of the effluent. See the Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater at http://www.deq.idaho.gov. ( )

b. For a subsurface treatment and dispersal system (SSDS): ( )

i. The plans and specifications for the dispersal system must receive approval from the Department prior to receipt of the SSDS permit from the district health department having jurisdiction; and ( )

ii. The plans and specifications for the collection system will not be approved by the Department until the owner is in receipt of the SSDS permit from the district health department having jurisdiction. ( )

c. For private municipal wastewater treatment plants storing their treated effluent prior to irrigation or surface water discharge, the following additional items shall be considered by the Department, prior to approving either the treatment systems or the disposal option. These include, but are not limited to, sealing of storage ponds, filtration and disinfection requirements prior to use or discharge, the degree of treatment, and the intended type and area of irrigation. See IDAPA 58.01.17, "Recycled Water Rules." ( )

04. Private Municipal Wastewater Treatment Plants. ( )

a. The private municipal wastewater treatment plant shall have at least two (2) full years of operating data on five (5) separate installations in the United States. The data submittal shall include the name, address, and telephone number for a regulatory agency contact person familiar with the performance of each reported installation. ( )

b. The owner shall provide for a wastewater system operator in responsible charge of the facility. The operator license classification requirement will depend on the classification of the system based on Section 202 and the licensure requirements of Section 203. If the operator is provided by contract, the contract shall be submitted to the Department for review and approval. ( )

c. A sludge management plan must be submitted to and approved by the Department. The plan must include collection, treatment and disposal of the sludge. Additionally, a signed contract that provides for ultimate legal disposal of the sludge shall be submitted to the Department prior to plan and specification approval. ( )

d. The private municipal wastewater treatment plant shall be a dual train type (or equivalent/greater) with redundant pumps and blowers from influent works to the disposal site and provide sufficient redundancy to continue processing incoming wastewater at peak flows while any one (1) component or process is out of service. Standby or emergency power shall be provided to fully operate the wastewater treatment plant during a power outage unless the water system would also be out during a power outage. ( )

e. A compliance agreement schedule authorized by Section 39-116A, Idaho Code, shall be required for each private municipal wastewater treatment plant approved unless specifically waived by the Department in writing. If a private municipal wastewater treatment plant installation is only a temporary or interim measure in a long-term plan, a compliance agreement schedule will include a sunset clause with a date for the private municipal wastewater treatment plant to cease operation and will require the plant owner to fund and construct the eventual hookup to the public municipal wastewater collection system when the system becomes reasonably accessible. The compliance agreement schedule shall address such things as operation and maintenance requirements and monitoring, reporting requirements, and other project-specific items as applicable. The owner shall be responsible for complying with the requirements of the compliance agreement schedule. The compliance agreement schedule must be renewed every five (5) years; when ownership of the treatment plant changes; or at the request of the owner(s) or Department, so long as the system is in operation. ( )

f. If the Department determines that a proposed private municipal wastewater treatment plant is reasonably accessible to a public municipal wastewater collection system, the use of the private municipal wastewater treatment plant may be denied. ( )

g. Minimum Size. The minimum size of a private municipal wastewater treatment plant allowed under these rules is twenty-five thousand (25,000) gallons per day design capacity based on average day flows. ( )

i. The minimum size requirements do not apply to proposed systems with suitably configured passive wastewater treatment technologies including, but not limited to, facultative lagoons, free water surface wetlands, and vegetated submerged beds. ( )

ii. The Department may approve private municipal wastewater treatment plants smaller than twenty-five thousand (25,000) gallons per day design capacity, based on average day flows, provided the treatment plant will be maintained under original ownership. ( )

iii. For the Department to approve the transfer of ownership of a private municipal wastewater treatment plant smaller than twenty-five thousand (25,000) gallons per day design capacity, based on average day flows, to another entity, the technical, financial, and managerial requirements in Section 409 must be demonstrated by the proposed new owner. ( )

05. Private Municipal Wastewater Treatment Plants with Drainfields. In addition to the applicable requirements of these rules, the subsurface sewage disposal design, construction and operation shall comply with IDAPA 58.01.03, "Individual/Subsurface Sewage Disposal Rules." The exception to this is for Class A reclaimed wastewater reuse facilities that discharge to the subsurface. These reuse facilities are regulated by IDAPA 58.01.17, "Recycled Water Rules." ( )

456. -- 459. (RESERVED)

460. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: SCREENING AND GRIT REMOVAL.

01. Screening Devices and Comminutors. ( )

a. Screening, coarse or fine, or comminutors shall be required for all mechanical plants and shall be addressed for other types of plants. These facilities shall be designed for peak hourly flow. Multiple channels shall be provided and equipped with the necessary gates to isolate flow from any screening unit. Provisions shall also be made to facilitate dewatering each unit. The channel preceding and following the screen shall be shaped to minimize settling of solids. ( )

b. For mechanical plants with design average flow less than one million gallons per day (1 mgd), and where a single mechanically cleaned screen is used, an auxiliary manually cleaned screen shall be provided. Where two (2) or more mechanically cleaned screens are used, the design shall provide for taking any unit out of service without sacrificing the capability to screen the design peak instantaneous flows. ( )

02. Grit Removal Facilities. Grit removal and handling facilities shall be provided for all mechanical wastewater treatment plants. Consideration shall be given to possible damaging effects on pumps, comminutors, and other preceding equipment, and the need for additional storage capacity in treatment units where grit is likely to accumulate. ( )

461. -- 469. (RESERVED)

470. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: SETTLING.

01. General. ( )

a. Where settling is being used, a minimum of two (2) units capable of independent operation are desirable and shall be provided in all plants where design average flows exceed one hundred thousand (100,000) gallons/day. Plants not having multiple units shall include other provisions to assure continuity of treatment. ( )

b. The design of settling facilities shall include a minimum of two (2) units with flow splitting. Sizing shall be calculated for both design average and design peak hourly flow conditions, and the larger surface area determined shall be used. ( )

c. The plant design shall allow for isolation of each unit. The plant design shall allow for sludge and scum removal. ( )

d. Baffling shall be designed to control solids carry-over. ( )

e. The minimum side depth for primary settling facilities shall be ten (10) feet. ( )

f. The minimum side depth for secondary settling facilities shall be twelve (12) feet. ( )

471. -- 479. (RESERVED)

480. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: SLUDGE PROCESSING, STORAGE, AND DISPOSAL.

01. Facilities. Facilities for processing sludge shall be provided for all mechanical wastewater treatment plants. Facilities shall be capable of processing sludge to a form suitable for ultimate disposal. Final disposal or utilization shall be in accordance with applicable permit and federal regulations. ( )

02. Design. Sludge processing, storage and disposal facility design shall comply with the sludge management plan in the Preliminary Engineering Report. ( )

03. Multiple Units. Multiple units capable of independent operation are desirable and shall be provided in all plants where design average flows exceed one hundred thousand (100,000) gallons/day. Plants not having multiple units shall include other provisions to assure continuity of treatment. The plant design shall allow for isolation of each unit. ( )

481. -- 489. (RESERVED)

490. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: BIOLOGICAL TREATMENT.
If biological treatment is used, the process shall be determined in the preliminary engineering report. The choice shall be based on influent characteristics and effluent requirements. ( )

01. Trickling Filters. ( )

a. General. Trickling filters shall be preceded by effective settling tanks equipped with scum and grease collecting devices or other suitable pretreatment facilities. ( )

b. Hydraulics. The flow will be uniformly distributed across the surface of the media. The piping system, including dosing equipment and distributor, shall be designed to provide capacity for the design peak hour flow, including recirculation. ( )

c. Media. ( )

i. Quality. The media shall be appropriate for the wastewater and shall be of sufficient strength to support itself under design loading and build up of biomass. ( )

ii. Depth. Trickling filter media shall have a minimum depth of six (6) feet above the underdrains. ( )

d. Underdrainage System. ( )

i. Arrangement. Underdrains shall be provided and the underdrainage system shall cover the entire floor of the filter. Inlet openings into the underdrains shall have an unsubmerged gross combined area equal to at least fifteen (15) percent of the surface area of the filter. ( )

ii. Ventilation. The underdrainage system, effluent channels, and effluent pipe shall be designed to permit free passage of air. ( )

e. Special Features. ( )

i. Maintenance. All distribution devices, underdrains, channels, and pipes shall be installed so that they may be properly maintained, flushed or drained. ( )

ii. Winter Protection. Covers shall be provided to maintain operation and treatment efficiencies when climatic conditions are expected to result in problems due to cold temperatures. ( )

iii. Recirculation. The piping system shall be designed for recirculation as required to achieve the design efficiency. The recirculation rate shall be variable and subject to plant operator control at the range of 0.5:1 up to 4:1 (ratio of recirculation rate versus design average flow). A minimum of two (2) recirculation pumps shall be provided. ( )

f. Rotary Distributor Seals. Mercury seals shall not be permitted. ( )

g. Unit Sizing. Required volumes of filter media shall be based upon pilot testing with the particular wastewater or any of the various empirical design equations that have been verified through actual full scale experience. Such calculations must be submitted to the Department if pilot testing is not utilized. Trickling filter sizing design shall consider peak organic load conditions including the oxygen demands due to solids and process recycle flows. ( )

02. Activated Sludge. ( )

a. Aeration. ( )

i. Capacities and Permissible Loadings. The size of the aeration tank for any particular adaptation of the process shall be determined by full scale experience, pilot plant studies, or rational calculations based mainly on solids retention time, food to microorganism ratio, and mixed liquor suspended solids levels. Other factors, such as size of treatment plant, diurnal load variations, and degree of treatment required, shall also be considered. In addition, temperature, alkalinity, pH, and reactor dissolved oxygen shall be considered when designing for nitrification. Calculations shall be submitted to the Department in the preliminary engineering report to justify the basis for design of aeration tank capacity. ( )

ii. Arrangement of Aeration Tanks. ( )

(1) Dimensions. The dimensions of each aeration tank or return sludge reaeration tank shall be such as to maintain effective mixing and utilization of air. An exception is that horizontally mixed aeration tanks shall have a depth of not less than five point five (5.5) feet. ( )

(2) Number of Units. Total aeration tank volume plus redundancy requirements shall be divided among two (2) or more equal units, capable of independent operation. ( )

(3) Inlets and Outlets. ( )

(a) Controls. Inlets and outlets for each aeration tank unit shall be designed to control flow to any unit with reasonable accuracy and to maintain reasonably constant liquid level. The properties of the system shall permit the design peak day flow to be treated with any single aeration tank unit out of service. The properties of the system shall permit the design peak hour hydraulic flow to be carried with any single aeration tank unit out of service. ( )

(b) Conduits. Channels and pipes carrying liquids with solids in suspension shall be designed to be self-cleansing. ( )

(c) Scum and Foam Control. Aeration tanks shall be designed to include adequate control or removal of scum and foam. ( )

(4) Freeboard. All aeration tanks should have a freeboard of not less than eighteen (18) inches. ( )

iii. Aeration Equipment. ( )

(1) General. Oxygen requirements generally depend on maximum diurnal organic loading, degree of treatment, and level of suspended solids concentration to be maintained in the aeration tank mixed liquor. Aeration equipment shall be capable of maintaining a minimum of two point zero (2.0) mg/L of dissolved oxygen in the mixed liquor at all times and provide thorough mixing of the mixed liquor (for a horizontally mixed aeration tank system, an average velocity of one (1) foot per second must be maintained). In the absence of experimentally determined values, the design oxygen requirements for all activated sludge processes shall be 1.1 lb 0_2 per lb of design peak hour BOD_5 applied to the aeration tanks, with the exception of the extended aeration process, for which the value shall be one point five (1.5) to include endogenous respiration requirements. ( )

(a) Where nitrification is required or will occur, the oxygen requirement for oxidizing ammonia must be added to the above requirement for carbonaceous BOD_5 removal and endogenous respiration requirements. The nitrogenous oxygen demand (NOD) shall be taken as four point six (4.6) times the diurnal peak hour total Kjeldahl nitrogen content of the aeration tank influent. In addition, the oxygen demands due to recycle flows must be considered due to the high concentrations of BOD_5 and total Kjeldahl nitrogen associated with such flows. ( )

(b) Meet maximum oxygen demand and maintain process performance with the largest unit out of service. Provide for varying the amount of oxygen transferred in proportion to the load demand on the plant. ( )

(2) Diffused Air Systems. Air requirements including, but not limited to, process air, channel aeration, aerobic digestion, and miscellaneous plant air shall be submitted to the Department in the preliminary engineering report. Blowers shall be provided in multiple units, so arranged and in such capacities as to meet the maximum air demand with the single largest unit out of service. The design shall also provide for varying the volume of air delivered in proportion to the load demand of the plant. Aeration equipment shall be easily adjustable in increments and shall maintain solids suspension within these limits. ( )

(3) Mechanical Aeration Systems. ( )

(a) Oxygen Transfer Performance. The mechanism and drive unit shall be designed for the expected

conditions in the aeration tank in terms of the power performance. Certified testing shall be provided to verify mechanical aerator performance. Refer to applicable provisions of Subsection 490.02. In the absence of specific design information, the oxygen requirements shall be calculated for mechanical aeration systems using a transfer rate not to exceed two (2) pounds of oxygen per horsepower per hour in clean water under standard test conditions. Design transfer efficiencies shall be included in the specifications. ( )

(b) Design Requirements. Motors, gear housing, bearings, grease fittings, etc., shall be easily accessible and protected from inundation and spray as necessary for proper functioning of the unit. ( )

(c) Winter Protection. Where extended cold weather conditions occur, the aerator mechanism and associated structure shall be protected from freezing due to splashing. Due to high heat loss, subsequent treatment units shall be protected from freezing. ( )

b. Non-Aerated Tanks or Zones. Non-aerated tanks or zones within aeration tanks shall have mixing equipment adequate to fully mix the contents. Provide calculations in the preliminary engineering report for sizing of this equipment. ( )

c. Return Sludge Equipment. ( )

i. Return Sludge Rate. The return sludge rate of withdrawal from the final settling tank is a function of the concentration of suspended solids in the mixed liquor entering it, the sludge volume index of these solids, and the length of time these solids are retained in the settling tank. The rate of sludge return shall be varied by means of adjustable weirs, variable speed pumps, or timers (small plants) to pump sludge. ( )

ii. Return Sludge Pumps. If a consolidated return sludge pump facility is used, the maximum return sludge capacity shall be obtained with the largest pump out of service. If individual sludge pumps are used at each settling basin, the pumps shall be designed to facilitate their rapid removal and replacement with a standby unit stored at the treatment plant site. If air lifts are used for returning sludge from each settling tank hopper, no standby unit will be required provided the design of the air lifts facilitate their rapid and easy cleaning and provided other suitable standby measures are made available. Air lifts should be at least three (3) inches in diameter. ( )

iii. Return Sludge Piping. Discharge piping should be at least four (4) inches in diameter and shall be designed to maintain a velocity of not less than two (2) feet per second when return sludge facilities are operating at normal return sludge rates. Suitable devices for observing, sampling, and controlling return activated sludge flow from each settling tank hopper shall be provided. ( )

iv. Waste Sludge Facilities. Means for observing, measuring, sampling, and controlling waste activated sludge flow shall be provided. ( )

d. Sequencing Batch Reactors. The fill and draw mode of the activated sludge process commonly termed the Sequencing Batch Reactor may be used in Idaho. The design must be based on experience at other facilities and shall meet the applicable requirements under Sections 450, 470 and 490, except as modified in Subsection 490.02.d.i. through 490.02.d.xi. Continuity and reliability of treatment equal to that of the continuous flow through modes of the activated sludge process shall be provided. ( )

i. At least two (2) tanks shall be provided. ( )

ii. The decantable volume and decanter capacity of the sequencing batch reactor system with the largest basin out of service shall be sized to pass at least seventy-five (75) percent of the design maximum day flow without changing cycle times. A decantable volume of at least four (4) hours with the largest basin out of service based on one hundred (100) percent of the design maximum day flow is permissible. ( )

iii. System reliability with any single tank unit out of service and the instantaneous delivery of flow shall be evaluated in the design of decanter weirs and approach velocities. ( )

iv. Reactor design shall provide for scum removal and prevent overflow of settled solids. ( )

v. An adequate zone of separation between the sludge blanket and the decanter(s) shall be maintained throughout the decant phase. Decanters which draw the treated effluent from near the water surface throughout the decant phase are recommended. ( )

vi. Solids management to accommodate basin dewatering shall be considered. ( )

vii. The blowers shall be provided in multiple units, so arranged and in such capacities as to meet the maximum air demand in the oxic portions of the fill/react and react phases of the cycle with the single largest unit out of service. See Subsection 490.02. ( )

viii. Mechanical mixing independent of aeration shall be provided for all systems where biological phosphorus removal or denitrification is required. ( )

ix. Flow paced composite sampling equipment and continuous turbidity metering for separately monitoring the effluent quality from each basin may be required by the regulatory agency. All twenty-four (24) hour effluent quality composite samples for compliance reporting or monitoring plant operations shall be flow-paced and include samples collected at the beginning and end of each decant phase. ( )

x. A programmable logic controller (PLC) shall be provided. Multiple PLCs shall be provided as necessary to assure rapid process recovery or minimize the deterioration of effluent quality from the failure of a single controller. An uninterruptible power supply with electrical surge protection shall be provided for each PLC to retain program memory (i.e., process control program, last-known set points and measured process/equipment status, etc.) through a power loss. A hard-wired backup for manual override shall be provided in addition to automatic process control. Both automatic and manual controls shall allow independent operation of each tank. In addition, a fail-safe control allowing at least twenty (20) minutes of settling between the react and decant phases shall be provided. The fail-safe control shall not be adjusted by the operator. ( )

xi. A sufficient quantity of spare parts shall be on hand. Consideration shall be given to parts with a low mean time between failure such as electrical relays and solid state electronics. ( )

03. Other Biological Systems. ( )

a. General. Biological treatment processes not included in these rules shall be considered in accordance with Subsection 450.03. ( )

b. Membrane Bioreactors. Details for Membrane Bioreactor (MBR) plants shall be submitted and approved in the preliminary engineering report. In addition to the requirements of Section 411, details shall include plant layout, calculations for hydraulic capacity and air required, membrane technology considered and membrane type and model selected, results from similar type MBR plants already in operation, and anticipated sludge production. ( )

491. -- 492. (RESERVED)

493. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: WASTEWATER LAGOONS.

01. General. ( )

a. These rules pertain to all new and existing municipal wastewater lagoons, including discharging or non-discharging lagoons, municipal wastewater treatment lagoons, municipal wastewater storage lagoons, and any other municipal wastewater lagoons that, if leaking, have the potential to degrade waters of the state. Lagoons are also sometimes referred to as ponds. Section 493 does not apply to industrial lagoons or mining tailings ponds, single-family dwellings utilizing a single lagoon, two (2) cell infiltrative system, those animal waste lagoons excluded from review under Section 39-118, Idaho Code, or storm water ponds. ( )

b. Lagoons utilized for equalization, percolation, evaporation, and sludge storage do not have to meet the requirements set forth in Subsections 493.05 through 493.10, but must comply with all other applicable

subsections. ( )

02. Seepage Testing Requirements. ( )

a. Existing Lagoons. All existing lagoons covered under these rules shall be seepage tested by an Idaho licensed professional engineer, an Idaho licensed professional geologist, or by individuals under their supervision by April 15, 2012 unless otherwise specified in a current permit issued by the Director. ( )

b. New Lagoons. As part of the construction process, all new lagoons must be seepage tested by an Idaho licensed professional engineer, an Idaho licensed professional geologist, or by individuals under their supervision prior to being put into service. ( )

c. Subsequent Tests. All lagoons covered under these rules must be seepage tested by an Idaho licensed professional engineer, an Idaho licensed professional geologist, or by individuals under their supervision every ten (10) years after the initial testing. ( )

d. Testing Due to Change of Conditions to Liner. Prior to being returned to service, lagoons must be seepage tested if a change of condition to the liner occurs that may affect its permeability, including but not limited to liner repair below the high water line, liner replacement, lagoon dewatering of soil-lined lagoons which results in desiccation of the soil liner, seal installation, or earthwork affecting liner integrity. A seepage test may be required after solids removal. Prior to performing activities that may affect liner permeability, the system owner must contact the Department in writing to determine if a seepage test will be required prior to returning the lagoon to service. ( )

e. Procedures for Performing a Seepage Test. The procedure for performing a seepage test or alternative analysis must be approved by the Department, and the test results must be submitted to the Department. If an existing lagoon has passed a seepage test before April 15, 2012 and submitted the results to the Department, the owner of that lagoon has ten (10) years from the date of the testing to comply with this requirement. ( )

03. Allowable Seepage Rates. ( )

a. Design Standard. Lagoons shall be designed for a maximum leakage rate of five hundred (500) gallons per acre per day. ( )

b. Operating Standard. The leakage rate for lagoons constructed after April 15, 2007 shall be no more than zero point one hundred twenty-five (0.125) inches (1/8 inch) per day, which is approximately thirty-four hundred (3400) gallons per acre per day. The leakage rate for existing lagoons constructed prior to April 15, 2007 shall be no more than zero point twenty-five (0.25) inches (1/4 inch) per day. ( )

c. For lagoons located over sensitive aquifers or near 303d listed stream segments, the leakage rate shall be no more than zero point one hundred twenty-five (0.125) inches (one-eighth (1/8) inch) per day, which is approximately thirty-four hundred (3400) gallons per acre per day. The operating standard may be considerably lower based on a ground water investigation considering fate and transport of contaminants to determine the effect of the seepage on the aquifer or stream segment and the best capability of measurement at the time of the investigation. ( )

04. Requirements for Lagoons Leaking Above the Allowable Amount. If a lagoon is found to be leaking at a rate higher than that allowed under Subsection 493.03.b., the owner of the lagoon, in accordance with a schedule negotiated with and approved by the Director, is required to: ( )

a. Repair the leak and retest for compliance; ( )

b. Re-line the lagoon and retest for compliance; ( )

c. Drain the lagoon in an approved manner and stop using the lagoon; or ( )

d. Determine the impact of the leaking lagoon on the environment based on ground water sampling

and modeling. The procedure for performing ground water sampling and monitoring must be approved by the Department. Any impact must comply with IDAPA 58.01.11, "Ground Water Quality Rule," and IDAPA 58.01.02, "Water Quality Standards." If the impact does not comply with IDAPA 58.01.11, "Ground Water Quality Rule," and IDAPA 58.01.02, "Water Quality Standards," the owner of the lagoon must follow one (1) of the steps set out in Subsections 493.04.a. through 493.04.c. ( )

05. Location. ( )

a. Wastewater treatment lagoons shall be placed a minimum of two hundred (200) feet from residential property lines. In all cases, the design location shall consider odors, nuisances, etc. This distance is to the toe of the exterior slope of the dike or to the top of the cut for a lagoon placed into a hillside. More restrictive planning and zoning or other local requirements shall apply. ( )

b. Ground Water Separation. A minimum separation of two (2) feet between the bottom of the pond and the maximum ground water elevation shall be maintained. ( )

c. Bedrock Separation. A minimum separation of two (2) feet between the pond bottom and any bedrock formation shall be maintained. ( )

06. Basis of Design. ( )

a. Design variables such as climatic conditions, odor, pond depth, multiple units, detention time, and additional treatment units must be considered with respect to applicable standards for BOD_5, total suspended solids (TSS), fecal coliform, dissolved oxygen (DO), pH, and other effluent requirements and limits. ( )

b. The preliminary engineering report shall include all design criteria for the development of the pond design. ( )

c. The reaction rate coefficient for domestic wastewater which includes some industrial wastes, other wastes, and partially treated wastewater must be determined experimentally for various conditions which might be encountered in the lagoons or actual data from lagoons in similar climates. Conversion of the reaction rate coefficient at other temperatures shall be made based on experimental data. ( )

d. Oxygen requirements generally will depend on the design average BOD_5 loading, the degree of treatment, and the concentration of suspended solids to be maintained. If needed, aeration equipment shall be capable of maintaining a minimum dissolved oxygen level of two (2) mg/L in the ponds at all times. Suitable protection from weather shall be provided for electrical controls. Aerated cells shall be followed by a polishing cell with a detention time of a minimum of twenty-four (24) hours. ( )

e. See Subsection 490.02 for details on aeration equipment. ( )

07. Industrial Wastes as a Part of the Municipal Wastewater. ( )

a. Consideration shall be given to the type and effects of industrial wastes on the treatment process. ( )

b. Industrial wastes shall not be discharged to ponds without assessment of the effects such substances may have upon the treatment process or discharge requirements in accordance with state and federal laws. ( )

08. Number of Cells Required. ( )

a. A wastewater treatment pond system shall consist of a minimum of three (3) cells designed to facilitate both series and parallel operations. Two (2) cell systems may be utilized in very small installations of less than fifty thousand (50,000) gallons per day. ( )

b. All systems shall be designed with piping flexibility to permit isolation of any cell without affecting the transfer and discharge capabilities of the total system. ( )

09. Pond Construction Details. ( )

a. Embankments and Dikes. ( )

i. Material. Dikes shall be constructed of relatively impervious soil and compacted to at least ninety-five (95) percent Standard Proctor Density to form a stable structure. Vegetation and other unsuitable materials shall be removed from the area where the embankment is to be placed. ( )

ii. Top Width. The minimum dike width shall be ten (10) feet to permit access for maintenance vehicles. ( )

iii. Maximum Slopes. Inner and outer dike slopes shall not be steeper than one (1) vertical to three (3) horizontal (1:3). ( )

iv. Minimum Slopes. Inner slopes should not be flatter than one (1) vertical to four (4) horizontal (1:4). Flatter slopes can be specified for larger installations because of wave action but have the disadvantage of added shallow areas being conducive to emergent vegetation. Outer slopes shall be sufficient to prevent surface runoff from entering the ponds. ( )

v. Freeboard. Minimum freeboard shall be three (3) feet, except that for small systems of less than fifty thousand (50,000) gallons per day, two (2) feet may be acceptable. ( )

vi. Design Depth. The minimum operating depth shall be sufficient to prevent growth of aquatic plants and damage to the dikes, bottom, control structures, aeration equipment, and other appurtenances. In no case shall pond depths be less than two (2) feet. ( )

b. Pond Bottom. ( )

i. Soil. Soil used in constructing the pond bottom (not including the seal) and dike cores shall be relatively incompressible and tight and compacted to at least ninety-five (95) percent Standard Proctor Density. ( )

ii. Seal. Ponds shall be sealed such that seepage loss through the seal complies with Subsection 493.03. Results of a testing program which substantiates the adequacy of the proposed seal must be incorporated into or accompany the preliminary engineering report. ( )

c. Miscellaneous. ( )

i. Fencing. The pond area shall be enclosed with an adequate fence to prevent entering of livestock and discourage trespassing. This requirement does not apply to pond areas which store or impound Class A municipal reclaimed effluent. ( )

ii. Access. An all-weather access road shall be provided to the pond site to allow year-round maintenance of the facility. ( )

iii. Warning Signs. Appropriate permanent signs shall be provided along the fence around the pond to designate the nature of the facility and advise against trespassing. At least one (1) sign shall be provided on each side of the site and one (1) for every five hundred (500) feet of its perimeter. ( )

iv. Flow Measurement. Flow measurement requirements are provided in Subsection 450.06.e. Effective weather protection shall be provided for the recording equipment. ( )

v. Ground Water Monitoring. A ground water monitoring plan shall be submitted to the Department for review and approval as a part of the preliminary engineering report. An approved system of wells or lysimeters shall be required around the perimeter of the pond site to facilitate ground water monitoring. ( )

10. Closure. The owner shall notify the Department at least six (6) months prior to permanently removing any wastewater lagoon facility from service, including any treatment or storage pond. Prior to commencing closure activities, the facility shall: ( )

a. Participate in a pre-closure on-site meeting with the Department; ( )

b. Develop a site closure plan that identifies specific closure, site characterization, or cleanup tasks with scheduled task completion dates in accordance with agreements made at the pre-site closure meeting; and ( )

c. Submit the completed site closure plan to the Department for review and approval within forty-five (45) days of the pre-site closure meeting. The facility must complete the Department approved site closure plan. ( )

494. -- 499. (RESERVED)

500. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: DISINFECTION.

01. General. Disinfection of the effluent shall be provided as necessary to meet applicable standards. The design of new municipal wastewater treatment facilities, or municipal wastewater treatment facilities undergoing material modifications, shall consider meeting both the bacterial standards and the disinfectant residual limit in the effluent. The disinfection process shall be selected after due consideration of waste characteristics, type of treatment process provided prior to disinfection, waste flow rates, pH of waste, disinfectant demand rates, current technology application, cost of equipment and chemicals, power cost, and maintenance requirements as determined in the preliminary engineering report. Where a disinfection process other than chlorination, ultraviolet disinfection, or ozone is proposed, supporting data from pilot plant installations or similar full scale installations shall be required as a basis for the design of the system. ( )

02. Determining the Necessity For Disinfection of Sewage Wastewater Treatment Plant Effluent. ( )

a. Disinfection of municipal wastewater treatment facility effluent shall be required when: ( )

i. Required by an NPDES permit; or ( )

ii. The effluent is discharged to a land application/reuse facility and is required to meet the disinfection requirements found in IDAPA 58.01.17, "Recycled Water Rules." ( )

iii. The effluent discharged to a land application/reuse facility, where ground water contamination has exceeded the bacterial limit found in IDAPA 58.01.11, "Ground Water Quality Rules," and it has been determined by the Department that disinfection is required. ( )

b. The need for disinfection of sewage wastewater treatment plant effluent where treatment consists of lagoons with at least thirty (30) day retention time shall be evaluated on a case by case basis. ( )

03. Chlorine Disinfection. ( )

a. Type. Chlorine is available for disinfection in gas, liquid (hypochlorite solution), and pellet (hypochlorite tablet) form. The type of chlorine should be carefully evaluated during the facility planning or preliminary engineering process. The use of chlorine gas or liquid will be most dependent on the size of the facility and the chlorine dose required. Large quantities of chlorine, such as are contained in ton cylinders and tank cars, can present a considerable hazard to plant personnel and to the surrounding area should such containers develop leaks. Both monetary cost and the potential public exposure to chlorine shall be considered when making the final determination. ( )

b. Dosage. For disinfection, the capacity shall be adequate to produce an effluent that will meet the

applicable bacterial limits specified by the regulatory agency for that installation. Required disinfection capacity will vary, depending on the uses and points of application of the disinfection chemical. The chlorination system shall be designed on a rational basis and calculations justifying the equipment sizing and number of units shall be submitted for the whole operating range of flow rates for the type of control to be used. System design considerations shall include the controlling wastewater flow meter (sensitivity and location), telemetering equipment, and chlorination controls. ( )

c. Piping and Connections. Piping systems shall be as simple as practicable, specifically selected and manufactured to be suitable for chlorine service, with consideration for minimizing number of joints. Piping should be well supported and protected against temperature extremes. Venting of excess gas shall be provided. Special considerations shall be given to piping and fixture selection for hypochlorite and chlorine use. Section 008 provides a reference to guidance documents; see Subsections 008.01, 008.04 and 008.05. ( )

d. Standby Equipment and Spare Parts. Standby equipment of sufficient capacity should be available to replace the largest unit during shutdowns. Spare parts shall be available for all disinfection equipment to replace parts which are subject to wear and breakage. ( )

e. Housing. ( )

i. Feed and Storage Rooms. Gas chlorination equipment and chlorine cylinders shall be housed in a building. If this building is used for other purposes, a gas-tight room shall separate this equipment from any other portion of the building. Floor drains from the chlorine room shall not be connected to floor drains from other rooms. Doors to this room shall open only to the outside of the building and shall be equipped with panic hardware. Rooms shall permit easy access to all equipment. Section 009 provides a reference to requirements of other regulatory entities, compliance with which may be required by other law. ( )

ii. Ventilation. Section 009 provides a reference to the requirements of the National Electric Code, compliance with which may be required by other law. ( )

iii. Electrical Controls. Section 009 provides a reference to the requirements of the National Electric Code, compliance with which may be required by other law. ( )

iv. Protective and Respiratory Gear. Respiratory air-pac protection equipment shall be available where chlorine gas is handled, and shall be stored at a convenient location, but not inside any room where chlorine is used or stored. Instructions for using the equipment shall be posted. Section 008 provides a reference to guidance documents; see Subsections 008.01, 008.04 and 008.05. ( )

04. Dechlorination. ( )

a. Types. ( )

i. Dechlorination of wastewater effluent may be necessary to reduce the toxicity due to chlorine residuals. The most common dechlorination chemicals are sulfur compounds, particularly sulfur dioxide gas or aqueous solutions of sulfite or bisulfite. Pellet dechlorination systems are also available for small facilities. ( )

ii. The type of dechlorination system should be carefully selected considering criteria including the following: type of chemical storage required, amount of chemical needed, ease of operation, compatibility with existing equipment, and safety. ( )

b. Dosage. The dosage of dechlorination chemical depends on the residual chlorine in the effluent, the final residual chlorine limit, and the particular form of the dechlorinating chemical used. ( )

c. Standby Equipment and Spare Parts. The same requirements apply as for chlorination systems. See Subsection 500.04.d. ( )

d. Housing Requirements/Feed and Storage Rooms. The requirements for housing SO2 gas equipment shall follow the same guidelines as used for chlorine gas. Refer to Subsection 500.04.e. for specific details. When using solutions of the dechlorinating compounds, the solutions may be stored in a room that meets the

safety and handling requirements set forth in Subsection 450.07. The mixing, storage, and solution delivery areas must be designed to contain or route solution spillage or leakage away from traffic areas to an appropriate containment unit. ( )

e. Protective and Respiratory Gear. The respiratory air-pac protection equipment is the same as for chlorine. See Subsection 500.04.e. (Refer to The Compressed Gas Association Publication CGA G-3-1995, "Sulfur Dioxide.") ( )

05. Ultraviolet (UV) Radiation. ( )

a. The following documents are recommended to be used as references for UV system sizing and facility design: ( )

i. "Wastewater Engineering, Treatment and Reuse," Metcalf and Eddy, referenced in Section 008. ( )

ii. For reuse applications, "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse," National Water Research Institute/AWWA Research Foundation, referenced in Section 008. ( )

b. For UV systems to be installed at any existing wastewater treatment facility, collection of one (1) year's worth of UV transmittance (UVT) data (four (4) times per day) prior to predesign is encouraged, especially for facilities larger than five million gallons per day (5 mgd) (design peak hour flow), and facilities that have industries that vary discharge throughout the year. ( )

c. The preliminary engineering report for all UV disinfection facilities shall include the following: ( )

i. A minimum of two (2) open channels (or justification for using a smaller system). ( )

ii. A minimum of two (2) banks of UV lamps per channel (or justification for using a smaller system). ( )

iii. Description of the redundancy provided. ( )

iv. Description of the upstream flow splitting device (which splits flow to the two (2) or more UV channels). ( )

v. Description of water level control device. ( )

vi. Description of method used to take a channel off-line for maintenance, and method to dewater a channel. ( )

vii. Type of UV system technology (low-pressure low-intensity, low-pressure high-intensity, medium pressure, etc.), with consideration given to power consumption. ( )

viii. Summary of UVT data and collimated beam data. ( )

ix. Description of HVAC system requirements to ensure adequate UV system performance during summer peak temperature period. ( )

x. Description of maintenance requirements including removal (cleaning) of biofilms from the channel walls upstream and downstream of the UV system. ( )

xi. General description of alarming and controls. ( )

xii. Description of procedure used for UV system sizing. ( )

xiii. Design criteria: ( )

(1) Design UVT. ( )

(2) TSS. ( )

(3) Design water temperature range. ( )

(4) Dose. ( )

(5) End of lamp life factor. ( )

(6) Fouling factor. ( )

(7) Quartz sleeve transmittance factor. ( )

(8) Design peak hour flow. ( )

(9) Existing minimum flow. ( )

(10) Number of channels. ( )

(11) Disinfection requirements (coliform concentration). ( )

(12) Maximum head-loss from upstream of the first bank to downstream of the last bank of lamps (lamp spacing divided by two (2)). ( )

d. Use of bioassay method of UV system sizing is encouraged if all manufacturers under consideration have existing bioassays performed using identical protocol, and the bioassay was performed under conditions similar to the design application. Use of the bioassay method of UV system sizing is discouraged if the conditions of Subsection 500.05.d. cannot be met. ( )

e. Closed chamber units will be reviewed on a case by case basis in accordance with Subsection 450.03.b. ( )

06. Ozone. Ozone systems for disinfection shall be evaluated on a case-by-case basis. Design of these systems shall be based upon experience at similar full scale installations or thoroughly documented prototype testing with the particular wastewater. ( )

501. -- 509. (RESERVED)

510. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: SUPPLEMENTAL TREATMENT PROCESSES.

01. Chemical Treatment. Many chemicals in various forms can be applied in wastewater treatment to aid in nutrient removal, pH adjustment, enhanced clarification, and sludge conditioning. Chemicals must be evaluated for each specific treatment process and must be compatible with other liquids, solids and air treatment processes. Laboratory tests such as jar tests or pilot-scale studies on actual process wastewater shall be used to select appropriate chemicals and dosage ranges. ( )

a. Phosphorus removal. Chemical phosphorus removal from wastewater involves the addition of metal salts (aluminum or iron) or lime to wastewater to form insoluble phosphate precipitates, removal of the precipitate from the wastewater, and disposal of the precipitate with the settled sludge. Many process options are available, and the designer shall select the chemical to insolubilize the phosphorus, estimate the dosage requirements, and select the point of chemical addition. ( )

b. Nitrogen Removal. Several chemical processes have been used for nitrogen removal. The three (3)

major processes include breakpoint chlorination, selective ion exchange, and air stripping. Although these processes are technically feasible ways of removing nitrogen, the Department does not anticipate widespread use of chemicals for nitrogen removal, and justification to do so shall be demonstrated in the Preliminary Engineering Report. ( )

c. pH Adjustment. A common chemical process used in wastewater treatment is pH adjustment. Several methods are available to neutralize or adjust low pH wastewater. The methods used shall be mixing acid wastes with lime slurries, or adding the proper amount of concentrated caustic soda (NaOH) or soda ash (Na_2CO_3) as determined in the Preliminary Engineering Report. ( )

d. Enhanced Primary Clarification. When settling aids are used during the primary clarification process to enhance solids removal in the primary treatment process, the additional solids volume shall be accounted for in pumping, solids handling, stabilization, and disposal processes. The coagulant shall be added and mixed before the sedimentation process. Flocculants, if used, shall be added after the coagulant. The design shall provide for chemical addition points at several locations to give process personnel the opportunity to adjust for optimum performance. ( )

02. Filtration for Tertiary Treatment. Details for plants with tertiary treatment utilizing filtration shall be submitted and approved in the Preliminary Engineering Report. ( )

a. Membranes. In addition to requirements of Section 411, details shall include plant layout, calculations for hydraulic capacity and air required, membrane technology considered and membrane type and model selected, results from similar type filtration plants already in operation, and anticipated sludge production. ( )

b. Media. In addition to requirements of Section 411, details shall include plant layout, calculations for hydraulic capacity, media considered and media type selected, results from similar type filtration plants already in operation, and anticipated sludge production. ( )

c. Cloth. In addition to requirements of Section 411, details shall include plant layout, calculations for hydraulic capacity, technology considered and type and model selected, results from similar type filtration plants already in operation, and anticipated sludge production. ( )

d. Reverse Osmosis. In addition to requirements of Section 411, details shall include plant layout, calculations for hydraulic capacity required, technology considered and type and model selected, results from similar type filtration plants already in operation, and anticipated sludge production. ( )

511. -- 518. (RESERVED)

519. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES -- SEPTAGE TRANSFER STATIONS.

Prior to construction of a new septage transfer station or upon material modification of an approved existing station, the owner of the station must satisfy the following requirements. ( )

01. Design. Septage holding tanks, transfer/storage tanks, and transfer hoses for either type of tank shall meet the applicable requirements of Subsections 519.01.a. through 519.01.c. ( )

a. All tanks shall be watertight, not open to the air, and provided with containment structures to prevent the discharge of septage spills to the surrounding environment. ( )

b. All piping, transfer hoses, valves, and connections shall be watertight, accessible, and capable of being cleaned, repaired, and replaced. ( )

c. All inlet and outlet connections shall be constructed and maintained such that septage will not leak, spill, or overflow the holding tank. ( )

d. No septage holding or transfer/storage tank shall be permitted within the one hundred (100) year flood plain as defined and delineated by the flood insurance rate maps published by the Federal Emergency

Management Agency. ( )

e. Odor controls shall be provided to mitigate nuisance odor discharge during transfer. Odor control may be attained by employing appropriate setback distances to neighboring facilities, using appropriate air scrubbing technologies in conjunction with an enclosed transfer station or other suitably engineered configuration that provides assurances of minimal odor nuisances. ( )

f. The property is owned by the individual(s) operating the septage transfer station, or the property owner has granted permission to so use the property. ( )

g. Septage transfer stations shall provide total containment for the entire volume of the holding tanks and transfer/storage tanks in the event of spilled septage. ( )

h. Truck washing facilities shall be constructed to retain all wash water on site. ( )

02. Plans and Specifications. In addition to the requirements of Section 400, plans and specifications for septage transfer stations must include the requirements of Subsections 519.02.a. through 519.02.f. ( )

a. A map which identifies the proposed septage holding or transfer/storage tank location. ( )

b. The footprint of the proposed activity area. ( )

c. All access roads and access control measures. ( )

d. All roads, property boundary lines, and structures within two hundred (200) feet of the septage holding or transfer/storage tank location; any structures on the property; and any easements or rights-of-way which exist on the property. ( )

e. Surrounding land use within two hundred (200) feet of the footprint of the proposed activity area on which the septage holding or transfer/storage tank is proposed to be located. ( )

f. A spill response plan, describing spill response equipment and disinfection and containment capability at the septage transfer station, shall be submitted to and approved by the Department. ( )

03. Record Keeping. Every owner of a septage transfer station shall maintain the following records for a minimum of five (5) years. ( )

a. For each load of septage received: ( )

i. The date received or picked up; ( )

ii. The name and address of the client(s) from whom the septage was received; and ( )

iii. The volume of the septage received, in gallons; and ( )

b. Records indicating the final disposal destination(s) for septage removed from the transfer/storage tank. ( )

520. FACILITY AND DESIGN STANDARDS FOR MUNICIPAL WASTEWATER TREATMENT OR DISPOSAL FACILITIES: HANDLING AND TREATMENT OF SEPTAGE AT A WASTEWATER TREATMENT PLANT.

01. General. Septage disposal at a wastewater treatment plant is at the discretion of the owner of the wastewater treatment plant, unless other conditions apply. One method of septage disposal is the discharge to a municipal wastewater treatment plant. All plants require special design considerations prior to the acceptance of septage. Prior to acceptance of septage at a wastewater treatment plant, the plan for doing so must be addressed in the Facility Plan. ( )

02. Characteristics. Tables No. 1 and No. 2 (Tables 3-4 and 3-8 from the U.S. EPA Handbook entitled "Septage Treatment and Disposal" 1984, EPA-625/6-84-009) give a comparison of some of the common parameters for septage and municipal wastewater. These tables are located at the end of Appendix A-3 of the Recommended Standards for Wastewater Facilities. See Section 008 of these rules. ( )

03. Considerations. It is essential that an adequate engineering evaluation of the existing plant and the anticipated septage loading be conducted prior to receiving septage at the plant. The wastewater treatment plant owner shall be contacted to obtain the appropriate approvals prior to the acceptance of septage. For proposed plant expansion and upgrading, the Preliminary Engineering Report and Facility Plan shall include anticipated septage loading in addressing treatment plant sizing and process selection. ( )

521. -- 599. (RESERVED)

600. LAND APPLICATION OF WASTEWATER(S) OR RECHARGE WATERS.
Land application of wastewater or recharge waters is subject to the following requirements: ( )

01. Land Application/Reuse Permit. Idaho Department of Environmental Quality Rules, IDAPA 58.01.17, "Recycled Water Rules," require a permit prior to land application/reuse of certain types of wastewater. ( )

02. Applied Waters Restricted to Premises. Wastewater(s) or recharge waters applied to the land surface must be restricted to the premises of the application site. Wastewater discharges to surface water that require a permit under the Clean Water Act must be authorized by the U.S. Environmental Protection Agency. ( )

03. Hazard or Nuisance Prohibited. Wastewaters must not create a public health hazard or a nuisance condition. ( )

04. Monitoring. Provision must be made for monitoring the quality of the ground water in proximity of the application site. The ground water monitoring program is subject to approval by the Department. All data and reports resulting from the ground water monitoring program must be submitted to the Department upon request. The minimum frequency of monitoring and data submittal will be determined by the Department and in general will be dependent upon: ( )

a. The nature and volume of wastewater material or recharge water; ( )

b. The frequency and duration of application; and ( )

c. The characteristics of the soil mantle on and lithology underlying the application site. ( )

05. Basis for Evaluation. The evaluation for an approval to irrigate, either by sprinkling or flooding or surface spreading of wastewater material or by burying wastewater material or recharge water in the upper soil horizon as a method of treatment, must include, but will not necessarily be limited to, consideration of the following items: ( )

a. The type and quantity of wastewater(s) proposed for land application. In general, the wastewater(s) organic constituents are to be biologically degradable and inorganic constituents must be utilized by vegetation or those organisms normally present in the soil. Other wastewater(s) or recharge waters will be considered provided it can be shown that land application will not adversely affect beneficial uses of waters of the state. ( )

b. The nature of the soils and geologic formations underlying the application site. The entity proposing the activity must provide reasonable assurance that the soils and site geology will provide the required level of treatment and will not allow movement of pollutants into the underlying ground water. ( )

c. The ability of the soil and vegetative cover on the application site to remove the pollutants contained in the applied waters through the combined processes of consumptive use and biological and chemical inactivation. ( )

601. -- 649. (RESERVED)

650. SLUDGE USAGE.

01. Disposal Plans Required. Sludge can be utilized as soil augmentation only in conformance with: ( )

a. A Department approved sludge disposal plan; or ( )

b. Procedures and in a manner approved by the Department on a site-by-site basis. ( )

02. Basis for Evaluation. Sludge disposal plans and sludge utilization proposals will be evaluated by the Department in regard to their protection of water quality and public health. ( )

03. Elements of Plans and Proposals. Plans and proposals must at a minimum provide: ( )

a. That only stabilized sludge will be used. ( )

b. The criteria utilized for site selection, including: ( )

i. Soil description; ( )

ii. Geological features; ( )

iii. Groundwater characteristics; ( )

iv. Surrounding land use; ( )

v. Topography; and ( )

vi. Climate. ( )

c. A description of the application process. ( )

d. A statement detailing procedures to prevent application which could result in a reduction of soil productivity or in the percolation of excess nutrients. ( )

e. Identification of potential adverse health effects in regard to the sludge and its proposed use. ( )

f. Delineation of methods or procedures to be used to alleviate or eliminate adverse health effects. ( )

04. Reference to Federal Regulations. See Code of Federal Regulations, 40 CFR, Part 503, Standards for the Use or Disposal of Sewage Sludge. ( )

651. -- 659. (RESERVED)

660. WAIVERS.
Waivers from the requirements of these rules may be granted by the Director on a case-by-case basis upon full demonstration by the person requesting the waiver(s) that such activities for which the waivers are granted will have no significant impact on the environment or on the public health. ( )

661. -- 999. (RESERVED)