Chapter II

REPORTS, PLANS AND SPECIFICATIONS

A. PROCEDURES FOR WATER SUPPLY PROJECT APPROVAL

The following KDHE review procedure is designed to facilitate the efficient processing of PWSS projects as required by KSA 65-163 and KAR 28-15-16. Table II-1 summarizes the basic steps leading to KDHE approval, especially as they relate to the design engineer. The tasks are common to all water supply projects with a few exceptions. These deviations are identified and discussed following the general procedure for water supply project approval.

1. APPROVAL STEPS

a. PRELIMINARY REPORT PREPARATION (TASK 1) – The preparation of a preliminary report by the engineer for the client outlines the alternatives that exist for public water supply improvements, extensions and where applicable consideration of regionalization. The client uses the report to make an assessment of possible actions and as a basis for directing the engineer to continue the investigation. The items covered in the report are similar to those required for the engineer's report.

b. ENGINEER'S REPORT PREPARATION AND SUBMISSION (TASK 2) – The engineer's report consists of the details necessary to establish the proposed project design. KDHE approval of the engineer's report is not required but a copy must be submitted so that preparations can be made for the design concepts conference.

c. DESIGN CONFERENCE (TASK 3) – A meeting is held with KDHE to establish the design concepts to be incorporated in the final design of the PWSS. KDHE is concerned primarily about the functional and sanitary features of the design; hence, the meeting is used to insure that the design engineer understands these requirements for the proposed design. KDHE will notify the engineer in writing about the acceptability of the proposed design.

d. PLANS, SPECIFICATIONS AND PERMIT APPLICATION SUBMISSION (TASK 4) – The preparation of plans and specifications by the engineer must be based on the previously approved design approach. Also, KDHE has the authority to require a design revision if new information has been developed since the design concepts meeting. Deviations from the engineer's report must be identified and substantiated.

TABLE II-1

OUTLINE OF PUBLIC WATER SUPPLY PROJECT (GENERAL) PROCEDURE

Task No.	Action Required by Engineer	Timing for Engineer	Action Required by KDHE	Timing for KDHE
1	Preparation of preliminary report	None	None	None
2	Preparation and submission of engineer's report	Within 1 year after completion of Task No. 1	Comments optional	None
3	Schedule design concepts conference involving engineer and KDHE	None	Approval in writing	ASAP
4	Submission of plans, specifications, and permit application(s) Existing systems use existing system permit application New systems submit Parts 1 & 2 of a new system permit application (Part 2 is a TFM Capacity Development assessment)	Within 1 year after completion of Task No. 3 With plans Prior to construction	Approval in writing of plans and specifications, permit application(s) and, for new systems, a TFM Capacity Development assessment	ASAP after submission & prior to approval for construction
5	Initiation of construction steps	Within 2 years after completion of Task No. 4	None	None
6	Notification of completion and the construction cost by the engineer	ASAP after completion of construction	Post-construction inspection Issuance of permit	ASAP ASAP

The plans and specifications must be submitted to KDHE along with a notarized Public Water Supply Permit Application signed by the mayor, rural water district board chairman, city manager, or an official of the PWSS authorized to do business for the PWSS. The information in the permit application may be taken from the engineer's report or the plans and specifications.

Existing systems complete and submit for review the standard permit application; however, new systems must complete and submit for review a new system permit application Part 1 and Part 2. Part 1 is similar to the standard permit application for existing systems. Part 2 is an assessment entitled "Technical, Financial and Managerial Capacity Assessment for New Public Water Supply Systems." The 1996 Amendments to the Safe Drinking Water Act require that a new system demonstrate adequate Technical, Financial and Managerial (TFM) capacity before providing water service to their customers. The review and approval of the permit application Part 2 is part of KDHE's capacity development program. For new systems, Part 2 is submitted to KDHE for review and approval in addition to plans, specifications and a completed permit application Part 1. Permit applications for both existing systems and new systems are available at KDHE's web address: http://www.kdheks.gov/pws/.

KDHE requests that two sets of plans and specifications be submitted for all projects with the exception that only one set of plans and specifications be submitted for projects not requiring a final inspection and permit such as water line extensions. In order to facilitate processing and reduce costs, KDHE additionally requests that plan size be limited to 11"x17". Full size plan title pages requiring an approval stamp and return can be included in the submittal.

KDHE approval of the plans and specifications and the permit application may require several weeks after receipt of the required submittals, depending on the complexity of the project.

The project engineer must be cognizant of the need to submit plans, specifications, permit applications or other documentation to agencies or organizations other than KDHE. For example, KSA 82a-621 requires that plans, specifications, proposed operating budget and other specified documentation relating to the design and operation of a new rural water district be filed with the chief engineer of DWR.

In addition, construction projects that will disturb one or more acres of land are required to secure, prior to the start of construction, authorization to discharge stormwater runoff under the construction stormwater general permit S-MCST-0110-1. Information regarding this authorization can be

found at http://www.kdheks.gov/stormwater/index.html#general (on the Stormwater Program web site).

e. INITIATION OF CONSTRUCTION (TASK 5) – After KDHE approves the plans and specifications and the permit application, bids can be solicited and the construction contract let. Delays in the initiation of construction over 2 years after approval will require re-submittal of the plans, specifications and permit application.

f. NOTIFICATION, INSPECTION, AND APPROVAL (TASK 6) – As soon as the functional and sanitary facilities of the water system or water system modification are constructed and operational, the engineer must notify KDHE by letter so that a post-construction inspection can be made. The bid amount (construction cost) for the project is to be included in the notification.

If the construction is found to be in accordance with the approved plans and specifications, KDHE will issue a permit to the PWSS. The new facility or the modifications to an existing facility may then be placed into service.

2. SCOPE OF REVIEW – Task 3 in obtaining approval of a public water supply project identifies KDHE's primary design concerns as the functional and sanitary features. This means that the engineer's report and plans/specifications will be reviewed in these areas. "Functional" refers to the ability of a design to provide the required water quantity and accomplish the desired water quality changes. "Sanitary" concerns reflect the public and operator health/safety aspects of the proposed design.

3. DEVIATIONS/MODIFICATIONS TO KDHE STANDARD APPROVAL PROCEDURE

a. WATER MAIN EXTENSIONS – Tasks 1 through 3 of Table II-1 will not be required for water main extensions unless specifically directed by KDHE or otherwise required by the funding source for the project. Water main extensions will not receive a post-construction inspection by KDHE; however, written notification of completion along with the project bid amount (construction cost) is still required. Further, a permit will not be issued for water main extensions less than 1 mile in total length and permit applications need not be completed and submitted for such projects. However, preparation and submission of plans and specifications is required for all water main extensions.

b. MINOR ADDITIONS/MODIFICATIONS TO PROCESSES – Tasks 1 through 3 of Table II-1 will not be required for minor additions or modifications to a treatment process unless specifically directed by KDHE or otherwise required by the funding source for the project. The engineer should contact the Chief of the Engineering and Permits Unit of the Public Water

Supply Section, KDHE, for specific clarification on whether an engineering report is necessary. It is anticipated that in lieu of Task 3, a teleconference will be sufficient for most projects if KDHE has questions or comments concerning a project.

c. NEW WELLS – Tasks 1 through 3 of Table II-1 will not be required for new well construction unless specifically directed by KDHE or otherwise required by the funding source for this project. However, additional information must be submitted which is described in Subsection B.3 of this chapter including documentation of the absence of pollution sources and the availability of water quality sampling results. Such documentation and results shall be submitted along with the plans, specifications and permit application as discussed in Task 4. KDHE approval is required before new well construction can begin.

B. DOCUMENTATION REQUIREMENTS FOR WATER SUPPLY PROJECT APPROVAL

Tasks 1, 2, and part of 4 of the approval procedure consist of the preparation of a preliminary report, an engineer's report, and plans and specification. Tasks 1 and 2 serve different purposes but share similar coverage since a comprehensive view of the water supply situation is required. Task 4 uses the information derived in the report preparation steps to allow the completion of the project plans and specifications (and also the Public Water Supply Permit Application). The following listings summarize the information generally necessary to establish the proposed design (preliminary and engineer's reports) and the specific requirements (plans and specifications) for its construction. Detailed design information for these outlined items is presented in Chapter V.

1. PRELIMINARY AND ENGINEER'S REPORTS – The preliminary report (Task 1) is preliminary in that it is the client's first formal look at the project alternatives as proposed by the engineer. It differs from the engineer's report (Task 2) in its limited detail and the still tentative recommendations. The engineer's report represents the final assessment of the water supply project alternatives prior to seeking approval from KDHE.

   This report includes a detailed review of the existing water situation along with the data and considerations used to establish the proposed design. Alternative proposals are compared so that the relative merits of each are apparent. Cost analyses are made to justify the proposed design and include estimates of the capital and O&M costs along with the recommended method of financing. Recommended coverage for the preliminary and engineer's reports includes the various topics reviewed in the design guidelines and standards section, especially the items discussed in Chapter V.

2. PLANS AND SPECIFICATIONS (GENERAL) – All pertinent construction information must be included in the plans and/or the specifications. The following

outline summarizes the recommended location for such information where applicable. Another accepted format is the Construction Specifications Institute format, a standardized format used to facilitate the preparation and review of plans and specifications.

a. PLANS AND GENERAL REQUIREMENTS

1) Suitable title

2) Name of legal entity or responsible person

3) Area of entity to be served

4) Scale

5) North arrow

6) Datum used

7) Name and address of design engineer

8) Imprint, date of placement of engineer's seal, and engineer's signature

9) Legible prints suitable for reproduction

b. PLANS AND PROJECT DESIGN REQUIREMENTS

1) Summary of facilities' proposed sizes and design criteria for major facilities.

2) Summary of sizes, known design criteria and yields for existing facilities.

3) Location and nature of existing facilities affecting or having a relationship to the proposed improvements.

4) Boundaries of area to be served.

5) Relative locations of existing and proposed:

a) Water main lengths (with sizes);

b) Sewers and drains (with sizes and with distances relative to water main locations shown in plan and profile views);

c) Other sources of pollution;

d) Chemical storage areas, feed equipment and points of application; and

e) Sampling taps.

6) Locations, dimensions, and elevations of proposed facilities.

7) Schematic flow diagrams and hydraulic profiles through the plant.

8) Piping details for plant flow schemes.

9) 100-year flood elevation and known flood elevations relative to facilities.

10) Topography and arrangement of facilities.

11) Stream crossings with bed elevations and water profiles for low, normal, and flood flows.

12) Plan and profile drawings for well construction.

13) Description of features or facilities not covered by specifications.

c. SPECIFICATIONS – Complete and detailed specifications shall be supplied for the proposed project including:

1) Same labeling as labeling of plans;

2) Imprint, date of placement of engineer's seal, and engineer's signature;

3) A program for keeping existing water works facilities both in operation and in compliance with the drinking water regulations during construction;

4) Laboratory facilities and equipment;

5) The design of chemical storage, handling, and application facilities (Chapter IX);

6) Materials or proprietary equipment for sanitary or other facilities including any necessary backflow or back siphonage protection; and

7) Additional information relevant to construction, but not included in the plans.

3. DOCUMENTATION REQUIREMENTS FOR NEW WELLS

The following documentation, in addition to a public water supply permit application, should be provided for all new wells:

a. LOCATION DETAILS – A plan, sketch or topographic map with scale, north arrow and title showing the location of the proposed water supply well with respect to roads, houses, wells, and potential sources of pollution such as sewer lines, privies, cesspools, septic tanks, lateral fields, animal feedlots, and underground storage tanks or pipes for petroleum products or chemicals. In addition, the test wells used in locating and designing the proposed water supply well should be clearly indicated on the drawing.

b. WELL DETAILS – A plan or sketch showing the type of well construction to be used. Items to be shown include: depth and diameter of the drill hole; type of material, diameter, weight and thickness of the casing, the well screen, and the gravel pack; the thickness and depth of the grout; the extension of the well casing above the existing ground level; the 100-year flood elevation or the highest known flood level at the well location; the well vent; the drawdown gauge; the discharge line including the meter, the check and gate valves; the pump motor and concrete pedestal for a vertical turbine installation; the sanitary well seal in the case of above ground discharge for a submersible turbine pump, or the pitless unit in the case of below ground discharge for a submersible pump; the chlorination equipment and point of chlorine application; the raw well water and chlorinated water sampling taps; and the well house. In addition, the lithologic log(s) and formation sampling results from the test well(s) which were relied on in locating and designing the proposed water supply well should be submitted to KDHE along with any hydrologic data from preliminary pump tests.

c. WATER LINE DETAILS – Provide a sketch showing the connection of the water line from the proposed well to the distribution system. In addition, provide details of the pipe diameter, material of construction, depth of burial, details of trenching and backfilling, specifications for the separation of the water line from pollution sources, pressure and leak testing, and disinfection procedures to be used in the construction of the water line.

d. DOCUMENTATION OF ABSENCE OF POLLUTION SOURCES – Document by easement or letter that no potential sources of pollution will be allowed within 100 feet (30.5 m) of the well as described in Chapter IV.

e. WATER SAMPLING – Provide analytical results from analysis of water samples collected from the aquifer in which the well is to be completed as described in Subsection B.4 of this chapter and in Appendix B.

4. WATER SAMPLING REQUIREMENTS FOR NEW SOURCES (SURFACE WATERS AND WELLS)

KAR 28-15-16(d) requires new water supply sources to be sampled and analyzed for certain bacteriological, chemical and radiological constituents. Required analytical parameters for monitoring new sources are presented in Appendix B along with recommended sampling procedures. Analytical results must be submitted to KDHE in addition to the plans, specifications, and permit application before final approval will be granted. It is important to keep abreast of the requirements of both current and proposed drinking water regulations during the development of new sources as additional long term monitoring may be required and the results of that monitoring may necessitate changes in treatment. This section as well as Appendix B and its Attachments A and B will be updated as the Rules are promulgated.

5. DOCUMENTATION REQUIREMENTS FOR TREATMENT PLANT MODIFICATIONS

A public water supply permit application and submission of plans and specifications are required for alterations or improvements involving a change in the treatment methods or the design capacity. A change in disinfection practice is also a change in treatment. Accordingly disinfection profiles and benchmarks (USEPA, 1999a) and CT ratio and log inactivation calculations for both the existing and proposed disinfection practice must be submitted to KDHE for review. Changes in design capacity may be as simple as installing a larger capacity pump or as complex as the addition of new water supply system infrastructure. Both would require submission of the above to KDHE for review and approval.

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