

December 4, 2007

RECEIVED

DEC 07 2007

PUBLIC SERVICE
COMMISSION

Mr. James Rice
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, Kentucky 40602-0615

RE: Case Number 2007-00492
Crafts Colly Water Improvements Project
Letcher County Water and Sewer District
Letcher County, Kentucky

Dear Mr. Rice,

Please find transmitted herewith the following:

1. Two sets of project plans for the referenced project.
2. Two sets of project specifications for the referenced project.
3. The DOW permit that applies to Alternate 1 of the referenced project.

Should you have any questions or comments concerning this transmittal, please do not hesitate to contact us. We may be reached at 859-278-5412.

Sincerely,
Bell Engineering

A handwritten signature in cursive script that reads "Stephen Caudill".

Stephen Caudill
Project Manager

cc: Mr. Greg Pridemore, LCWSD
Mr. Randy Jones, Rubin & Hays

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DEC 07 2007

PUBLIC SERVICE
COMMISSION

Approval of Plans and Specs from DOW

Attached is the original approval. This approval was renewed in 2005. Construction was begun on the project in the spring of 2006. Based on a determination from DOW, since construction has begun, the original permit is now good indefinitely.

ERNIE FLETCHER
GOVERNOR



LAJUANA S. WILCHER
SECRETARY

COMMONWEALTH OF KENTUCKY
ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
14 REILLY RD
FRANKFORT, KY 40601
August 05, 2004

Jim Tolliver, Director
Letcher County Water and Sewer District
P.O. BOX 827
Whitesburg, KY 41858

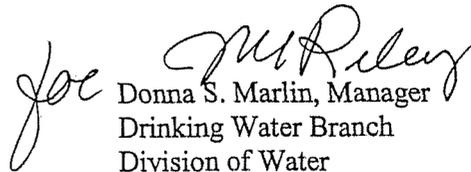
RE: Letcher County
AI No: 8737
DW No: 0670652-04-001
Letcher Co. Water Systems Improvements
Contracts 519-03-04 through 519-03-08
Activity ID: APE 20040001

Dear Mr. Tolliver:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 86,073 feet of 8-inch PVC/DI, 63,270 feet of 6-inch PVC, 34,048 feet of 4 PVC and 16,984 feet of 3-inch Water lines, 200,000 gallons ground storage tank and a 40 hp booster pump station (280 gpm @ 410 TDH). This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit.

If you have any questions concerning this project, please contact Solitha Dharman at (502) 564-2225, extension 572.

Sincerely,


Donna S. Marlin, Manager
Drinking Water Branch
Division of Water

DSM:SWD
Enclosures

C: ✓ Steve Caudill, P.E., HKB Consulting Engineers, Inc.
Letcher County Health Department
Public Service Commission
Division of Plumbing





ERNIE FLETCHER
GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
14 REILLY ROAD
FRANKFORT, KENTUCKY 40601-1190
www.kentucky.gov

LAJUANA S. WILCHER
SECRETARY

General Certification--Nationwide Permit #12 Utility Line Backfill and Bedding

This General Certification is issued March 17, 2002, in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33USC 1314), as well as Kentucky Statute KRS 224.16-070.

The Commonwealth of Kentucky hereby certifies under Section 401 of the Clean Water Act (CWA) that it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 5, established pursuant to Sections 301, 302, 304, 306 and 307 of the CWA, will not be violated for the activity covered under 33 CFR Part 330 Appendix A (B) (12), namely utility line backfill and bedding provided that the following conditions are met:

1. This general Water Quality Certification is limited to the crossing of streams by utility lines. The length of a single utility stream crossing shall not exceed twice the width of the stream. This document does not authorize the installation of utility lines in a linear manner within the stream channel or below the top of the stream bank.
2. The provisions of 401 KAR 5:005 Section 8 are hereby incorporated into this General Water Quality Certification. Namely, "Sewer lines shall be located at least 50 feet away from a stream which appears as a blue line on a USGS 7 ½ minute topographic map except where the sewer alignment crosses the stream. The distance shall be measured from the top of the stream bank. The cabinet may allow construction within the 50' buffer if adequate methods are used to prevent soil from entering the stream."

Gravity sewer lines and force mains that cross streams shall be constructed by methods that maintain normal stream flow and allow for a dry excavation. Water pumped from the excavation shall be contained and allowed to settle prior to re-entering the stream. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream. Spoil material from the sewer line excavation shall not be allowed to enter the flowing portion of the stream." The provisions of this condition shall apply to all types of utility line stream crossings.

3. Removal of riparian vegetation in the utility line right-of-way shall be limited to that necessary for equipment access. Effective erosion and sedimentation control measures must be employed at all times during the project to prevent degradation of waters of the Commonwealth. Site regarding and reseeding will be accomplished within 14 days after disturbance.



4. Utility line construction projects through jurisdictional wetlands shall not result in conversion of the area to non-wetland status.
5. This General Certification shall not apply to those waters of the Commonwealth identified as Outstanding State Resource Waters, Exceptional Waters or Cold Water Aquatic Habitat Waters, as designated by the Division of Water. An individual Water Quality Certification will be required for projects in these waters.

Non-compliance with the conditions of this general certification or violation of Kentucky state water quality standards may result in civil penalties.

This general certification will expire on March 19, 2007, or sooner if the COE makes significant changes to this nationwide permit.

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Department for Environmental Protection
Division of Water

401 KAR 4:050. Construction exemptions.

RELATES TO: KRS 151.110, 151.250, 151.310

STATUTORY AUTHORITY: KRS 151.230, 151.250

NECESSITY AND FUNCTION: In the course of regulating construction in or along streams pursuant to KRS 151.250, the Natural Resources and Environmental Protection Cabinet frequently encounters actions or proposed actions which are of such nature or location as to have little potential for damage or such that any damage which would occur is limited in extent to the immediate vicinity of the action. This regulation exempts construction of this type from the provisions of KRS 151.250.

Section 1. A construction permit pursuant to KRS 151.250 shall not be required for construction in or along a stream whose watershed is less than one (1) square mile, except for the construction of dams as defined by KRS 151.100 or other water impounding structures or for any construction that does or may endanger life or cause severe damage to residential or commercial property.

Section 2. A construction permit pursuant to KRS 151.250 shall not be required for a subfluvial utility or pipeline crossing provided that the construction of the crossing meets the following criteria:

(1) During the construction of the crossing, no material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc., unless prior approval has been obtained from the cabinet.

(2) The trench shall be backfilled as closely as possible to the original contour. All excess material from construction of the trench shall be disposed of outside of the flood plain unless the applicant has received prior approval from the cabinet to fill within the flood plain.

(3) For subfluvial crossings of erodible channels, there shall be at least thirty (30) inches clear to the top of the pipe or conduit at all points.

(4) For subfluvial crossings of nonerodible channels, there shall be at least six (6) inches of clear cover above the top of the pipe or conduit at all points, and the pipe or conduit shall be encased on all sides by at least six (6) inches of concrete.

(5) The weight of a pipe and its contents during normal operating conditions at all points must exceed that of an equal volume of water, or the applicant must provide the division with sufficient information to show that the pipe and joints have sufficient strength. (7 Ky.R. 365; eff. 11-6-80.)

Distribution-Major Construction

Letcher Co Water & Sewer District

Subject Item Inventory

Activity ID No.: APE20040003

Subject Item Inventory:

ID	Designation	Description
AIOO8737		
PORT1	Water Line Extension	86073 feet of 8-inch, 63270 feet of 6-inch, 34048 feet of 4-inch and 16984 feet of 3-inch Water Lines for constructs; C-519-03-4,5,6,7(Sandlick, Camp Branch, KY 7, Little Dry Fork Road)
PORT4	Booster Pump Station	C-519-3-4 (Sandlick pump station-two 40 hp pumps , each 280 gpm @ 410 TDH)
STOR1	Ground Storage Tank	C-519-3-8 (200,000 gallons Ground Water Storage Tank)

Subject Item Groups:

ID	Description	Components
GACT1	Sandlick WLE including booster pump station, Camp Branch WLE, KY 7 WLE, Little Dry Fork Road WLE, 200,000 gallons Ground Water Storage Tank	PORT4 C-519-3-4 (Sandlick pump station-two 40 hp pumps , each 280 gpm @ 410 TDH)
		STOR1 C-519-3-8 (200,000 gallons Ground Water Storage Tank)
		PORT1 86073 feet of 8-inch, 63270 feet of 6-inch, 34048 feet of 4-inch and 16984 feet of 3-inch Water Lines for constructs; C-519-03-4,5,6,7(Sandlick, Camp Branch, KY 7, Little Dry Fork Road)

KEY

ACTV = Activity

AREA = Area

EQPT = Equipment

PERS = Personnel

STOR = Storage

AIOO = Agency Interest

COMB = Combustion

MNPT = Monitoring Point

PORT = Transport

STRC = Structure

Distribution-Major Construction

Letcher Co Water & Sewer District

Subject Item Inventory

Activity ID No.: APE20040003

KEY

TRMT = Treatment

Distribution-Major Construction

Letcher Co Water & Sewer District

Facility Requirements

Activity ID No.: APE20040003

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GACT1 (Water System Improvements) Sandlick WLE including booster pump station, Camp Branch WLE, KY 7 WLE, Little Dry Fork Road WLE, 200,000 gallons Ground Water Storage Tank:

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1	Coliform	The presence or absence of total Coliform monitored by sampling and analysis as needed shall be determined for the new or relocated water line(s). Take samples at connection points to existing lines, at 1 mile intervals, and at dead ends without omitting any branch of the new or relocated water line. Sample bottles shall be clearly identified as "special" construction tests. [401 KAR 8:100 Section 1(7), 401 KAR 8:150 Section 4, Recommended Standards for Water Works 8.5.6] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.
M-2	Coliform	The presence or absence of total Coliform monitored by sampling and analysis as needed shall be determined for the new storage structure(s). With at least 1 sample taken at least 24 hours after the first construction complete sample(s), take 2 or more samples from the yard hydrant, the outlet piping from the storage structure, or a sample tap directly connected to the storage structure. Sample bottles shall be clearly identified as "special" construction tests. [Recommended Standards for Water Works 7.0.18, 401 KAR 8:150 Section 4] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.
M-3	Coliform	The presence or absence of total Coliform monitored by sampling and analysis as needed shall be determined for the new pump(s). If the pump(s) are independent of (not directly connected to) the new or relocated lines, take at least 1 sample at the discharge side pitcock. Otherwise, no additional sampling beyond the sampling required for new or relocated lines shall be required in association with the pump(s). Sample bottles shall be clearly identified as "special" construction tests. [401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.

Distribution-Major Construction

Letcher Co Water & Sewer District
Facility Requirements

Activity ID No.: APE20040003

Submittal/Action Requirements:

Coliform:

Condition

No. Condition

S-1 **Coliform**
For new construction projects, the distribution system, using the most expedient method, shall submit Coliform test results to the Cabinet: Due immediately following disinfection and flushing. [401 KAR 8:150 Section 4(2)]

Condition

No. Condition

S-2 For proposed changes to the approved plan, submit information: Due prior to any modification to the Cabinet for approval. Changes to the approved plan shall not be implemented without the prior written approval of the Cabinet. [401 KAR 8:100 Section 1(8)]

S-3 The person who presented the plans shall submit the professional engineer's certification: Due when construction is complete to the Division of Water. The certification shall be signed by a registered professional engineer and state that the water project has been constructed and tested in accordance with the approved plans, specifications, and requirements. [401 KAR 8:100 Section 1(8)]

Narrative Requirements:

Additional Limitations:

Condition

No. Condition

T-1 **Additional Limitations:**
Chlorinated water resulting from disinfection of project components shall be disposed in a manner which will not violate 401 KAR 5:031. [401 KAR 8:020 Section 2(20)]

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Letcher Co Water & Sewer District
Facility Requirements

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Narrative Requirements:

Condition No.	Condition
T-2	This project has been permitted under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the applicant from the responsibility of obtaining any other approvals, permits or licenses required by this Cabinet and other state, federal and local agencies. [401 KAR 8:100 Section 1(7)]
T-3	Unless construction of this project is begun within 1 year from the issuance date of this permit, the permit shall expire. If requested prior to the permit expiration, an official extension from the Division of Water may be granted. If this permit expires, the original plans and specifications may be resubmitted for a new comprehensive review. If you have any questions concerning this project, please contact the Drinking Water Branch at 502/564-3410. [401 KAR 8:100 Section 1(9)]
T-4	During construction, a set of approved plans and specification shall be available at the job site at all times. All work shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 1(7)(a)]

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PORT1 (Water Line Extension) 86073 feet of 8-inch, 63270 feet of 6-inch, 34048 feet of 4-inch and 16984 feet of 3-inch Water Lines for constructs; C-519-03-4,5,6,7(Sandlick, Camp Branch, KY 7, Little Dry Fork Road):

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Depth	A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a Depth ≥ 6 in below the bottom of the pipe. [Recommended Standards for Water Works 8.5.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-2	Depth	All water lines shall be covered to a Depth ≥ 30 in to prevent freezing. [Recommended Standards for Water Works 8.5.3, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-3	Diameter	All water lines shall have Diameter ≥ 3 in. [Recommended Standards for Water Works 8.1.4] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-4	Diameter	Water lines with Diameter < 6 in shall not have fire hydrants. [Recommended Standards for Water Works 8.1.5] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-5	Diameter	All new and existing water lines serving fire hydrants or where fire protection is provided shall have Diameter ≥ 6 in. [Recommended Standards for Water Works 8.1.2] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-6	Distance	Water lines shall have a sufficient quantity of valves so that inconvenience and sanitary hazards will be minimized during repairs. A valve spacing Distance ≤ 800 ft should be utilized in non-commercial districts. Commercial districts should utilize a valve spacing Distance $< \text{or} = 500$ ft. [Recommended Standards for Water Works 8.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-7	Distance	Hydrant drains shall not be connected to sanitary sewers or storm drains and shall be located a Distance > 10 ft from sanitary sewers and storm drains. [Recommended Standards for Water Works 8.3.4] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.

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Limitation Requirements:

Condition No.	Parameter	Condition
L-8	Distance	<p>Except when not practical, water lines shall be laid a horizontal Distance ≥ 10 ft from any existing or proposed sewer. The distance shall be measured edge to edge.</p> <p>In cases where it is not practical to maintain a 10 foot separation, water lines may be installed closer to a sewer provided that the water lines shall be laid in a separate trench or on an undisturbed shelf located on one side of the sewer at such an elevation that the bottom of the water line is at least 18 inches above the top of the sewer. [Recommended Standards for Water Works 8.6.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.</p>
L-9	Distance	<p>When water lines and sewers cross,</p> <ol style="list-style-type: none">1) water lines shall be laid such that the bottom of the water line is a vertical Distance ≥ 18 in above the top of the sewer line,2) 1 full length of the water pipe shall be located so that both joints of the water pipe will be as far from the sewer as possible, and3) special structural support for the water and sewer pipes may be required. [Recommended Standards for Water Works 8.6.3] <p>This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.</p>
L-10	Distance	<p>The open end of an air relief pipe from automatic valves shall be extended a Distance ≥ 1.0 ft above grade and provided with a screened, downward-facing elbow. The pipe from a manually operated valve shall be extended to the top of the pit. Use of manual air relief valves is recommended wherever possible. [Recommended Standards for Water Works 8.4.2] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.</p>
L-11	Pressure	<p>Pipes shall not be installed unless all points of the distribution system remain designed for ground level Pressure ≥ 20 psi under all conditions of flow. [Recommended Standards for Water Works 8.1.1] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-12	Pressure	<p>Pressure ≥ 30 psi must be available on the discharge side of all meters. [401 KAR 8:100 Section 4(2)] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.</p>

Distribution-Major Construction
 Letcher Co Water & Sewer District
 Facility Requirements

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Limitation Requirements:

Condition No.	Parameter	Condition
L-13	Residual Disinfection	<p>New or relocated water lines shall be thoroughly disinfected (in accordance with AWWA Standard C65 i) upon completion of construction and before being placed into service. To disinfect the new or relocated lines use chlorine or chlorine compounds in such amounts as to produce an initial disinfectant concentration of at least 50 ppm and a Residual Disinfection \geq 25 ppm at the end of 24 hours. Follow the line disinfection with thorough flushing and place the lines into service if, and only if, Coliform monitoring applicable to the line does not show the presence of Coliform.</p> <p>If Coliform is detected, repeat flushing of the line and Coliform monitoring. If Coliform is still detected, repeat disinfection and flushing as if the line has never been disinfected. Continue the described process until monitoring does not show the presence of Coliform. [401 KAR 8:150 Section 4(1), Recommended Standards for Water Works 8.5.6] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-14	Velocity	<p>Each fire or flush hydrant shall be sized so that Velocity \geq 2.5 ft/sec can be achieved in the water main served by the hydrant during flushing. [Recommended Standards for Water Works 8.1.6.b, 401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>

Monitoring Requirements:

Condition No.	Parameter	Condition
M-1	leaks	<p>The presence or absence of leaks monitored by physical testing as needed shall be determined in all types of installed pipe. Pressure testing and leakage testing shall be in accordance with the latest edition of AWWA Standard C600. [Recommended Standards for Water Works 8.5.5] This requirement is applicable during the following months: All Year. Statistical basis: Instantaneous determination.</p>

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Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	<p>Additional Limitations: Water line installation shall be in accordance with AWWA standards or manufacturer recommendations. [Recommended Standards for Water Works 8.5.1]</p>
T-2	<p>Additional Limitations: Pipes, fittings, valves and fire hydrants shall conform to the latest standards issued by the AWWA or NSF (if such standards exist). PVC and PE piping used must be certified to ANSI/NSF Standard 61. [Recommended Standards for Water Works 8.0.1]</p>
T-3	<p>Additional Limitations: At high points in water lines, where air can accumulate, provisions shall be made to remove the air by means of hydrants or air relief valves. Automatic air relief valves shall not be used in situations where manhole or chamber flooding may occur. [Recommended Standards for Water Works 8.4.1]</p>
T-4	<p>Additional Limitations: All tees, bends, plugs and hydrants shall be provided with reaction blocking, tie rods or joints designed to prevent movement. [Recommended Standards for Water Works 8.5.4]</p>
T-5	<p>Additional Limitations: For lines that dead end, a fire hydrant shall be required at the end of each 6 inch or larger diameter line and a flush hydrant shall be required at the end of each line that is less than 6 inches in diameter. [Recommended Standards for Water Works 8.1.6]</p>
T-6	<p>Additional Limitations: For each fire or flush hydrant, auxiliary valves shall be installed in the hydrant lead pipe. [Recommended Standards for Water Works 8.3.3]</p>
T-7	<p>Additional Limitations: No flushing device, blow-off, or air relief valve shall be directly connected to any sewer. Chambers, pits or manholes containing valves, blow-offs, meters, or other such appurtenances shall not be directly connected to any storm drain or sanitary sewer. Such chambers, pits or manholes shall be drained to absorptions pits underground or to the surface of the ground where they are not subject to flooding by surface water. [Recommended Standards for Water Works 8.1.6, Recommended Standards for Water Works 8.4.3]</p>
T-8	<p>Additional Limitations: If water lines are installed or replaced in areas of organic contamination or in areas within 200 ft of underground or petroleum storage tanks, ductile iron or other nonpermeable materials shall be used in all portions of the water line installation or replacement. [401 KAR 8:100 Section 1(5)(d)6, Recommended Standards for Water Works 8.0.2]</p>

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Narrative Requirements:

Additional Limitations:

Condition

No. Condition

- T-9 Additional Limitations:
No water pipe shall pass through or come in contact with any part of a sewer manhole. [Recommended Standards for Water Works 8.6.6]
- T-10 Additional Limitations:
If a fire sprinkler system is to be installed, a double check detector assembly approved for backflow prevention shall be utilized. The double check detector assembly of the system shall be accessible for testing. [401 KAR 8:100 Section 1(7)]
- T-11 Additional Limitations:
If water lines cross a stream or wetland, the provisions in the attached Water Quality Certification shall apply. If you have any questions please contact John Dovak of the Water Quality Branch at (502) 564-2225, extension 485. [401 KAR 8:100 Section 1(7)]

Subfluvial Pipe Crossings:

Condition

No. Condition

- T-12 Subfluvial Pipe Crossings:
For subfluvial pipe crossings, a floodplain construction permit will not be required pursuant to KRS 151.250 if the following requirements of 401 KAR 4:050 Section 2 are met.
- 1) No material may be placed in the stream or in the flood plain of the stream to form construction pads, coffer dams, access roads, etc. during construction of pipe crossings.
 - 2) Crossing trenches shall be backfilled as closely as possible to the original contour.
 - 3) All excess material resulting from construction displacement in a crossing trench shall be disposed of outside the flood plain.
 - 4) For erodible channels, there shall be at least 30 inches of backfill on top of all pipe or conduit points in the crossing.
 - 5) For nonerodible channels, pipes or conduits in the crossing shall be encased on all sides by at least 6 inches of concrete with all pipe or conduit points in the crossing at least 6 inches below the original contour of the channel. [401 KAR 8:100 Section 1(7)]

Distribution-Major Construction
Letcher Co Water & Sewer District
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Narrative Requirements:

Subfluvial Pipe Crossings:

Condition No.	Condition
T-13	<p>Subfluvial Pipe Crossings:</p> <p>For subfluvial pipe crossings greater than 15 feet in width,</p> <ol style="list-style-type: none">1) the pipe shall be of special construction, having flexible, restrained, or welded watertight joints, and2) valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair. <p>Valves shall</p> <ol style="list-style-type: none">a) be easily accessible,b) not be subject to flooding, andc) if closest to the supply source, be in a manhole with permanent taps made on each side of the valve to allow insertion of a small meter to determine leakage and for sampling purposes. [Recommended Standards for Water Works 8.7.2.]

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PORT4 (Booster Pump Station) C-519-3-4 (Sandlick pump station-two 40 hp pumps , each 280 gpm @ 410 TDH):

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Pressure	<p>Pump stations shall be located or controlled so that intake Pressure ≥ 20 psi is maintained during normal pump operation. [Recommended Standards for Water Works 6.4.b] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-2	Pressure	<p>Pump stations shall be located or controlled so that an automatic cutoff or a low pressure controller maintains a Pressure ≥ 10 psi in the suction line under all operating conditions. [Recommended Standards for Water Works 6.4.c] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-3	Residual Disinfection	<p>New pumps shall be thoroughly disinfected (in accordance with AWWA Standard C651) upon completion of construction and before being placed into service. To disinfect new pumps use chlorine or chlorine compounds in such amounts as to produce an initial disinfectant concentration of at least 50 ppm and a Residual Disinfection ≥ 25 ppm at the end of 24 hours. Follow the disinfection with thorough flushing and place each pump into service if, and only if, Coliform monitoring applicable to the pump does not show the presence of Coliform.</p> <p>If Coliform is detected, repeat flushing of the pump and Coliform monitoring. If Coliform is still detected, repeat disinfection and flushing as if the pump has never been disinfected. Continue the described process until monitoring does not show the presence of Coliform. [401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-4	Slope	<p>Pumping facilities shall be located and designed to maintain the sanitary quality of pumped water. As part of this, all pump station floors shall have Slope ≥ 3 in per 10 ft to a suitable drain. [Recommended Standards for Water Works 6.2.e, Recommended Standards for Water Works 6.0, Recommended Standards for Water Works 6.1] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>
L-5	Air Change Rate	<p>Ventilation shall conform to existing local and/or state codes. At a minimum forced ventilation shall produce an Air Change Rate ≥ 6 air change(s)/hr. [401 KAR 8:100 Section 1(7), Recommended Standards for Water Works 6.2.5] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.</p>

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Limitation Requirements:

Condition No.	Parameter	Condition
L-6	Height	<p>Pumping stations shall not be subject to flooding. To this end,</p> <ol style="list-style-type: none"> 1) grading around stations shall lead surface drainage away and 2) stations shall be elevated or protected to a Height ≥ 3 ft above the highest of the following: <ol style="list-style-type: none"> a) the 100-year flood elevation, or b) the highest recorded flood elevation. [Recommended Standards for Water Works 6.1.1, Recommended Standards for Water Works 6.0] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-7	Height	<p>When a pump station has pits or compartments which must be entered, stairways or ladders shall be provided between all floors. Stairs shall have risers with a Height ≤ 9 in, handrails on both sides, and treads with non-slip material wide enough for safety. [Recommended Standards for Water Works 6.2.3] This requirement is applicable during the following months: All Year. Statistical basis: Maximum.</p>

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	<p>Additional Limitations: Pumping stations shall be so located that the proposed site will meet the requirements for hydraulics of the system. [Recommended Standards for Water Works 6.1]</p>
T-2	<p>Additional Limitations: Pumping stations shall be readily accessible at all times for servicing and repairs. [Recommended Standards for Water Works 6.1.1.b, Recommended Standards for Water Works 6.4.3]</p>
T-3	<p>Additional Limitations: Pumping stations shall be designed to prevent vandalism and protect against entrance of animals or unauthorized persons. [Recommended Standards for Water Works 6.1.1.d]</p>
T-4	<p>Additional Limitations: Pumping stations shall be of durable construction with outward-opening doors. [Recommended Standards for Water Works 6.2.b]</p>

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Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-5	Additional Limitations: Pumping stations shall be fire and weather resistant. [Recommended Standards for Water Works 6.2.b]
T-6	Additional Limitations: Pumping stations shall have suitable pump gland discharges so that drainage from the glands is not onto the floor. [Recommended Standards for Water Works 6.2.f]
T-7	Additional Limitations: If underground structures are present at pumping stations, they shall be waterproofed. [Recommended Standards for Water Works 6.2.d]
T-8	Additional Limitations: Pumping stations shall have adequate space for the installation of additional pumps. [Recommended Standards for Water Works 6.2.a]
T-9	Additional Limitations: Pumping stations shall have adequate space for the safe servicing of all equipment. [Recommended Standards for Water Works 6.2.a]
T-10	Additional Limitations: Pump stations shall have crane-ways, hoist beams, eyebolts, or other adequate facilities for servicing or removal of pumps, motors or other heavy equipment. [Recommended Standards for Water Works 6.2.2.a]
T-11	Additional Limitations: Pump stations shall have openings as needed for removal of heavy or bulky equipment. [Recommended Standards for Water Works 6.2.2.b]
T-12	Additional Limitations: Pump stations shall have a convenient tool board, or other facilities as needed, for proper maintenance of equipment. [Recommended Standards for Water Works 6.2.2.c]
T-13	Additional Limitations: In areas where excess moisture could cause safety hazards or damage to equipment, dehumidification shall be provided. [401 KAR 8:100 Section 1(7), Recommended Standards for Water Works 6.2.6]
T-14	Additional Limitations: Electrical controls shall be located above grade. [Recommended Standards for Water Works 6.6.5]

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Additional Limitations:

Condition No.	Condition
T-15	<p>Additional Limitations: All electrical equipment and work shall conform with the applicable state and local electrical codes and the National Electrical Code. [Recommended Standards for Water Works 6.5, Recommended Standards for Water Works 6.2.7]</p>
T-16	<p>Additional Limitations: Pump stations shall be adequately lighted throughout. [Recommended Standards for Water Works 6.2.7]</p>
T-17	<p>Additional Limitations: All automatic pump stations shall be provided with automatic signaling apparatus which will report when the station is out of service. All remote controlled stations shall be electrically operated and controlled and shall have signaling apparatus of proven performance. [Recommended Standards for Water Works 6.5]</p>
T-18	<p>Additional Limitations: Automatic or remote control pump stations shall be located or shall have control devices setup so that the range between start and cutoff pressure prevents excessive pump cycling. [Recommended Standards for Water Works 6.4.d]</p>
T-19	<p>Additional Limitations: Equipment shall be provided or other arrangements made to prevent surge pressures from activating controls which switch on pumps or activate other equipment outside the normal design cycle of operation. [Recommended Standards for Water Works 6.6.5]</p>
T-20	<p>Additional Limitations: Provisions shall be made to prevent energizing the motor in the event of a backspin cycle. [Recommended Standards for Water Works 6.6.5]</p>
T-21	<p>Additional Limitations: Pump stations shall be provided with enough heat to prevent freezing of equipment or treatment processes. [Recommended Standards for Water Works 6.2.4]</p>
T-22	<p>Additional Limitations: Pump stations shall have at least 2 pumps. Pumps shall be sized so that if any single pump is out service, the remaining pump or pumps shall be capable of providing the peak demand on the station. [Recommended Standards for Water Works 6.3, Recommended Standards for Water Works 6.4.1]</p>
T-23	<p>Additional Limitations: Provisions shall be made for pump alternation. [Recommended Standards for Water Works 6.6.5]</p>

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Narrative Requirements:

Additional Limitations:

Condition

No. Condition

- T-24 Additional Limitations:
Pumps shall
- a) have ample capacity to supply the peak demand against the required distribution system pressure without dangerous overloading,
 - b) be driven by prime movers able to meet the maximum horsepower condition of the pumps,
 - c) be provided readily available spare parts and tools, and
 - d) be served by control equipment that is properly protected against temperatures to be encountered. [Recommended Standards for Water Works 6.3]
- T-25 Additional Limitations:
Pumps, their prime movers and accessories shall be controlled in such a manner that they will operate at rated capacity without dangerous overload. [Recommended Standards for Water Works 6.6.5]
- T-26 Additional Limitations:
Pump stations shall be located or controlled so that a bypass is available. [Recommended Standards for Water Works 6.4.e]
- T-27 Additional Limitations:
Pump stations shall contain indicating and totalizing metering of the total water pumped. Each pump shall have
- a) a standard pressure gauge on its discharge line and
 - b) a compound gauge on its suction line.
- Each pump should have a means for measuring the instantaneous volume per time discharge. [401 KAR 8:100 Section 1(7), Recommended Standards for Water Works 6.4.2, Recommended Standards for Water Works 6.6.3]
- T-28 Additional Limitations:
Pumps shall be adequately valved to permit satisfactory operation, maintenance and repair of the equipment. Each pump shall have a positive-acting check valve on the discharge side between the pump and the shut-off valve. [Recommended Standards for Water Works 6.6.1]
- T-29 Additional Limitations:
Piping for pumps shall, in general,
- 1) be designed so that the friction losses will be minimized,
 - 2) not be subject to contamination,
 - 3) have watertight joints,
 - 4) be protected against surge or water hammer,
 - 5) be provided with restraints where necessary, and
 - 6) a) be such that each pump has an individual suction line or
 - 6) b) be manifolded such that the lines insure similar hydraulic and operating conditions. [Recommended Standards for Water Works 6.6.2]

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Narrative Requirements:

Additional Limitations:

Condition

No. Condition

T-30

Additional Limitations:

To ensure continuous service when the primary power is interrupted, power supplied to pump stations shall be

- a) from at least 2 independent sources or
- b) from a primary source with a standby or auxiliary source provided.

If standby power is provided by onsite generators or engines, the fuel storage and fuel line must be designed to protect the water supply from contamination.

[Recommended Standards for Water Works 6.6.6]

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STOR1 (Ground Storage Tank) C-519-3-8 (200,000 gallons Ground Water Storage Tank):

Limitation Requirements:

Condition No.	Parameter	Condition
L-1	Depth	High and low level Depth ≥ 30 ft apart should not be allowed in storage structures providing pressure to a distribution system. [Recommended Standards for Water Works 7.3.2] This requirement is applicable during the following months: All Year. Statistical basis: Maximum.
L-2	Depth	Water Depth ≥ 50 percent of the total water depth should be above grade. [Recommended Standards for Water Works 7.0.2.b] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.
L-3	Distance	Sewers, drains, standing water and similar sources of possible contamination shall be a Distance ≥ 50 ft from ground-level storage structures. The only exception allowed is for gravity sewers. Gravity sewers are allowed within 50 ft of ground-level storage structures only if they are a) greater than 20 ft from all ground-level storage structures and b) constructed of water main pipe pressure tested in place to 50 psi without leakage. [Recommended Standards for Water Works 7.0.2.b] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-4	Distance	To prevent excessive erosion of storage structure foundations, the overflow and main drain shall either a) discharge to concrete or other stable surfaces (splash pads) which extend a Distance ≥ 10 ft away from the base of the storage structure or b) discharge directly into a crushed stone pit that is at least 2' x 2' x 2' which is a Distance ≥ 10 ft away from the base of the storage structure. [401 KAR 8:100 Section 1(7)] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.
L-5	Height	Tanks shall have an overflow which is a) brought down to a Height ≥ 12 and ≤ 24 in above the ground surface, b) of sufficient diameter to permit waste of water in excess of the filling rate, c) open downward, d) screened with twenty-four mesh noncorrodible screen installed within the pipe at a location least susceptible to damage by vandalism, and e) located on the outside of the tank so that any discharge is visible. [Recommended Standards for Water Works 7.0.7] This requirement is applicable during the following months: All Year. Statistical basis: Not applicable.

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Limitation Requirements:

Condition No.	Parameter	Condition
L-6	Height	Tanks shall have manholes that are a) framed a Height ≥ 4 in above the surface of the roof at the opening and b) fitted with a solid watertight cover which overlaps the framed opening and extends down around the frame at least 2 inches. Manholes should be hinged at one side and shall have a locking device. [Recommended Standards for Water Works 7.0.8] This requirement is applicable during the following months: All Year. Statistical basis: Minimum.

Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-1	<p>Additional Limitations: The materials and designs used for storage structures shall provide stability and durability as well as protection for the quality of the stored water. Steel structures shall follow the AWWA standards wherever they are applicable. Other materials of construction are acceptable when properly designed to meet the requirements in this permit. [Recommended Standards for Water Works 7.0]</p>
T-2	<p>Additional Limitations: The safety of employees must be considered in the design of any storage structure. The design of storage structures shall</p> <ol style="list-style-type: none">meet or exceed the minimum requirements of pertinent safety laws and regulations in the areas where the structures are constructed,include ladders, ladder guards and balcony railings (where applicable),locate entrance hatches in safe places, andconsider confined space entry requirements. [Recommended Standards for Water Works 7.0.12]
T-3	<p>Additional Limitations: Storage structures shall be designed with reasonably convenient access to the interior for cleaning and maintenance. Where space permits, at least 2 manholes shall be provided above the waterline at each water compartment. [Recommended Standards for Water Works 7.0.8]</p>
T-4	<p>Additional Limitations: Fencing, locks on access manholes, and other necessary precautions shall be provided to prevent trespassing, vandalism, and sabotage. [Recommended Standards for Water Works 7.0.4]</p>

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Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-5	<p>Additional Limitations: All storage structures and their appurtenances, especially the riser pipes, overflows, and vents, shall be designed to prevent freezing. [Recommended Standards for Water Works 7.0.13]</p>
T-6	<p>Additional Limitations: Tanks shall be constructed with no openings except properly constructed vents, manholes, overflows, risers, drains, pump mountings, control ports, and piping for inflow and outflow. For steel tanks, any pipes running through the roof or sidewall must be welded or properly gasketed. For concrete tanks, any pipes running through the roof or sidewall shall be connected to standard wall castings which were poured in place during the forming of the concrete and which should have seepage rings imbedded in the concrete. [Recommended Standards for Water Works 7.0.10]</p>
T-7	<p>Additional Limitations: All finished water storage structures shall have suitable watertight roofs and sidewalls which exclude birds, animals, insects, and excessive dust. [Recommended Standards for Water Works 7.0.3, Recommended Standards for Water Works 7.0.10]</p>
T-8	<p>Additional Limitations: The roof of each storage structure shall be well drained. Downspout pipes shall not enter or pass through storage structures. Parapets or similar structures which would tend to hold water and snow on a storage structure roof shall not be approved unless adequate waterproofing and drainage are provided. [Recommended Standards for Water Works 7.0.11]</p>
T-9	<p>Additional Limitations: Storage structures shall be designed so they can be isolated from the distribution system and drained for cleaning or maintenance without necessitating loss of pressure in the distribution system. [Recommended Standards for Water Works 7.3.2, Recommended Standards for Water Works 7.0.5]</p>
T-10	<p>Additional Limitations: Storage structure drains shall discharge to the ground surface at a drainage structure inlet or splash plate. [Recommended Standards for Water Works 7.3.2, Recommended Standards for Water Works 7.0.7]</p>
T-11	<p>Additional Limitations: No drain on a storage structure may have a direct connection to a sewer or storm drain. [Recommended Standards for Water Works 7.0.5, Recommended Standards for Water Works 7.0.7, Recommended Standards for Water Works 7.3.2]</p>

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Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-12	<p>Additional Limitations: Main drains from storage structures shall have a twenty-four mesh noncorrodible screen installed within the drain pipe at a location least susceptible to damage by vandalism. [401 KAR 8:100 Section 1(7)]</p>
T-13	<p>Additional Limitations: Storage structures shall be designed to facilitate turn over of water. [401 KAR 8:100 Section 1(7), Recommended Standards for Water Works 7.0.6]</p>
T-14	<p>Additional Limitations: Ground level storage tanks and standpipes shall be equipped with separate inlet/outlet pipes installed on opposite sides of the tank. A check valve shall be installed in the outlet pipe to insure turnover of the water. The inlet pipe</p> <ul style="list-style-type: none">a) shall be installed near the overflow elevation andb) shall not interfere with the overflow discharge. [401 KAR 8:100 Section 1(7)]
T-15	<p>Additional Limitations: Storage structures shall have sufficient capacity, as determined from engineering studies, to meet domestic demands. Additionally, if fire protection is provided, capacity shall also be sufficient to meet fire flow demands. [401 KAR 8:100 Section 1(7), Recommended Standards for Water Works 7.0.1]</p>
T-16	<p>Additional Limitations: The bottom of the structure shall be above</p> <ul style="list-style-type: none">a) the maximum flood level andb) the groundwater level. [Recommended Standards for Water Works 7.0.2]
T-17	<p>Additional Limitations: Storage structure discharge pipes shall be located in a manner that will prevent the flow of sediment into the distribution system. Additionally, removable silt stops should be provided. [Recommended Standards for Water Works 7.0.15]</p>
T-18	<p>Additional Limitations: Appropriate sampling tap(s) shall be provided to facilitate collection of water samples for both bacteriologic and chemical analyses. [Recommended Standards for Water Works 7.0.19]</p>

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Narrative Requirements:

Additional Limitations:

Condition No.	Condition
T-19	<p>Additional Limitations: Storage structures shall be vented. Overflows shall not be considered as vents. Open construction between the sidewall and roof is not permitted. Vents shall</p> <ul style="list-style-type: none">a) prevent the entrance of rainwater,b) exclude birds and animals, andc) exclude insects and dust (as much as compatible with effective venting). <p>Vents may use four-mesh noncorrodible screen. [Recommended Standards for Water Works 7.0.9]</p>
T-20	<p>Additional Limitations: Adequate controls shall be provided to maintain levels in storage structures. The level controls shall be acceptable to the Division of Water. Level indicating devices should be provided at a central location. Overflow and low-level warnings or alarms should be located at places in the community where they will be under responsible surveillance 24 hrs a day. [401 KAR 8:100 Section 1(7), Recommended Standards for Water Works 7.3.3]</p>
T-21	<p>Additional Limitations: If storage structures have a catwalk over the water, the catwalk floor shall be solid with raised edges so that shoe scrapings and dirt will not fall into the water. [Recommended Standards for Water Works 7.0.14]</p>
T-22	<p>Additional Limitations: The area around the storage structure shall be graded in a manner that will prevent surface water from standing within 50 ft of the storage structure. [Recommended Standards for Water Works 7.0.16]</p>
T-23	<p>Additional Limitations: Proper protection shall be given to metal surfaces by</p> <ul style="list-style-type: none">a) paints or other protective coatings and/orb) cathodic protective devices. [Recommended Standards for Water Works 7.0.17]
T-24	<p>Additional Limitations: If cathodic protection is utilized,</p> <ul style="list-style-type: none">a) competent technical personnel should design and install the protection andb) a maintenance contract should be provided. [Recommended Standards for Water Works 7.0.17]
T-25	<p>Additional Limitations: If the interior of the storage structure is coated or lined, the coating or lining shall be of a type approved by the Division of Water for use in contact with potable water. [401 KAR 8:020 Section 2(19)]</p>

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Narrative Requirements:

Additional Limitations:

Condition

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- T-26 Additional Limitations:
Paints and coatings
- a) shall meet NSF standard 61,
 - b) shall be acceptable to the Division of Water,
 - c) shall be properly applied and cured, and
 - d) shall not transfer any substance to the water which will be toxic or cause tastes or odors (following curing).
- Wax coatings shall not be used in any storage structure and must be completely removed before using other paints or coatings in an existing storage structure. [401 KAR 8:100 Section 1(7), Recommended Standards for Water Works 7.0.17]
- T-27 Additional Limitations:
New water storage structures shall be thoroughly disinfected (in accordance with AWWA Standard C652) upon completion of construction and before being placed into service. To disinfect new storage structures
- 1) remove all scaffolding, planks, tools, rags, and other items that are not part of the structural or operational facilities of the storage structure,
 - 2) clean thoroughly by sweeping, scrubbing, using high-pressure water jets, or some equivalently effective means, and
 - 3) use chlorine or chlorine compounds as subsequently described.
- Finalize disinfection by
- a) chlorination method 1, described in detail at AWWA Standard C652 Section 4.3.1,
 - b) chlorination method 2, described in detail at AWWA Standard C652 Section 4.3.2, or
 - c) chlorination method 3, described in detail at AWWA Standard C652 Section 4.3.3.
- See the following conditions for abbreviated descriptions of the methods.
- Following the finalization of disinfection, place storage structures into service if, and only if, Coliform monitoring applicable to the storage structure does not show the presence of Coliform.
- If Coliform is detected, flush the tank and repeat Coliform monitoring. If Coliform is still detected, repeat disinfection and flushing as if the tank has never been disinfected. Continue the described process until monitoring does not show the presence of Coliform. [Recommended Standards for Water Works 7.0.18]

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Condition No.	Condition
T-28	<p>If applicable, chlorination method 1 generally requires</p> <ul style="list-style-type: none">a) filling a storage structure to the overflow level with water providing a free chlorine Residual Disinfection ≥ 10 ppm andb) i) completely draining the storage facility and refilling orii) otherwise reducing (in accordance with method 1) the free chlorine residual to a level appropriate for distribution. [Recommended Standards for Water Works 7.0.18]
T-29	<p>If applicable, chlorination method 2 generally requires</p> <ul style="list-style-type: none">a) scrubbing or spraying the water-contact surfaces of a storage structure with a water solution having an available chlorine concentration = 200 ppm andb) purging of the strong chlorine solution and filling to the overflow level. [Recommended Standards for Water Works 7.0.18]
T-30	<p>If applicable, chlorination method 3 generally requires</p> <ul style="list-style-type: none">a) filling a storage structure to approximately 5% of the total storage volume with water having an available chlorine concentration of 50 ppm,b) continued filling of the storage structure to the overflow level with normal potable water, andc) purging the storage structure so that various disinfection by-products do not reach water consumers. [Recommended Standards for Water Works 7.0.18, 401 KAR 8:100 Section 1(7)]