

R309-500. Facility Design and Operation: Plan Review, Operation and Maintenance Requirements.

R309-500-1. Purpose.

The purpose of this rule is to describe plan review procedures and requirements, clarify projects requiring review, and inspection requirements for drinking water projects. It is intended to be applied in conjunction with rules R309-500 through R309-550. Collectively, these rules govern the design, construction, operation and maintenance of public drinking water system facilities. These rules are intended to assure that such facilities are reliably capable of supplying adequate quantities of water which consistently meet applicable drinking water quality requirements and do not pose a threat to general public health.

R309-500-2. Authority.

This rule is promulgated by the Drinking Water Board as authorized by Title 19, Environmental Quality Code, Chapter 4, Safe Drinking Water Act, Subsection 104(1)(a)(ii) of the Utah Code and in accordance with 63-46a-G-3 of the same, known as the Administrative Rulemaking Act.

R309-500-3. Definitions.

Definitions for certain terms used in this rule are given in R309-110 but may be further clarified herein.

R309-500-4. General.

(1) ~~Construction and Operation of~~ New Facilities.

~~(a) As authorized in 19-4-106(3) of the Utah Code, the Director may review plans~~Plans, specifications, and other data pertinent to ~~proposed or expanded water supply systems to insure proper design and construction~~new facilities, or existing facilities of public drinking water systems not previously reviewed, shall be submitted to the Director for review for conformance with rules R309-500 through R309-550. All submittals shall be from the public water system or its agent.

~~Plans and specifications and a business plan as required by R309-800-5, along with a completed project notification form, shall be submitted to the Director for any new water systems or previously un-reviewed water systems unless acceptable data can be presented that the proposed or existing water system will not become a "public water system" as defined in 19-4-102 of the Utah Code or in R309-110.~~

Construction of new facilities for public water systems or existing facilities of previously un-reviewed public drinking water systems shall conform to rules R309-500 through R309-550; the "Facility Design and Operation" rules. There may be times in which the requirements of the Facility Design and Operation rules are not appropriate. Thus, the

(b) The Director ~~has the authority~~ may to grant an "exception" to ~~the Facility Design and Operation~~ R309-500 through 550 per R309-105-6(2)(b) rules if it can be shown that the granting of such an exception will not jeopardize the public health.

(c) Construction of a public drinking water project shall not begin until complete plans and specifications have ~~been approved~~ received Plan Approval in writing by the Director ~~unless waivers have been issued as allowed by R309-500-6(3)~~. This approval shall be referred to as the Plan Approval.

(d) ~~Furthermore, n~~ No new public drinking water facility shall be put into operation until ~~the Director has issued an Operating Permit~~ written approval to do so has been given by the Director or this requirement waived. This approval is referred to as the Operating Permit.

(2) Existing Facilities.

All existing public drinking water systems shall be capable of reliably delivering water ~~which that~~ meets the ~~minimum~~ current ~~standard of~~ drinking water minimum quantity and quality requirements. The Director may require modification of existing systems in accordance with R309-500 through R309-550 when such modifications are needed to reliably achieve minimum quantity and quality requirements.

~~Guidance: Existing public drinking water facilities shall be upgraded to meet all current design and operation standards. Furthermore, R309-150, the Water System Rating Criteria, compels existing systems to correct deficiencies or risk a "Not Approved" rating. Thus, operators of existing systems are encouraged to continually evaluate their facilities with respect to current design and operation standards.~~

(3) Operation and Maintenance ~~of Existing Facilities.~~

Public drinking water system facilities shall be operated and maintained in a manner ~~which that~~ protects ~~the~~ public health. As a minimum, ~~the~~ operation and maintenance procedures ~~of~~ described in R309-500 through R309-550 shall be ~~adhered to~~ met.

~~Guidance: In accordance with R309-104-2, certain water systems; which consist only of distribution and storage facilities (no collection or treatment); obtains all of it's water from another public water system which is required to monitor; does not sell~~

~~water; and is not a carrier which conveys passengers in interstate commerce, may be exempted from monitoring requirements of R309-104. Such exemption does not extend to submittal of plans and specifications for any modifications considered a public drinking water project as outlined below. Additionally, if the system serves sufficient connections or individuals to be considered a "public water system", its management must keep current those names, addresses and phone numbers required by R309-101-1.2.~~

R309-500-5. Public Drinking Water Project

(1) Definition.

A public drinking water project, requiring ~~the~~ submittal of a ~~project~~ Project notification Notification form Form along with plans and specifications, is any of the following:

- (a) ~~The~~ eConstruction of any facility for a proposed drinking water system ~~(see 19-4-106(3) of the Utah Code or R309-500-4(1) above describing the authority of the Director).~~
- (b) Any addition to, or modification of, the facilities of an existing public drinking water system which may affect the quality or quantity of water delivered.
- (c) Any activity, other than on-going operation and maintenance procedures, which may affect the quality or quantity of water delivered by an existing public drinking water system. Such activities may include:
 - (i) the interior re-coating or re-lining of any raw or drinking water storage tank, or water storage chamber within any treatment facility,
 - (ii) the "in-situ" re-lining of any pipeline,
 - (iii) a change or addition of any primary coagulant a water treatment chemical process ~~(excluding filter, flocculent or coagulant aids)~~ ~~when the proposed chemical does not appear on a list of chemicals pre-approved by the Director for a specific treatment facility,~~ and

~~**Guidance: The Division of Drinking Water will maintain a list of primary coagulant treatment chemicals which are "pre-approved" for use at a given plant. Plant operators will be required to only use primary coagulant chemicals from this list. When a different primary coagulant chemical is desired for use, this chemical must be reviewed by the Director and may be added to the "pre-approved" list for a given plant.**~~

(iv) the re-development of any spring or well source or replacement of a well pump with one of different capacity.

(2) On-going Operation and Maintenance Procedures.

On-going operation and maintenance procedures are not considered public drinking water projects and, accordingly, are not subject to the project notification, plan approval and operating permit requirements of this rule. However, these activities shall be carried out in accordance with all operation and maintenance requirements contained in R309-500 through R309-550 and specifically the disinfection, flushing and bacteriological sampling and testing requirements ~~of ANSI/AWWA C651-05 for pipelines, ANSI/AWWA C652-02 for storage facilities, and ANSI/AWWA C654-03 for wells~~ before they facilities are placed back into service. The following activities are considered to be on-going operation and maintenance procedures:

- (a) pipeline leak repair,
- (b) replacement of existing deteriorated pipeline where the new pipeline segment is the same size as the old pipeline or the new segment is upgraded to meet the minimum pipeline sizes required by R309-550-5(4) or larger sizes as determined by a hydraulic analysis in accordance with R309-550-5(3),
- (c) tapping existing water mains with corporation stops so as to make connection to new service laterals to individual structures,
- (d) distribution pipeline additions where the pipeline size is the same as the main supplying the addition, or the pipeline addition meets the minimum pipeline sizes required by R309-550-5(4) or larger sizes as determined by a hydraulic analysis in accordance with R309-550-5(3), the length is less than 500 feet and contiguous segments of new pipe total less than 1000 feet in any fiscal year,
- (e) entry into a drinking water storage facility for the purposes of inspection, cleaning and maintenance, and
- (f) replacement of equipment or pipeline appurtenances with the same type, size and rated capacity (fire hydrants, valves, pressure regulators, meters, service laterals, chemical feeders and booster pumps including deep well pumps).

R309-500-6. Plan Approval Procedure.

Guidance:

~~***Submittal of plans and specifications for drinking water projects are required of owners, operators, and managers of public water systems (pws).***~~

~~Many times the Division receives a submittal directly from developers of subdivisions that will be served by a pws, or engineers who are on contract to the developer rather than the pws. We have no objections to a pws obligating a developer to provide the time, energy, and cost necessary to prepare a set of plans and specifications, but such shall be reviewed by the pws for conformance with their own specific requirements prior to submittal, and the submittal to the Division made by the management of the pws rather than others.~~

~~Also keep in mind that local agencies approve subdivision plats not the Division; that the plans and specifications submitted shall be final and complete enough for actual construction of the additions or modifications to the pws's existing facilities; that additional information, even beyond that outlined below, may be required by the Division prior to construction (e.g. hydraulic analysis of existing system plus additions, local requirements for fire flow and duration, proximity of sewer and other utilities); and that the plans and specifications must be stamped and signed by a registered professional engineer licensed to practice in the state of Utah.~~

(1) Project Notification.

The Division shall be notified prior to the construction of any "public drinking water project" as defined in R309-500-5(1) above. The notification may be prior to or simultaneous with submission of construction plans and specifications as required by R309-500-6(2) below. Notification shall be made ~~by the management of the regulated public water system~~ on a form provided by the Division. ~~Information required by this form shall be determined by the Division and may include:~~

- ~~(a) whether the project is for a new or existing public drinking water system;~~
- ~~(b) the professional engineer, registered in the State of Utah, designing the project and his/her experience designing public drinking water projects within the state;~~
- ~~(c) the individual(s) who will be inspecting the project during construction and whether such inspection will be full time or part time;~~
- ~~(d) whether required approvals or permits from other governmental agencies (e.g. local planning commissions, building inspectors, Utah Division of Water Rights) are awaiting approval by the Director, the agency's name and contact person;~~
- ~~(e) the fire marshal, fire district or other entity having legal authority to specify requirements for fire suppression in the project area;~~
- ~~(f) for community and non-transient non-community public water systems or any public water system treating surface water, the name of the certified operator who is, or will be, in direct responsible charge of the water system;~~

~~(g) whether the water system has a registered professional engineer employed, appointed or designated as being directly responsible for the entire system design and his or her name and whether the system is requesting waiving of plan submittal under conditions of R309-500-6(3),~~

~~(h) the anticipated construction schedule, and~~

~~(i) a description of the type of legal entity responsible for the water system (i.e. corporation, political subdivision, mutual ownership, individual ownership, etc.) and the status of the entity with respect to the rules of the Utah Public Service Commission.~~

Guidance: In addition to the Project Notification Form, new public water systems should submit a New Public Water System Supplemental Form to the Director.

Guidance: The Utah Public Service Commission (PSC) regulates water utilities meeting the definition of a “water corporation” as found in 54-2-1 of the Utah Code. However, water utilities owned by political subdivisions are not subject to PSC regulation – see U.C. 54-2-1 (29). Mutual water companies serving only their members may obtain a Letter of Exemption from PSC regulation. All public water systems shall refer to Title 54 of the Utah Code and R746-331 of the Utah Administrative Code and approach the PSC for a determination of whether the system qualifies for an exemption from PSC regulation. [THE HIGHLIGHTED GUIDANCE WILL BE MOVED TO R309-100-4(1).]

(2) Pre-Construction Requirements.

All of the following shall be accomplished before construction of any public drinking water project ~~commences~~begins:

(a) ~~Contract documents, p~~Plans and specifications for a public drinking water project shall be submitted to the Division at least 30 days prior to the date on which action is desired ~~unless the system is eligible for and has requested waiving of plan submittal.~~

Guidance: Review of complicated projects, especially water treatment facilities, may require more that than 30 days and shall should be submitted well in advance of the date on which action is desired.

(b) ~~Any s~~Submittals ~~required may shall~~ include engineering reports, pipe network hydraulic analyses of the existing system and additions, local requirements for fire flow and duration, proximity of sewers and other utilities, water consumption data, supporting information, evidence of rights-of-way and reference to any previously submitted master plans pertinent to the project, ~~along with~~ a description of a

program for keeping existing water works facilities in operation during construction so as to minimize interruption of service, etc.

~~(b) Plans and specifications shall be prepared for every anticipated public water system project. The design utilized shall conform to the requirements of R309-500 through R309-550. Furthermore,~~

~~(c) The plans and specifications submitted shall be complete and sufficiently detailed for actual construction, to assure that the project shall be properly constructed. Drawings shall be compatible with Division's document storage and microfilming practice. In some cases, a profile may be required to show potential water line conflicts and clearances.~~

Guidance: It is recommended that an inspector, familiar with these rules, be retained to observe all construction.

~~(d) Drawings which that are illegible or of unusual size shall will not be accepted for review. Drawing size shall not exceed 30" x 42" nor be less than 8-1/2" x 11".~~

~~(e) The plans and specifications shall be stamped and signed by a licensed professional engineer, in accordance with as required by Section 58-22-602(2) of the Utah Code.~~

~~***Guidance: 58-22-602(2) in part reads: "Any final plan, specification, and report prepared by, or under the supervision of, the professional engineer shall bear the seal of the professional engineer when submitted to a client, when filed with public authorities, ...". As authorized by 19-4-104(1)(b), the Drinking Water Board may "require the submission to the Director of plans and specifications for construction of, substantial addition to, or alteration of public water systems for review and approval by the board before that action begins and require any modifications or impose any conditions that may be necessary to carry out the purposes of this chapter."***~~

~~***Therefore the Drinking Water Board is considered as the State Authority having regulatory control over public water systems and any submittal to the board, through the Director, on behalf of a client is considered a filing with public authorities and required to bear the stamp and signature of a professional engineer.***~~

~~***Staff at the Division are repeatedly questioned concerning the need to have a licensed professional engineer stamp and sign sketches, drawings, or plans submitted for review, especially where simple waterline extensions or additions are concerned. 58-22-102(9) of the Utah Code in part defines "Professional engineering or the practice of engineering" as meaning any service or creative work, the adequate performance of which requires engineering education, training, and experience in the application of special knowledge of the***~~

~~mathematical, physical, and engineering sciences to such services or creative work as...planning, design, and design coordination of engineering works and systems...any of which embraces such services or work, either public or private, in connection with any utilities....and including such other professional services as may be necessary to the planning, progress and completion of any engineering services.~~

~~The Division, the Director, and the Board cannot waive requirements of other agencies; therefore small public water systems are encouraged to utilize a professional engineer to create a meaningful “master plan” and “standard system drawings”, have them reviewed and approved by the Director one time, then they may construct the system in phases by simply notifying the Division, citing the previously approved submittal, and requesting a waiver of our requirement for plans and specifications submittal for the current construction phase as allowed by R309-500-6(3)(a).~~

~~(df) Plans and specifications shall be reviewed for conformance with R309-500 through R309-550. No work shall commence on a public water system project until a plan approval has been issued by the Director unless conditions outlined in R309-500-6(3) are met and waiving of plan submittal has been requested. If construction or the ordering of substantial equipment has not commenced within one year, a renewal of the Plan Approval shall be obtained prior to proceeding with construction.~~

~~(e) If, in the judgment of the Director, alternate designs or specific solutions can protect the public health to the same or greater extent as achieved in R309-500 through R309-550, the Director may grant an exception thereto (see the third paragraph of R309-500-4(1)).~~

~~(f) Novel equipment or treatment techniques may be developed which are not specifically addressed by these rules. These may be accepted by the Director if it can be shown that:~~

~~(i) the technique will produce water meeting the requirements of R309-200 of these rules;~~

~~(ii) the Director has determined that it will protect public health to the same extent provided by comparable treatment processes outlined in these rules; and~~

~~(iii) the Director has determined the technique is as reliable as any comparable treatment process outlined in these rules.~~

~~(3) Waiving of Plan Submittal Requirement.~~

With identification of a professional engineer, as indicated below, on a project notification form the plan submittal requirement may be waived for certain projects. In these instances, in lieu of plans and specifications, a "certification of rule conformance" shall be submitted along with the additional information required for an operating permit (see R309-500-9), signed by the professional engineer identified to Director in (b) or, if the system has not employed, appointed, or designated such, the registered professional engineer who prepared the items in (a). Projects eligible for this waiving of plan submittal are:

(a) distribution system improvements (excluding pressure reducing valve stations and in-line booster pump stations) which conform to a "master plan" previously reviewed and approved by the Director and installed in accordance with the system's standard installation drawings, also previously reviewed and approved by the Director, or

(b) distribution system improvements consisting solely of pipelines and pipeline appurtenances (excluding pressure reducing valve stations and in-line booster pump stations);

(i) less than or equal to 4 inches in diameter in water systems (without fire hydrants) serving solely a residential population less than 3,300;

(ii) less than or equal to 8 inches in diameter in water systems (with fire hydrants) providing water for mixed use (commercial, industrial, agricultural and/or residential) to a population less than 3,300;

(iii) less than or equal to 12 inches in diameter in water systems (with fire hydrants) providing water for mixed use to a population between 3,300 and 50,000;

(iv) less than or equal to 16 inches in diameter in water systems (with fire hydrants) providing water for mixed use to a population greater than 50,000.

Additionally, the above systems in (b) shall employ, appoint or designate a registered professional engineer who is directly responsible for the entire public water system design and identify this individual to the Director as well as have standard installation drawings previously reviewed and approved by the Division before being eligible for waiving of plan submittal requirements.

(3) Eligibility for Plan Submittal Waivers.

In lieu of submitting plans and specifications for Plan Approval, public water systems may request plan submittal waivers for two types of water line projects (excluding booster pump stations) after first becoming eligible to request the waivers. The Director will issue written notification that a public water system is eligible to request the plan submittal waivers described in R309-500-6(3)(a) and (3)(b) if the information provided is acceptable.

(a) Water Line Projects Included in an Approved Master Plan. To become eligible to request this type of waiver, a public water system must submit standard installation drawings and a master plan, which is supported by a hydraulic analysis, to the Director for approval.

(b) Water Line Projects Included in (i) through (iii) below. To become eligible to request this type of waiver, a public water system must submit standard installation drawings and identify in writing the professional engineer directly responsible for the design of the entire water system to the Director for approval.

(i) Water lines less than or equal to 8 inches in diameter in water systems providing water to a population less than 3,300;

(ii) Water lines less than or equal to 12 inches in diameter in water systems providing water to a population between 3,300 and 50,000; or

(iii) Water lines less than or equal to 16 inches in diameter in water systems providing water to a population greater than 50,000.

(4) Using Plan Submittal Waivers.

After becoming eligible to request plan submittal waivers per R309-500-6(3), a public water system must complete the following when requesting a plan submittal waiver for a water line project:

(a) Submit a complete Project Notification Form describing the project and specifying which plan submittal waiver, R309-500-6(3)(a) or R309-500-6(3)(b), is being requested;

(b) For projects that will have a hydraulic impact, submit a certification of hydraulic analysis by a professional engineer per R309-511-6(1), which indicates that the design will not result in unacceptable pressure and flow conditions (including fire flow if fire hydrants are installed);

(c) Obtain a written plan submittal waiver, in lieu of Plan Approval, from the Director prior to the start of construction; and

(d) After completion of construction, submit an Operating Permit request per R309-500-9.

R309-500-7. Inspection During during Construction.

Staff from the Division, ~~or~~ the Department of Environmental Quality, or the appropriate local health department, after reasonable notice and presentation of credentials may make visits to the work site to assure compliance with these rules.

~~Guidance: It is recommended that a full-time inspector(s), familiar with these rules, be retained to observe all construction activities. This is particularly important for buried facilities such as pipelines.~~ [THIS GUIDANCE HAS BEEN MOVED TO R309-500-6(2)(c).]

R309-500-8. Change Orders.

Any deviations from approved plans or specifications affecting capacity, hydraulic conditions, operating units, the functioning of water treatment processes, or the quality of water to be delivered, shall be reported to the Director. ~~If deemed appropriate,~~ The Director may require that revised plans and specifications be submitted for review. ~~If required,~~ Revised plans or specifications shall be submitted to the Division in time to permit the review and approval of such plans or specifications before any construction work, which will be affected by such changes, is begun.

R309-500-9. Issuance of Operating Permit.

The Division shall be informed when a public drinking water project, or a well-defined phase thereof, is at or near completion. The new or modified facility shall not be ~~placed in service~~ until an "Operating Permit" is issued, ~~in writing,~~ by the Director. ~~This~~ The Operating permit Permit shall will not be issued until all of the following items are submitted and found to be acceptable for all projects, ~~with the exception of d~~ Distribution lines (not including in-line booster pump stations ~~or pressure-reducing stations~~), ~~which~~ may be placed into service prior to submittal of all items if the professional engineer responsible for the entire system, as identified to the Director, has received items (1) and (4):

- (1) a Certification of Rule Conformance statement from by a registered professional engineer stating that all conditions of Plan Approval were accomplished and if applicable, changes made during construction were in conformance with R309-500 through 550 rules ("certification of rule conformance"),
- (2) as-built or "record" drawings incorporating all changes to approved plans and specifications; unless no changes are made from previously submitted and approved plans during construction,
- (3) confirmation that a copy of the as-built or "record" drawings has been received by the water system owner,
- (4) evidence of proper flushing and disinfection in accordance with the appropriate ANSI/AWWA Standard,
- (5) where appropriate, water quality data

~~Guidance: When the interior of drinking water storage tanks are painted or otherwise recoated with a material which contains a volatile organic that may be leached into the~~

~~drinking water we recommend that, to verify the proper curing of the coating, water samples be taken and analyzed for said particular volatile organic constituent of the coating prior to re-introducing any water from the tank into the drinking water system~~
Water quality data for finished and raw water samples will be required as evidence of effective performance of new or modified water treatment plans prior to issuing an Operating Permit.

~~(6) a statement from the Engineer indicating what changes to the project were necessary during construction, and certification that all of these changes were in conformance with these rules ("certification of rule conformance"),~~

~~(7)~~ all other documentation which may have been required during the plan review process, and

~~(8)~~ confirmation that the water system owner has been provided with an Operation and Maintenance manual for the new facility if applicable.

R309-500-10. Adequacy of Waste and Wastewater Disposal.

Approval of Plans and specifications for new may require evidence showing that water systems, or facilities required as a result of proposed subdivision additions to existing water systems, shall only be approved if the method(s) of waste and wastewater disposal in the affected area have been approved or accepted, or been determined to be feasible, by the Utah Division of Water Quality, or the appropriate local health agency, or the local authority for:

(1) New drinking water facilities, including discharges from treatment facilities, discharges related to construction, etc., and

(2) New drinking water facilities serving proposed developments.

R309-500-11. Financial Viability.

~~Owners of new or existing water systems are encouraged to develop realistic financial strategies for recouping the costs of constructing and operating their systems. Plans for water system facilities shall not be approved when it is obvious that public health will eventually be threatened because the anticipated usage of the system will not generate sufficient funds to insure proper operation and maintenance of the system (see also R309-352-5).~~

~~**Guidance: To permit an evaluation in this regard, capital and operating cost estimates shall be provided along with the engineering plans and specifications for any proposed project.**~~

R309-500-1211. Fee Schedule.

The Division may charge a fee for related to the review of plans and specifications. A fee schedule is available from the Division.

Guidance: ~~If the project involves well grout witness of a new well by Division staff, a Well Grout Sealing Inspection fee of \$90.00 per hour (plus mileage and "per diem" food and lodging expenses) is charged to the driller by the Division. Beginning in State Fiscal Year 2016, the DEQ budget may include a line item for assessing a penalty for beginning construction without Plan Approval or placing unapproved drinking water facilities into service.~~

R309-500-1312. Other Permits.

Local, county, or other state, or federal permits may also be necessary before beginning construction of any drinking water project.

R309-500-14. Reference Documents.

~~All references made in R309-500 through R309-550 are available for inspection at the Division's office.~~

R309-500-15. Violations of These Rules.

~~Violations of rule contained in R309-500 through R309-550 are subject to the provisions of the Utah Safe Drinking Water Act (Title 19, Chapter 4 Section 109 of the Utah Code) and may be subject to fines and penalties.~~

Guidance: Safety

~~The requirements of the Utah Occupational Safety and Health Administration (UOSHA) shall be met during the construction or operation of public drinking water facilities. However these rules are not enforced by the Division and, furthermore, Division inspections do not include safety-related items.~~

KEY: drinking water, plan review, operation and maintenance requirements, permits

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