LOUISVILLE WATER COMPANY
550 SOUTH THIRD STREET • LOUISVILLE, KENTUCKY 40202
TEL 502-569-3600 WWW.LOUISVILLEWATER.COM

March 6, 2006

Ms. Julie Roney
Kentucky Division of Water
14 Reilly Road,
Frankfort, KY 40601

Re: PWSID 0560258 – 2005 Sanitary Survey

Dear Ms. Roney,

On December 19, 2005, you informed me that no significant deficiencies were found in the Louisville Water Company's (LWC) water system, according to the 2005 Interim Enhanced Surface Water Treatment Rule sanitary survey conducted by the Division of Water. However, there were a few non-significant deficiencies that require LWC's responses. The following are the responses to those non-significant findings:

1. For both the Crescent Hill and Payne plants, there is not a 30-day supply of chemical storage available.

   Response: The following table summarizes the average number days of storage (based on average chemical dose and average plant flow) for each chemical used at Crescent Hill and Payne plants. The table shows that the storage capacity is adequate for most of the chemicals except the ferric supply at Crescent Hill plant. Currently, we are evaluating the options to upgrade various chemical feed systems at Crescent Hill plant and we will consider the 30-day supply criterion into our study. However, we do not have a target date for the upgrades at this point. Prior to any upgrades, we will continue to follow our existing inventory control procedure to assure adequate chemical supplies to meet the treatment needs. We believe our existing operating procedure is adequate and effective as we have not had any problems with the chemical supplies.

Chemicals	Crescent Hill Plant	B.E. Payne Plant
Chlorine	60 days	27 days
Ferric	8 days	26 days
Polymer	159 days	146 days
Ammonia	94 days	44 days
Lime	57 days	145 days
Carbon	36 days	77 days
Fluoride	25 days	56 days

2. Day tanks are not provided at all bulk liquid chemical feed processes at either plant.

   Response: Although not every liquid chemical has a day tank in out treatment plants, some of the chemicals do have day tanks installed and in operation. Our criterion on day tank is that when the elevation of a liquid chemical feed application point is below the level of its bulk storage, a day tank or enhanced level control and monitoring will be provided to eliminate the risk of overfeed due to siphon. Using this criterion, we have two chemicals that require day tanks: the polymer at Crescent Hill plant and the fluoride at B.E. Payne plant. In both situations, we have day tanks in service.

3. At both the Crescent Hill and Payne plants, the chlorine room exhaust fans do not pull suction from the floor level.

   Response: The chlorine rooms at both plants are specifically designed that way for leak containment. The design was approved by the Division of Water. The scrubber systems will pull the air from the floor level in case there is a leak. As a result, the exhaust fans were designed not to pull suction from the floor level.

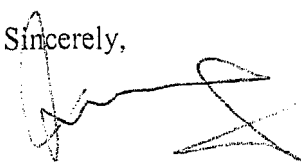
4. The ammonia feed room at the Payne plant does not have an air intake near the floor, switches located outside the door nor a door opening to the outside of the building.

   Responses: The ammonia feed room at B.E. Payne plant meets building codes and operational requirements. We are not aware of any specific design or safety criteria that require the change of the feed room.

We will accept your specific recommendation on developing a standard operating procedure for calibrating chemical feeders for the Payne plant. Although we have a procedure in place, we believe that a formally documented SOP is necessary for us. We will have a written procedure developed by June 1, 2006.

Please let me know if you have any additional questions or need any further explanation on the above responses. I can be reached by phone at (502) 569-3630 or by email at jwang@lwcky.com.

Sincerely,



Jack Wang, Ph.D
Director of Water Quality and Production

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

December 19, 2005

Mr. Jack Wang
Louisville Water Company
550 South Third Street
Louisville, Kentucky 40202

RE: PWSID #0560258
2005 Sanitary Survey

Dear Mr. Wang:

The Division of Water conducted an Interim Enhanced Surface Water Treatment Rule sanitary survey of the Louisville water system on October 19, 2005. A copy of the survey is attached. No significant deficiencies were noted. The following non-significant deficiencies were found:

1. For both the Crescent Hill and Payne plants, there is not a 30-day supply of chemical storage available.
2. Day tanks are not provided at all bulk liquid chemical feed processes at either plant.
3. At both the Crescent Hill and Payne plants, the chlorine room exhaust fans do not pull suction from the floor level.
4. The ammonia feed room at the Payne plant does not have an air intake near the floor, switches located outside the door nor a door opening to the outside of the building.

The following recommendations was made:

1. A standard operating procedure for calibrating chemical feeders should be developed for the Payne plant.

Louisville has 90 days to respond to the non-significant deficiencies (March 19, 2006). The written response is to be sent to the Drinking Water Branch, 14 Reilly Road, Frankfort KY 40601 to the attention of Julie W. Roney.

If you have any questions regarding this report, contact either Julie W. Roney in the DOW Drinking Water Branch at 502/564-2225, extension 535 or Brad Trivette in the Louisville Regional Office at 502/425-4671.

Sincerely,

Donna S. Marlin

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

C: Louisville Regional Office
Drinking Water Files

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

Drinking Water Sanitary Survey

PWS ID: #0560258A	Division: Water		Regional Office: Louisville	
Agency Interest Number #2129				
Site Name: Louisville Water Company		Program:		
Site Address: 550 South Third Street WTP-3018 Franfort Avenue 40206				
City: Louisville	State: KY	Zip: 40202	County: Jefferson	
Inspection Type: Sanitary Survey	Purpose:			Not/Com #:
Inspection Dates: 10/19/2005	Time: Start AM End AM			
Latitude:	Longitude:			
Coordinate Collection Method:				

Drinking Water Data **Revision Code: #041205**
(To be changed by Central Office Staff only)

SANITARY SURVEY CODE: 83
INSPECTOR EMPLOYEE CODE:

PWSID: #0560258A **Plant Name:**Cresent Hill WTP **Plant Contact:**Jack Wang **Plant Type:** C (community) **Plant Class:**IV (>3 MGD)
Distribution Class:IVD-Pop. >50,000 **County:**Jefferson **Phone Number:**502/569-3600 **Fax Number:**502-569-0813 **E- Mail Address:**jwang@lwcky.com
Service Connections:269,488 **System Population Served:**889,310
Total No. Purchasers:9 **Total Population Served:**953,066

Treatment

Primary Source: Ohio River **Secondary Source:** **Maximum Pumping Rate:**166,666gpm
Plant Capacity MGD:240 MGD **Filter Design Rate:** 3gal/min/ft2 **Total Storage Capacity (gallons):**90 MG

Pre-sedimentation Size:110 MG **Aeration Code:**
Sedimentation (Primary) Code:B-Conventional/Baffled Basin **Sedimentation 2 (if 2 different processes) Type:**
Filter (Primary) Code:M-High Rate/Mixed (sand/garnite/anthracite) **Filter 2 (if 2 different filter types) Type:**
Clear well Size (gallons):25 MG (14 chambers)

Chemicals

Pre-Disinfection/Treatment Code:G-Chlorine Gas **Post-Disinfection Code:** A-Chloramines
Primary Coagulant Code:F-Ferric/Lime **Secondary Coagulant (Name):** P-Polymer **Filter Aid Name:**Polydyne
Corrosion Control Code:L-pH adjustment/Lime **Taste and Odor Code:**C-Activated Carbon/Powdered
Softening Code:
Iron (and Manganese) Removal Code: **Fluoride Supplement Code:**A-Hydrofluosilicic Acid
Other Code: **Other Name:**KMnO4 for Zebra Mussel control

Legend – **NA** – Not Applicable **NI** – Not Inspected

I. Administrative Requirements

Comments:
Compliance Status - No violations observed

II. Operator Certification/Accreditation Requirements

(Check with Certification Section or in TEMPO)

Plant Class	Plant Capacity (MGD)	Hours operated (annual average)	Shifts Operated (per day)	Operator Class Required Plant	Distribution
IVA Plant A (Cresent Hill)	240 MGD	24 hours a day		IVA	IVD
IVA Plant B (Payne)	60 MGD	24 hours a day			

Does the plant have operators with the appropriate class certificate? Yes ☒ No ☐
Are the certifications up-to-date? Yes ☒ No ☐
Does the system appear well operated and maintained? Yes ☒ No ☐

List Operators and certification numbers:

Operator Name	Plant Certification #	Distribution Certification #
Charles Snider	IVA 712	
David Austin	IVA 983	
Derrick Carr	IVA 1601	
Jack Wang	IVA 82	IVD 1903
John Fitzgerald	IVA 1174	
Joseph Horrell	IVA 406	
Jeremy Nicheols	IVA 1020	IVD 2917
Richard Smith	IVA 1720	

Comments: Robert Blume IVA 755; Robert Calloway IVA 909/IVD 2788; Shawn Goodlett IVA 575; Tammy Lentz IVA 1045; Timothy Meyer IVA 250; Troy Hainline IVA 1043; William Lannan IVA 1187; Harold Hurt IVD 2679; Mark Campbell IVA 433; Morris Manley IVD 2479; Paul Barker IVA 581; Susan Dougherty IVD 3135; Bradley McBride IVD 12642; Brenda Lucas IIID 9619; Rengao Song IVA 1826; Richard Wheeler IVA 120; Rhonda Thorne IVA 613; Monica Ottens-Settles IVA 161; Roger Tucker IVA 446; Billy Meeks IVD 2642; Eric Ayers IVD 3056; Tom Metcalf IID 3071; Vincent Ilari IVA 961/IVD 2647; Phillip Scott IVA 1168/IVD 3083; Ruth Lancaster IVA 12808; Cynthia Crawford IVA 12691; Dale Hall IVD 13201; Gary Mason IVA 10218; Clifford Buechell IVA 1722/IVD 3709; Donna Harrett IIID 13754; Michael Magee IVD 13635; Angelita Schaftlein IVA 9881

Compliance Status - No violations observed

III. Record Keeping Requirements

Records to be kept on site	Time it must be kept	Check Yes or No
Data Summaries (if actual data not retained)	Based on data replaced	Yes☐ No☐ N/A☒
Bacteriological Analyses	5 years	Yes☒ No☐
Chemical Analyses	10 years	Yes☒ No☐
Lead and Copper Data	12 years	Yes☒ No☐
Turbidity Analyses	1 year	Yes☒ No☐
Individual Filter Turbidity Data	3 years	Yes☒ No☐
Records of Violation Certification (required after May 1, 2002)	10 years	Yes☒ No☐ Yes☐ No☐
Records of Sanitary Surveys	10 years	Yes☒ No☐
Records of Variances and Exemptions	5 years	Yes☐ No☐ N/A☒
Distribution Maps	Updated As Needed	Yes☒ No☐
O & M Manual	Updated SOPs As Needed	Yes☒ No☐
Sampling Plans and Maps	Updated As Needed	Yes☒ No☐
Consumer Confidence Report and Certification (CWS only)	On File	Yes☒ No☐ N/A☐
C-T Profiling Data		Yes☒ No☐

Comments:

Compliance Status - No violations observed

IV. Reporting Requirements

(To be completed by Compliance Officer)

Reporting Item	**Normal Reporting** (list last reporting period and note any exceptions)	**Emergency Reporting** (List any reports to the public)
Asbestos	☒ 1 sample in first 3 years of 9 year cycle; last was 2002-2004	☐
Bacteriological	☒ 270 per month	☐
Consumer Confidence Report (CCR)	☒ Annually by July 1	☐
Dioxin	☒ Not waived; with SOCs	☐
Fluoride (supplemental)	☒ For Dental Health--2 per month with 1 plant tap and 1 distribution	☐
Inorganic Chemicals (IOCs)	☒ Annually	☐
Lead & Copper	☒ 50 samples in July-September every 3 years; last done in 2003	☐
Nitrate	☒ Annually in highest quarter	☐
Nitrite	☐	☐
Operational Reports (MORs)	☒ Monthly	☐
Radionuclides (RADs)	☒	☐
Secondary Contaminants (SECs)	☒ Annually	☐
Corrosivity	☒ Annually; can be done with secondaries	☐
Sodium	☒ 2 per year in wet and dry seasons; 1 can be done with secondaries	☐
Synthetic Organic Compounds (SOCs)	☒ >3300 so 2 sample sets in 12 consecutive months in 3 year period	☐
Total Trihalomethanes (TTHMs)	☒ 4 per quarter	☐
Turbidity (Greater than 1 or 5 NTUs report ASAP)	☒ 0.3 NTU/1 NTU	☐
Unregulated Contaminants (UCMR)	☒ Per Federal EPA	☐
Volatile Organic Chemicals (VOCs)	☒ Either annually or 4 consecutive quarters within the 3 year period	☐
Haloacetic Acids	☒ 4 per quarter	☐
Chlorite (Chlorine Dioxide Only)	☐	☐
Bromate (Ozone only)	☐	☐
Chlorine/Chloramines	☒ Total chlorine residuals with monthly compliance	☐

	bacts; daily for MOR	
Chlorine Dioxide	☐	☐
Total Organic Carbon	☒ Monthly on raw (plus alkalinity) and CFE	☐
Emergency Reports (Immediate Notification)	☐ Line Breaks, ☐ Loss of Pressure, ☐ Loss of Disinfection	☐
Sample Site Plan	☒ Bact/LCR/DBP	☐

Comments: All monitoring except for CCR, Lead/Copper, Bacts and Chloramines are PER PLANT.

Compliance Status - No violations observed

V. Operation & Maintenance/Performance Requirements

MANAGEMENT AND SYSTEM OPERATION

Organization:

What is the utility's governing body? Water Board

What is the term of office for board or council members? 3 years

Are the members familiar with water treatment? Yes ☐ No ☒

How often does this body meet? Monthly

Do operators attend? Yes ☐ No ☒

Is there an organization chart? (Provide) Yes ☒ No ☐

Does the chart include the WTP? If not provide additional chart. Yes ☒ No ☐

Have there been any changes since the last Sanitary Survey? Yes ☐ No ☒

If yes, explain Distribution expansion-Goshen, Sheperdsville

Is the system subject to Public Service Commission regulations? Yes ☐ No ☒

What professional organizations does the water system belong to? AWWA, AMWA, ORSANCO, Research Foundation

Communications:

Does the system have a Mission Statement? (Provide) Yes ☒ No ☐

Does the system have water quality goals? (Provide) Yes ☒ No ☐

What parameters are included in these goals? <0.1 NTU 97%, <0.3 NTU 100%, TCR 99%, Residual >2ppm, Taste & Odor, pH, etc.

Are the operators aware of these goals? Yes ☒ No ☐

Is the system aware of the Area-wide Optimization Program, coordinated through the DOW's Drinking Water Branch? Yes ☒ No ☐

Does the system have regular staff meetings? Yes ☒ No ☐

How often? Monthly, Work Teams meet as needed

Who is involved? All

Do the administrators (including the managing body) visit the water plant?

Yes ☒ No ☐

How often? Quarterly-Monthly

Does the plant provide reports to the superintendent? Yes ☒ No ☐

Types MOR Operating (general), Compliance Monitoring Reports, Safety

Frequency Monthly

Does the superintendent provide reports to administrators? Yes ☒ No ☐

Types Summary

Frequency Monthly

Is there an Operations and Maintenance manual(s) for both the water plant and distribution system? Yes ☒ No ☐

Is the Operations and Maintenance Manuel updated annually? Yes ☒ No ☐

If not, how often is it up-dated? As needed

Who up-dates the manual? Natural Work Teams

How are operators made aware of the O&M procedures? Involved in changes

Are copies maintained in a location other than the water plant for security reasons? Yes ☐ No ☒

Does the system provide any public relations or education activities? Yes ☒ No ☐

Who is responsible for providing this? Public Relations Dept.

What types of public relations or education are done? Tours, Community Events, Schools

Who answers customer inquiries? Customer Service Representatives, Work Teams (specialist)

Is a customer inquiry log maintained? Yes ☒ No ☐

Planning:

Does the system have any short-term needs? Yes ☒ No ☐

Are they documented? Yes ☒ No ☐

How are they developed? All and Administrators

Who provides input into these needs? All

Are the operators involved? Yes ☒ No ☐

Does the system have any long-term needs? Yes ☒ No ☐

Are they documented? Yes ☒ No ☐

How are they developed? Consultants, and check with DOW

Who provides input into these needs? All to consultants

Are the operators involved? Yes ☒ No ☐

How are chemicals inventoried? Monthly

How are distribution materials inventoried? Warehouse, Monthly

Is there a bid process for chemicals, pipe or other large item purchases? Yes ☒ No ☐

Security Issues:

In general, what security measures are in place at the water plant?Guard, Fence, Cameras, Motion Detectors, alarms

In general, what security measures are in place in the distribution system?Gated, locked tanks, Motion Detectors, alarms.

In general, what security measures are in place for data systems (SCADA, billing, Internet)?SCADA system is not internet accessable, Firewalls, Virus Protection (IT Department.

Has the system developed procedures for protecting sensitive documents?
Yes ☒ No ☐

Has the system developed procedures for securing computer/SCADA usage?
Yes ☒ No ☐

Does the plant ever disable the SCADA system and run on manual? Yes ☒ No ☐

Has the system performed, or had performed, a Vulnerability Assessment? Yes ☒ No ☐

Has the system updated its Emergency Response Plan? Yes ☒ No ☐

How is the ERP communicated to all employees? Meetings and group HAZMAT refresher

Is the ERP exercised? Yes ☒ No ☐

Is the utility a member of the Local Emergency Planning Council? Yes ☒ No ☐

How has communication been established with important external suppliers (electric company, chemical suppliers, etc)? Account Representative, Salesperson

Has the system developed procedures for protecting backup equipment? Yes ☒ No ☐

Personnel: **Note: Detailed Operator Certification Information in a Separate Section**

Certified Operators **Number** 33

Is the number of operators adequate to cover needed shifts, vacations, and vacancies? Yes ☒ No ☐

What is the attitude of the staff? **Administration** Good
Operators Good

Are the operators cross-trained (by shift, by plant, with distribution, with maintenance, etc)? Yes ☒ No ☐

Do the operators perform maintenance as well as operations? Yes ☐ No ☒

Is someone cross-trained with the plant lead operator/supervisor? Yes ☒ No ☐

Do you have contingency plans for replacing retiring system personnel?
Yes ☒ No ☐

How do the operators obtain the necessary Continuing Education Hours for license renewal? Training, Internal

Who are the training/technical assistance providers? Ruth Lancaster, DOW

What type of training is typically obtained? Hands-on, Classroom

Does the system pay for registration, lodging and meals? Yes ☒ No ☐

Does the system allow operators to attend training on company time? Yes ☒ No ☐

Plant Coverage:

Is there shift operation at the plant? Yes ☒ No ☐

Length of shift 12

Number of operators per shift A-2, B-1

Number of shifts/day 2

How are weekends and holidays covered? Rotating Shift

Does this system have unmanned operations? Yes ☐ No ☒

Do the operators ever leave the water plant property while the plant is producing water?
Yes ☐ No ☒

How long are the operators typically away from the plant?

What duties are the operators performing when they are away from the plant?
Sampling, Checking Distribution System

Are there safeguards for when operators may be doing work outside on the plant grounds?
Yes ☒ No ☐

What types of safeguards? Communications, Rails, Off Duty Police in the evening

Financial:

Does the system have a budget? Provide 1-page summary if available. Yes ☒ No ☐

Is the water plant meeting its expenses? Yes ☒ No ☐

Does the water plant revenue go to meet other city/district/association expenses (such as sewer or garbage)? Yes ☒ No ☐

Who prepares the budget? Plant-Jack Wang

Does the system have an external audit process? Yes ☒ No ☐

Are training and license funds built into the budget? Yes ☒ No ☐

Do the operators have any input into the budget? Yes ☒ No ☐

Are general accounting procedures followed? Yes ☒ No ☐

Is there a policy for delinquent accounts? Yes ☒ No ☐

Is there a rate structure in place? Yes ☒ No ☐

When was the last rate increase? 01/05

Are long-term needs built into rate increases? Yes ☒ No ☐

Do rates promote conservation in time of drought? Yes ☐ No ☒

Does the system have any long-term debts? Yes ☒ No ☐

Is the debt being paid on time? Yes ☒ No ☐

Does the system have a reserve account? Yes ☒ No ☐

Does the system have a good credit rating (for obtaining bonds, etc)? Yes ☒ No ☐

Where does the system typically go for financial assistance? Bonds

Does the system have a capital improvement plan? Yes ☒ No ☐

How many years does the plan cover? 20 years

What is the day-to-day spending authority of the plant superintendent? As Needed

What is the emergency spending authority of the plant superintendent? As Needed-Under Operational Emergency

Is there a purchase order process? Yes ☒ No ☐

General Observations:

Water Purchased Not Applicable

Purchased From	Amount Monthly (average)	Amount Available by Contract (monthly)

Observations:

Water Sold Inspected

Water sold To	Amount	Contract Amount
Jim Beam Brands #0152087	0.5 MGD	0.5 MGD
Mt. Washington Water #0150300	1.7 MGD	OPEN
N. Nelson WD #09000323	0.28 MGD	OPEN
N. Shelby WD #1060324	0.63 MGD	OPEN
Taylorsville Water Works #1080425	1.35 MGD	OPEN
West Shelby WD #1060457	0.57 MGD	OPEN

Observations:

PLANT AND DISTRIBUTION SYSTEM OPERATIONS

Include a plant schematic (if available) indicating the following details

- **Source water type/location**
- **Major unit processes (including baffling factors and volumes)**
- **Flow measurement locations**
- **Chemical injection locations**
- **Piping Flexibility (including number of raw and finished water mains)**
- **Waste handling**

Source

Name	Water Withdrawal Number	Permitted Amount	Is Capacity Adequate?	Are there Water Quality issues?
Ohio River	**0100**	**240 MGD**	Yes☒ No☐	Yes☐ No☒
Well #1	**0829**	**2.5 MGD**	Yes☒ No☐	Yes☐ No☒
			Yes☐ No☐	Yes☐ No☐
			Yes☐ No☐	Yes☐ No☐

List upstream land uses: Agriculture, Recreational and residential.
List upstream discharges (Within 5 miles): None known
Is there a source water protection plan in place? Yes ☒ No ☐
Is the system drought-vulnerable? Yes ☐ No ☒
Describe any water quality monitoring done on the source water: Turbidity, fluoride, alkalinity, odor, total hardness, Ammonia, conductivity, calcium, Magnesium, Chloride, nitrate and nitrites, color, total solids, suspended solids, dissolved solids and temp..
If multiple sources are available, is the one in use the "best" in terms of both water quality and quantity? Yes ☐ No ☐
Observations:

Intake Structure

Location	Type	Number of Inlets	Screen Size	Is Flooding a problem?	Is silt build-up a problem?
Zorn Ave--Ohio River	Tower	4	Trash Bars12"-18" Traveling 1/4"-1/2"	Yes☐ No☒	Yes☐ No☒
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐

Is raw water pumped? ☒ **Or gravity fed?** ☐
Number of raw water mains 3
Is raw water flow measured? Yes ☒ No ☐
If so when was the meter last calibrated?
List any chemicals fed at the source: Potassium permanganate
If source is a reservoir is it aerated? Yes ☐ No ☒
List depths of intake levels (normal pool): 10 ft. and 17 ft.
Are screens stationary? ☐ **Or mechanical?** ☒
Is screen clogging a problem? Yes ☐ No ☒
Are Zebra mussels a problem? Yes ☐ No ☒
If yes list actions taken: Potassium permanganate twice per year.
How often are the submerged portions of the intake inspected?
When was the date of the last inspection?
Observations:

Electrical/Emergency Power Inspected

Are emergency power generators available at the intake? Yes ☒ No ☐
Are emergency power generators available at the water plant? Yes ☒ No ☐
If available, can they support the entire plant? Yes ☒ No ☐
If the entire plant cannot be supported, are necessary systems provided power?
Yes ☐ No ☐
Are emergency power generators available in the distribution system? Yes ☒ No ☐
Are emergency power generators available for main office functions? Yes ☒ No ☐
Are standby emergency generators exercised regularly? Yes ☒ No ☐
Is other standby equipment exercised regularly? Yes ☒ No ☐
Is there the ability to utilize natural gas, propane or other sources of fuel for power?
Yes ☒ No ☐
Have arrangements been made with outside contractors, other utilities, etc to provide needed emergency equipment? Yes ☐ No ☒
If equipment is shared with the wastewater plant, how is the equipment disinfected prior to use at the water plant? N.A.
Observations: Generator is designed only for natural gas. Have four mobile generators for use in the Distribution system.

Emergency Interconnections/Supplies Not Applicable

Are emergency interconnections with other water supplies available? Yes ☐ No ☒

If yes list supplies and PWSID numbers:

If the system has an inactive water plant, is the plant exercised to maintain preparedness for emergencies? Yes ☐ No ☐

How often?

How is the plant disinfected prior to bringing it back on line?

Observations:

General Plant Description: Conventional

Pre-sedimentation Inspected

Capacity (gallons)	Flexibility to Bypass	Chemical Feed Capability	List Chemicals Fed
110,000,000	Yes☒ No☐	Yes☒ No☐	Carbon, KMnO4
	Yes☐ No☐	Yes☐ No☐	

Is algae growth a problem? Yes☐ No☒

How often is the pre-sedimentation basin(s) cleaned? The reservior was cleaned out in 2004.

Observations: This is the reservoir.

Aeration Not Applicable

Type	Capacity (gallons)	Reason for Aeration

Observations:

Rapid Mix Inspected

Type	Number	Volume (gallons)	Physical Condition
In Line Mixer	4		Good

List chemicals fed in order they are fed: KMNO4, Powered Activated Carbon, Ferric, Cationinc Poly, Soda Ash, Chlorine, Ammonia, lime, Poly aluminum chloride

Is adequate mixing of chemicals taking place? Yes ☒ No ☐

Are there flow splits after the quick mix? Yes ☒ No ☐

If so is the flow distribution even? Yes ☐ No ☒

Observations: South train is larger.

Flocculation Basins Inspected

Type	# Trains	Stages	Variable Speed Drive	Volume (gallons)	Physical Condition
Horizontal Paddl	4	Multipl	Yes☐ No☒	2,183,053	Good
Horizontal Paddl	4	Multipl	Yes☒ No☐	2,793,671	Good
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		

What is the size OK and appearance of the floc? OK
How often are flocculation basins cleaned? Approx once every two years.
Are the flocculation speeds tapered (decreased) through the flocculation stages?
Yes ☒ No ☐
Are there flow splits after flocculation? Yes ☐ No ☒
Is flow distribution even? Yes ☒ No ☐
Observations: # 6 basin is out of service for repairs.

Sedimentation Basins Inspected

Type	Number of Trains/ Stages	Volume (gallons)	% with tube settlers	Physical Condition
Upflow Clarifier	4 4	20,869,000	0	Good
Upflow Clarifier	4 4	22,372,000	0	Good

What is the sedimentation turbidity goal? <1 NTU
What is the overflow rate of the basins?
If an Actiflo process, what is the rise rate?
How often are the basins cleaned? Every two years.
How often is sludge removed from the basins? Continuous.
Is sludge removal mechanical? ☒ Or manual? ☐
What is the sludge depth at the time of the inspection? 1 ft.
What is the settled water turbidity at the time of the inspection?
Is there evidence of short-circuiting (Flow or density currents)? Yes ☐ No ☒
Is baffling present in the basins? Yes ☐ No ☒
If yes, describe the baffling
If multiple sedimentation basins, describe the piping from the basins to the filters:
Is there evidence of floc carryover to the filters? Yes ☐ No ☒

Observations: One basin is down for repairs.

Filters

Number of Filters 33

Type	Media Type	Filter Rate (at inspection)	Filter control	Surface Wash Type	Filter to Waste	Filter Area	Physical Condition
High Rate	Dual Me	0.63 gal/min	Rate of Fl	Fixed Nozzle	Yes☐ no☐	(12) X 1100 sq ft	Good
High Rate	Dual Me	1.3 gal/min	Rate of Fl	Rotary	Yes☐ no☒	(15) 2100 sq. ft.	Good
High Rate	Dual Me	.55 gal/min	Rate of Fl	Air Scour	Yes☐ no☒	(6) 2100 sqft	Good
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		

What is the filtered water turbidity goal? <0.05

Does this apply to the combined filter effluent? Yes ☒ No ☐ **to individual filter effluents?** Yes ☒ No ☐

What Criteria are used for filter backwash? Max. run time, loss of head, and turbidity.

What is the backwash rate in gallons per minute? North 10.7, South 14.8 and East 13.8

Is filter backwash rate ramped up and down? Yes ☒ No ☐

Is backwash flow rate measured? Yes ☒ No ☐

Are filters ever bumped? Yes ☐ No ☒

Is air scouring used? Yes ☒ No ☐

Record the CFE turbidity at time of inspection 0.04 NTU

Are individual filters monitored for turbidity? Yes ☒ No ☐

Is this turbidity continuously recorded? Yes ☒ N o☐

Is filter to waste (rewash) present? Yes ☐ No ☒

Is it used? Yes ☐ No ☐

Can turbidity be measured while filtering to waste? Yes ☐ No ☐

Are flows adjusted on remaining in-service filters during a backwash? Yes ☒ No ☐

Observations Six of the filters in the North bank are to be have new media in 2006. Five of them are out of service now.

Residuals Handling

What percent of plant production is used for in-plant processes (backwash, chemical feed, sanitary)?

How are spent backwash water and other liquid residuals handled? Goes to the settling ponds at the Payne plant.

If applicable, is the spent backwash holding tank/lagoon volume adequate? Yes ☒ No ☐

Does the plant discharge water from this tank/lagoon back to a body of water? Yes ☒ No ☐

Does the plant have a KPDES discharge permit? Yes ☒ No ☐

Permit Number KY0003123

Is the discharge meeting permit requirements? Yes ☒ No ☐

Is spent backwash water recycled? Yes ☐ No ☒

Is it recycled as a "slug"? ☐ **Or as a constant flow?** ☐

What % of the flow is recycled?

Are chemical feed rates adjusted during recycle? Yes ☐ No ☐

Are raw water flows adjusted during recycle? Yes ☐ No ☐

Are all recordkeeping requirements of the Filter Backwash Rule being followed? Yes ☐ No ☐

How are solid residuals handled?They are allowed to settle in one of the settling lagoons.

Observations:

Chemical Feed Equipment

Chemical Name	Purpose	Feeder Type	Feed Point	Number &Condition
KMnO4	Taste Od	Volumet	Intake	1 Good
Powdered Activated Car	Taste Od	Metering	Pre-floccul	3 Good
Powdered Activated Car	Taste Od	Metering	Intake	2 Good
Ferric chloride	Coagulati	Metering	Pre-floccul	4 Good
Polymer	Coagulati	Metering	Pre-floccul	4 Good
Polymer	Coagulati	Metering	Pre/Top of	
Soda Ash	Alkalinity	Volumet	Pre-floccul	2 Good
Polyaluninum Cl/SO4	Filter Aid	Metering	Pre/Top of	1 Good
Hydrofluosilicic Acid	Dental He	Metering	Pre/Top of	2 Good
Lime	pH Adjust	Gravimet	Pre/Top of	2 Good

How are chemical feeders calibrated? Gravimetric and volumetric are timed and pan catch and weigh. Metering pumps are timed to graduated cylinders.

How often are chemical feeders calibrated? Chemical feeders are spot checked once per shift. Full calibration is done based on the spot check and when maintenance is done on the equipment.

Are chemical dosages calculated? Yes ☒ No ☐

How often are dosages calculated? Reviewed daily, changes based on raw water conditions. Could be daily or several times per day.

Are chemicals NSF or United Laboratories approved? Yes ☒ No ☐

Do the bulk liquid feed systems have day tanks? Yes ☒ No ☒

Are at least two feeders provided for essential processes (such as coagulation, disinfection)? Yes ☒ No ☐

Are spare parts available? Yes ☒ No ☐

Is there enough storage for at least 30 days supply of chemicals used? Yes ☐ No ☒

Are there containment areas around the chemicals in case of spills or leaks? Yes ☒ No ☐

Are in-plant water supplies protected from back-flow? (Cross connections): Yes ☒ No ☐

Does a certified tester test backflow prevention devices? Yes ☒ No ☐

What is the testing frequency? Once per year. **Last Tested** 2004.

Observations: Some of the liquid bulk chemicals do have day tanks, but not all.

Disinfection

Type	Application Point	Redundancy Available	Feeder Type
Chloramine	Pre Filter	Yes ☒ No ☐	Chlorinator
		Yes ☐ No ☐	
		Yes ☐ No ☐	
		Yes ☐ No ☐	

What is the means used to measure disinfectant chemical usage? Inventory is conducted on the 90 ton railroad cars that supply the chlorine.

How is the disinfectant residual monitored? In line monitors, grab samples to the lab and by portable chlorine field test equipment.

Is there an on-line, recording chlorine analyzer on the plant tap? Yes ☒ No ☐

Observations:

Clearwells

Volume (gallons)	Baffling Type	Disinfectant Residual Total Free
25,000,000		2.6 mg/l

Are hatches secured? Yes ☒ No ☐
Are vents screened? Yes ☒ No ☐
How often are clear wells cleaned? No schedule. Last cleaned 13 years ago.
Observations:

Water Plant Pumps

(Low service/raw water, high service/finished water and backwash)

Flow Stream	Location	Number of Pumps	Capacity (gpm)	Pump Type	Flow Control Method
Primary Raw Wate	Zorn Ave	3	65 MGD	Centrifugal	Manual
Primary Raw Wate	Zorn Ave	4	35 MGD	Centrifugal	Manual
Finished Water	Cresent Hill	2	65 MGD	Centrifugal	Manual
Finished Water	Cresent Hill	1	60 MGD	Centrifugal	Manual
Finished Water	Cresent Hill	1	50 MGD	Centrifugal	Manual
Finished Water	Cresent Hill	3	35 MGD	Centrifugal	Manual
Backwash water	North filters	Elevated tank	11,805 gpm		Automatic
Backwash water	South Filters	Elevated tank	31,250 gpm		Automatic
Backwash water	East Filters	Elevated tank	29,266 gpm		Automatic

Observations: They do not have backwash pumps at Cresent Hill. They use an elevated tank to backwash filters. The tank holds 1.5 million gals.

Water Plant On-line Instrumentation

Type	Flow Stream (Location)	Manufacturer	Last Calibration Date
Turbidity	Individual Fi	Hach	10/18/05
Turbidity	Combined Fi	Hach	10/18/05
Turbidity	Settled Wate	Hach	3/11/05
Turbidity	Tap	Hach	6/21/05
Turbidity	Raw Water	Hach	Out of service
Chlorine	Tap	Capital Controls	9/12/05
pH	Settled Wate	GLI	12/31/04
pH	Combined Fi	GLI	11/17/05
pH	Settled Wate	GLI	12/31/04
pH	Raw Water	GLI	12/31/04
Chlorine	Settled Wate	Capital Controls	12/28/05
Chlorine	Settled Wate	Capital Controls	9/21/05
Turbidity	Settled Wate	HACH	3/11/05
Turbidity	Settled Wate	HACH	4/19/05

Observations:

Laboratory (Plant)

Parameters Tested For	Frequency	Equipment Used	Calibration Method
TOC	Monthly	Ionicks 900	standards
alkalinity	daily	titration	standards
hardness	daily	titration	standards
flouride	daily	probe	standards
calcium	Bi weekly	titration	standards
VOC's	dailyq	GC	Internal calibration
semi volatiles	As needed	GCMS	Internal calibration
lead	as needed	A.A.	standards
Total metals	as needed	A.A.	standards
Total Coliform	Daily	colilert quantitary	negative and positive controls
E. Coli	Daily	colilert quantitary	negative and positive controls
HPC	Daily	Disk and media	
Crypto sporidum	once/mo	Filter and microscope	Recovery of known amount
CL2 (continous) NTU (continous) PH Temp	Every 6 hrs daily daily	Titration Hach meter Probe Thermometer	standards standards Buffers Certified Thermomter

Is space adequate? Yes☒ No ☐
Is lighting adequate? Yes ☒ **No** ☐
Are analyses conducted according to Standard Methods? Yes ☒ **No** ☐
Observations:

In-Plant Sampling
(for example, top and bottom of filters)

Site T 4	Cl. Free:	Total: 2.7 pH:	Turbidity: 2.1	Other:
Site B 4	Cl. Free:	Total: 2.6 pH:	Turbidity: .05	Other:
Site T 17	Cl. Free:	Total: 2.7 pH:	Turbidity: 2.1	Other:
Site B 17	Cl. Free:	Total: 2.6 pH:	Turbidity: .07	Other:
Site T 20	Cl. Free:	Total: 2.8 pH:	Turbidity: 2.1	Other:
Site B 20	Cl. Free:	Total: 2.7 pH:	Turbidity: .06	Other:
Site T29	Cl. Free:	Total: 2.8 pH:	Turbidity: 2.1	Other:
Site B 29	Cl. Free:	Total: 2.7 pH:	Turbidity: .05	Other:
Site	Cl. Free:	Total: pH:	Turbidity:	Other:

Observations:Filter 4 is in the South Bank. 17 - North Bank, 20- Old East, and 29- New East bank.

Distribution Storage Facilities Inspected

Location	Volume (gal)	Tank Type	Overflow Screen/ Flapper >10' From tank	Last Cleaned/ Inspected	Telemetry	% Turnover (Day)
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	

Observations:See the attached list for tanks and booster pumps.

Distribution Booster Pumps and or Booster Disinfection Facilities Inspected

Location	Pump = P Disinfection = D	Number & Capacity of pumps (gpm)	Disinfection Type	Auxiliary Power
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐
	P☐ D☐	@		Yes☐ No☐

Does a certified distribution operator oversee distribution activities? Yes☒ No ☐
How many pressure zones are there? 5
What is the range of distribution pressures? 40-110 PSI. Avg PSI = 60
Do any distribution areas require reduced pressure valves? Yes
What piping materials are included in the distribution system (in general)? Ductile steel, PVC, cast iron, and some asbestos.
Is there a formal flushing schedule? Yes☐ No☒ **Written Procedure?** Yes☒ No☐
Describe the process for sterilizing new mains/main breaks:
Are there maintenance schedules and procedures? Yes ☒ No ☐
What types of on-line instrumentation are located at booster or pump stations and tanks? Pressure, flow and Tank levels.
Is there corrosion protection in the tanks? Yes☒ No ☐
How often are tanks inspected? Every 3-5 yrs. Cleaned? Every 3-5 yrs
Is there a valve exercise/replacement program? Yes☒ No ☐
Is water loss tracked? Yes ☒ No ☐
If so what is the percentage of water lost? 14-16%
Is there a water meter replacement program? Yes☒ No☐
Does the utility have distribution maps? Yes☒ No☐
Are there main break/emergency notification procedures? Yes☒ No ☐
Does the system have a cross-connection prevention program? Yes☒ No☐
Does a certified tester test the backflow prevention devices on a regular basis?
Yes☒ No☐
Has a calibrated hydraulic model been developed for the system? Yes☐ No☒
Observations:Calibrated hydraulic model is being developed now and should be completed in the next two Yrs.

Distribution Sampling

Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site So	Cl. Free:	Total: >2.20	pH:	Turbidity:	Other:
Site West	Cl. Free:	Total: 2.06	pH:	Turbidity:	Other:
Site East	Cl. Free:	Total: 1.06	pH:	Turbidity:	Other:
Site West	Cl. Free:	Total: >2.2	pH:	Turbidity:	Other:
Site S.W.	Cl. Free:	Total: 2.17	pH:	Turbidity:	Other:
Site S.E.	Cl. Free:	Total: >2.2	pH:	Turbidity:	Other:
Site N.E.	Cl. Free:	Total: 2.0	pH:	Turbidity:	Other:

Observations:Total coliform samples taken at all locations were <1 col. /100ml.

Gas Chlorine Safety:

Is the chlorine room enclosed and separate from other operating areas? Yes ☒ No ☐
Is there a working exhaust fan in the chlorine room? Yes ☒ No ☐
Does it provide one complete air change per minute? Yes ☐ No ☐
Does it exhaust from floor level? Yes ☐ No ☒
Is intake air near the ceiling? Yes ☒ No ☐
Are switches located outside the chlorine room? Yes ☒ No ☐
Are chlorine tanks secured? Yes ☒ No ☐
Are the scales operational? Yes ☒ No ☐
Is automatic switchover of chlorine cylinders provided? Yes ☒ No ☐
Is there a shatterproof viewing window in chlorine room? Yes ☒ No ☐
Is there a crash bar on the door of the chlorine room? Yes ☒ No ☐
Does it open out and to the exterior of the building? Yes ☒ No ☐
Is there a SCBA unit meeting NIOSH standards out side the chlorine room? Yes ☒ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is the "buddy system" practiced when changing or moving chlorine cylinders?
Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
Is there a chlorine tank repair kit? Yes ☒ No ☐
Are personnel trained and certified to use the kits? Yes ☒ No ☐
Is ammonia available for chlorine leak detection? Yes ☒ No ☐
Is a lockout tag-out system used for electrical repairs? Yes ☒ No ☐
Observations:There is a scrubber system to take care of any Chlorine leaks. The scrubber system intake is at the floor level.

Chlorine Dioxide Safety: Not Applicable

Is sodium chlorite stored in a separate room? Yes ☐ No ☐
Is it stored away from organic material? Yes ☐ No ☐
Many materials will catch fire and burn violently when in contact with chlorite.
Observations:

Ammonia Safety: Inspected

Is the ammonia room enclosed and separate from other operating areas? Yes ☐ No ☒

Is there a working exhaust fan in the ammonia room? Yes ☐ No ☒
Does it provide one complete air change per minute? Yes ☐ No ☒
Does it exhaust from ceiling level? Yes ☐ No ☐
Is intake air near the floor? Yes ☐ No ☐
Are switches located outside the ammonia room? Yes ☐ No ☐
Are ammonia tanks secured? Yes ☒ No ☐
Is there a shatterproof viewing window in ammonia room? Yes ☐ No ☐
Is there a crash bar on the door of the ammonia room? Yes ☐ No ☐
Does it open out and to the exterior of the building? Yes ☐ No ☐
Is there a SCBA unit meeting NIOSH standards out side the ammonia room? Yes ☐ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
How are ammonia leaks detected?
Is a lockout tag-out system used for electrical repairs? Yes ☐ No ☐
Observations:The ammonia tank is not enclosed, it is located outside in a large 12,000 gal tank.

Maintenance:

Is plant housekeeping adequate? Yes ☒ No ☐
Is distribution storage housekeeping adequate? Yes ☒ No ☐
Are adequate supplies of spare parts kept on hand? Yes ☒ No ☐
Are needed tools available? Yes ☒ No ☐
What is the general condition of operating equipment? Good
Is there a written preventive maintenance program? Yes ☒ No ☐
If not, is preventive maintenance performed? Yes ☒ No ☐
Observations:

Comments:

Compliance Status - No violations observed

VI. Discharge/Emission Compliance

Comments:

Compliance Status - Not Inspected

VII. Monitoring/Analyses Evaluation

Comments:

Compliance Status - Not Inspected

VIII. Environmental /Health Impact

Work Site Hazard Assessment : ☐ ATTACHED ☒ REVIEWED

Comments:

Compliance Status – Not Inspected

IX. Documentation

☒ **Samples taken by DEP**
☐ **Samples taken by outside source**
☒ **Instrument readings taken by DEP regional office**
☐ **Photographs obtained by DEP**
☐ **Copies of records obtained by DEP**
☐ **Other documentation**

Inspector: Brad Trivette	Title: Environmental Inspector III	Date: 11/30/05

Compliance/TAO: Eric Sutton
Title: Environmental Technologist III
Date:

Overall Compliance Status
☒ **No Violations Observed**
☐ **No Violations Observed, but impending violation trends observed** – Advisory Action Taken
☐ **Out of Compliance. Non-recurrent deficiency noted** – Verbal notice given or violation corrected at time of insp.
☐ **Out of Compliance. Non-recurrent administrative or O & M deficiency noted** – Warning Notice issued
☐ **Out of Compliance** – NOV issued

Comments:

Delivery Method: E-mail	Cert. Mail #:

System Contact Mailing Address
Administrative Contact Mailing List

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION

DIVISION OF WATER

Drinking Water Sanitary Survey

PWS ID: #0560258B	Division: Water		Regional Office: Louisville
Agency Interest Number #2129			
Site Name: Louisville Water Company		Program:	
Site Address: 550 South Third Street			
City: Louisville	State: KY	Zip: 40202	County: Jefferson
Inspection Type: Sanitary Survey	Purpose:		Not/Com #:
Inspection Dates: 10/19/2005	Time: Start AM End AM		
Latitude:	Longitude:		
Coordinate Collection Method:			

Drinking Water Data

Revision Code: #041205

(To be changed by Central Office Staff only)

SANITARY SURVEY CODE: 83
INSPECTOR EMPLOYEE CODE:

PWSID: #0560258B **Plant Name:**BE Payne WTP **Plant Contact:**Jack Wang **Plant Type:** C (community) **Plant Class:**IV (>3 MGD)
Distribution Class:IVD-Pop. >50,000 **County:**Jefferson **Phone Number:**502/569-3600 **Fax Number:** **E- Mail Address:**
Service Connections:269,488 **System Population Served:**889,310
Total No. Purchasers:9 **Total Population Served:**953,066

Treatment

Primary Source: Ohio River **Secondary Source:**Riverbank Infiltration Well **Maximum Pumping Rate:**41,666 gpm
Plant Capacity MGD:60 MGD **Filter Design Rate:** 5gal/min/ft2 **Total Storage Capacity (gallons):**90 MG (total)

Pre-sedimentation Size: **Aeration Code:**
Sedimentation (Primary) Code:B-Conventional/Baffled Basin **Sedimentation 2 (if 2 different processes) Type:**
Filter (Primary) Code:M-High Rate/Mixed (sand/garnite/anthracite) **Filter 2 (if 2 different filter types) Type:**
Clear well Size (gallons):6 MG

Chemicals

Pre-Disinfection/Treatment Code:G-Chlorine Gas **Post-Disinfection Code:** A-Chloramines
Primary Coagulant Code:L-Ferric/Lime/Polymer **Secondary Coagulant (Name):** **Filter Aid Name:**
Corrosion Control Code:L-pH adjustment/Lime **Taste and Odor Code:**C-Activated Carbon/Powdered
Softening Code:L-Lime/Soda Ash
Iron (and Manganese) Removal Code: **Fluoride Supplement Code:**A-Hydrofluosilicic Acid
Other Code: **Other Name:**

Legend – NA – Not Applicable **NI** – Not Inspected

I. Administrative Requirements

Comments:
Compliance Status - No violations observed

II. Operator Certification/Accreditation Requirements

(Check with Certification Section or in TEMPO)

Plant Class	Plant Capacity (MGD)	Hours operated (annual average)	Shifts Operated (per day)	Operator Class Required Plant	Distribution
IVA Plant A (Cresent Hill)	240 MGD	24 hours a day		IVA	IVD
IVA Plant B (Payne)	60 MGD	24 hours a day		IVA	IVD

Does the plant have operators with the appropriate class certificate? Yes ☒ No ☐
Are the certifications up-to-date? Yes ☒ No ☐
Does the system appear well operated and maintained? Yes ☒ No ☐

List Operators and certification numbers:

Operator Name	Plant Certification #	Distribution Certification #
See Plant A		

Comments: See Plant A

Compliance Status - No violations observed

III. Record Keeping Requirements

Records to be kept on site	Time it must be kept	Check Yes or No
Data Summaries (if actual data not retained)	Based on data replaced	Yes ☐ No ☐ N/A ☐
Bacteriological Analyses	5 years	Yes ☐ No ☐
Chemical Analyses	10 years	Yes ☐ No ☐
Lead and Copper Data	12 years	Yes ☐ No ☐
Turbidity Analyses	1 year	Yes ☐ No ☐
Individual Filter Turbidity Data	3 years	Yes ☐ No ☐
Records of Violation Certification (required after May 1, 2002)	10 years	Yes ☐ No ☐ Yes ☐ No ☐
Records of Sanitary Surveys	10 years	Yes ☐ No ☐
Records of Variances and Exemptions	5 years	Yes ☐ No ☐ N/A ☐
Distribution Maps	Updated	Yes ☐ No ☐
O & M Manual	Updated	Yes ☐ No ☐
Sampling Plans and Maps	Updated	Yes ☐ No ☐
Consumer Confidence Report and Certification (CWS only)	On File	Yes ☐ No ☐ N/A ☐
C-T Profiling Data		Yes ☐ No ☐

Comments: See Plant A

Compliance Status - No violations observed

IV. Reporting Requirements

(To be completed by Compliance Officer)

Reporting Item	**Normal Reporting** (list last reporting period and note any exceptions)	**Emergency Reporting** (List any reports to the public)
Asbestos	☐	☐
Bacteriological	☐	☐
Consumer Confidence Report (CCR)	☐	☐
Dioxin	☐	☐
Fluoride (supplemental)	☐	☐
Inorganic Chemicals (IOCs)	☐	☐
Lead & Copper	☐	☐
Nitrate	☐	☐
Nitrite	☐	☐
Operational Reports (MORs)	☐	☐
Radionuclides (RADs)	☐	☐
Secondary Contaminants (SECs)	☐	☐
Corrosivity	☐	☐
Sodium	☐	☐
Synthetic Organic Compounds (SOCs)	☐	☐
Total Trihalomethanes (TTHMs)	☐	☐
Turbidity (Greater than 1 or 5 NTUs report ASAP)	☐	☐
Unregulated Contaminants (UCMR)	☐	☐
Volatile Organic Chemicals (VOCs)	☐	☐
Haloacetic Acids	☐	☐
Chlorite (Chlorine Dioxide Only)	☐	☐
Bromate (Ozone only)	☐	☐
Chlorine/Chloramines	☐	☐
Chlorine Dioxide	☐	☐
Total Organic Carbon	☐	☐
Emergency Reports (Immediate Notification)	☐ Line Breaks, ☐ Loss of Pressure, ☐ Loss of - Disinfection	☐
Sample Site Plan	☐	☐

Comments: See Plant A.

Compliance Status - No violations observed

V. Operation & Maintenance/Performance Requirements

MANAGEMENT AND SYSTEM OPERATION

Organization:

What is the utility's governing body?

What is the term of office for board or council members?

Are the members familiar with water treatment? Yes ☐ No ☐

How often does this body meet?

Do operators attend? Yes ☐ No ☐

Is there an organization chart? (Provide) Yes ☐ No ☐

Does the chart include the WTP? If not provide additional chart. Yes ☐ No ☐

Have there been any changes since the last Sanitary Survey? Yes ☐ No ☐

If yes, explain

Is the system subject to Public Service Commission regulations? Yes ☐ No ☐

What professional organizations does the water system belong to?

Communications:

Does the system have a Mission Statement? (Provide) Yes ☐ No ☐

Does the system have water quality goals? (Provide) Yes ☐ No ☐

What parameters are included in these goals?

Are the operators aware of these goals? Yes ☐ No ☐

Is the system aware of the Area-wide Optimization Program, coordinated through the DOW's Drinking Water Branch? Yes ☐ No ☐

Does the system have regular staff meetings? Yes ☐ No ☐

How often?

Who is involved?

Do the administrators (including the managing body) visit the water plant?

Yes ☐ No ☐

How often?

Does the plant provide reports to the superintendent? Yes ☐ No ☐

Types

Frequency

Does the superintendent provide reports to administrators? Yes ☐ No ☐

Types

Frequency

Is there an Operations and Maintenance manual(s) for both the water plant and distribution system? Yes ☐ No ☐

Is the Operations and Maintenance Manuel updated annually? Yes ☐ No ☐

If not, how often is it up-dated?

Who up-dates the manual?

How are operators made aware of the O&M procedures?

Are copies maintained in a location other than the water plant for security reasons?

Yes ☐ No ☐

Does the system provide any public relations or education activities? Yes ☐ No ☐

Who is responsible for providing this?

What types of public relations or education are done?
Who answers customer inquiries?
Is a customer inquiry log maintained? Yes ☐ No ☐

Planning:

Does the system have any short-term needs? Yes ☐ No ☐
Are they documented? Yes ☐ No ☐
How are they developed?
Who provides input into these needs?
Are the operators involved? Yes ☐ No ☐
Does the system have any long-term needs? Yes ☐ No ☐
Are they documented? Yes ☐ No ☐
How are they developed?
Who provides input into these needs?
Are the operators involved? Yes ☐ No ☐
How are chemicals inventoried?
How are distribution materials inventoried?
Is there a bid process for chemicals, pipe or other large item purchases? Yes ☐ No ☐

Security Issues:

In general, what security measures are in place at the water plant?
In general, what security measures are in place in the distribution system?
In general, what security measures are in place for data systems (SCADA, billing, Internet)?
Has the system developed procedures for protecting sensitive documents? Yes ☐ No ☐
Has the system developed procedures for securing computer/SCADA usage? Yes ☐ No ☐
Does the plant ever disable the SCADA system and run on manual? Yes ☐ No ☐
Has the system performed, or had performed, a Vulnerability Assessment? Yes ☐ No ☐
Has the system updated its Emergency Response Plan? Yes ☐ No ☐
How is the ERP communicated to all employees?
Is the ERP exercised? Yes ☐ No ☐
Is the utility a member of the Local Emergency Planning Council? Yes ☐ No ☐
How has communication been established with important external suppliers (electric company, chemical suppliers, etc)?
Has the system developed procedures for protecting backup equipment? Yes ☐ No ☐

Personnel: **Note: Detailed Operator Certification Information in a Separate Section**
Certified Operators **Number**
Is the number of operators adequate to cover needed shifts, vacations, and vacancies? Yes ☐ No ☐
What is the attitude of the staff? **Administration**
Operators
Are the operators cross-trained (by shift, by plant, with distribution, with maintenance, etc)? Yes ☐ No ☐
Do the operators perform maintenance as well as operations? Yes ☐ No ☐

Is someone cross-trained with the plant lead operator/supervisor? Yes ☐ No ☐
Do you have contingency plans for replacing retiring system personnel?
Yes ☐ No ☐
How do the operators obtain the necessary Continuing Education Hours for license renewal?
Who are the training/technical assistance providers?
What type of training is typically obtained?
Does the system pay for registration, lodging and meals? Yes ☐ No ☐
Does the system allow operators to attend training on company time? Yes ☐ No ☐

<u>Plant Coverage:</u>
Is there shift operation at the plant? Yes ☐ No ☐
Length of shift
Number of operators per shift
Number of shifts/day
How are weekends and holidays covered?
Does this system have unmanned operations? Yes ☐ No ☐
Do the operators ever leave the water plant property while the plant is producing water?
Yes ☐ No ☐
How long are the operators typically away from the plant?
What duties are the operators performing when they are away from the plant?

Are there safeguards for when operators may be doing work outside on the plant grounds?
Yes ☐ No ☐
What types of safeguards?

<u>Financial:</u>
Does the system have a budget? Provide 1-page summary if available. Yes ☐ No ☐
Is the water plant meeting its expenses? Yes ☐ No ☐
Does the water plant revenue go to meet other city/district/association expenses (such as sewer or garbage)? Yes ☐ No ☐
Who prepares the budget?
Does the system have an external audit process? Yes ☐ No ☐
Are training and license funds built into the budget? Yes ☐ No ☐
Do the operators have any input into the budget? Yes ☐ No ☐
Are general accounting procedures followed? Yes ☐ No ☐
Is there a policy for delinquent accounts? Yes ☐ No ☐
Is there a rate structure in place? Yes ☐ No ☐
When was the last rate increase?
Are long-term needs built into rate increases? Yes ☐ No ☐
Do rates promote conservation in time of drought? Yes ☐ No ☐
Does the system have any long-term debts? Yes ☐ No ☐
Is the debt being paid on time? Yes ☐ No ☐
Does the system have a reserve account? Yes ☐ No ☐
Does the system have a good credit rating (for obtaining bonds, etc)? Yes ☐ No ☐
Where does the system typically go for financial assistance?
Does the system have a capital improvement plan? Yes ☐ No ☐
How many years does the plan cover?
What is the day-to-day spending authority of the plant superintendent?

What is the emergency spending authority of the plant superintendent?
Is there a purchase order process? Yes ☐ No ☐

General Observations: See Plant A

Water Purchased Not Applicable

Purchased From	Amount Monthly (average)	Amount Available by Contract (monthly)

Observations:

Water Sold Inspected

Water sold To	Amount	Contract Amount
Ashley Pt. Mobile Home Park #0560609		
Jim Beam Brands #0152087		
Mt. Washington Water #0150300		
N. Nelson WD #09000323		
N. Shelby WD #1060324		
Old Ky Home Scout Reservation #0152891		
Taylorsville Water Works #1080425		
Tyler Mountain Water Company #0560503		
West Shelby WD #1060457		

Observations: See plant A.

PLANT AND DISTRIBUTION SYSTEM OPERATIONS

Include a plant schematic (if available) indicating the following details

- **Source water type/location**
- **Major unit processes (including baffling factors and volumes)**
- **Flow measurement locations**
- **Chemical injection locations**
- **Piping Flexibility (including number of raw and finished water mains)**
- **Waste handling**

Source

Name	Water Withdrawal Number	Permitted Amount	Is Capacity Adequate?	Are there Water Quality issues?
Ohio River		**60 MGD**	Yes☒ No☐	Yes☐ No☒
Well #2	**1435**	**22 MGD**	Yes☒ No☐	Yes☐ No☒
			Yes☐ No☐	Yes☐ No☐
			Yes☐ No☐	Yes☐ No☐

List upstream land uses: Residential, recreational and some Agricultural.
List upstream discharges (Within 5 miles): None known.
Is there a source water protection plan in place? Yes ☒ No ☐
Is the system drought-vulnerable? Yes ☐ No ☒
Describe any water quality monitoring done on the source water: Turbidity, fluoride, alkalinity, odor, total hardness, Ammonia, conductivity, calcium, Magnesium, Chloride, nitrate and nitrites, color, total solids, suspended solids, dissolved solids and temp..
If multiple sources are available, is the one in use the "best" in terms of both water quality and quantity? Yes ☐ No ☐
Observations:

Intake Structure

Location	Type	Number of Inlets	Screen Size	Is Flooding a problem?	Is silt build-up a problem?
7400 River Rd--Ohio River	Crib	2	4.25" by 2 1/3"	Yes☐ No☒	Yes☐ No☒
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐

Is raw water pumped? ☒ **Or gravity fed?** ☐
Number of raw water mains 2
Is raw water flow measured? Yes ☒ No ☐
If so when was the meter last calibrated? 10-1-2000
List any chemicals fed at the source:
If source is a reservoir is it aerated? Yes ☐ No ☐
List depths of intake levels (normal pool): 40 feet below pool. (Two intakes)
Are screens stationary? ☐ **Or mechanical?** ☒
Is screen clogging a problem? Yes ☐ No ☒
Are Zebra mussels a problem? Yes ☐ No ☒
If yes list actions taken:
How often are the submerged portions of the intake inspected? Every 5 years.
When was the date of the last inspection?
Observations:

Electrical/Emergency Power Inspected

Are emergency power generators available at the intake? Yes ☒ No ☐
Are emergency power generators available at the water plant? Yes ☒ No ☐
If available, can they support the entire plant? Yes ☐ No ☒
If the entire plant cannot be supported, are necessary systems provided power?
Yes ☒ No ☐
Are emergency power generators available in the distribution system? Yes ☒ No ☐
Are emergency power generators available for main office functions? Yes ☒ No ☐
Are standby emergency generators exercised regularly? Yes ☒ No ☐
Is other standby equipment exercised regularly? Yes ☒ No ☐
Is there the ability to utilize natural gas, propane or other sources of fuel for power?
Yes ☐ No ☒
Have arrangements been made with outside contractors, other utilities, etc to provide needed emergency equipment? Yes ☐ No ☒
If equipment is shared with the wastewater plant, how is the equipment disinfected prior to use at the water plant? NA
Observations:

Emergency Interconnections/Supplies Not Applicable

Are emergency interconnections with other water supplies available? Yes ☐ No ☒
If yes list supplies and PWSID numbers:

If the system has an inactive water plant, is the plant exercised to maintain preparedness for emergencies? Yes ☐ No ☐

How often?

How is the plant disinfected prior to bringing it back on line?

Observations:

General Plant Description: Conventional

Pre-sedimentation Not Applicable

Capacity (gallons)	Flexibility to Bypass	Chemical Feed Capability	List Chemicals Fed
	Yes☐ No☐	Yes☐ No☐	
	Yes☐ No☐	Yes☐ No☐	

Is algae growth a problem? Yes☐ No☐

How often is the pre-sedimentation basin(s) cleaned?

Observations:

Aeration Not Applicable

Type	Capacity (gallons)	Reason for Aeration

Observations:

Rapid Mix Inspected

Type	Number	Volume (gallons)	Physical Condition
Mechanical Mixer	3	444,600	Good

List chemicals fed in order they are fed: PAC, soda ash, ferric, polymer, lime, Cl2, cationic poly.

Is adequate mixing of chemicals taking place? Yes ☒ No ☐

Are there flow splits after the quick mix? Yes ☒ No ☐

If so is the flow distribution even? Yes ☒ No ☐

Observations:

Flocculation Basins Inspected

Type	# Trains	Stages	Variable Speed Drive	Volume (gallons)	Physical Condition
Horizontal Paddl	3	Multipl	Yes☐ No☒	680,000	Good
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		

			Yes ☐ No ☐		
			Yes ☐ No ☐		

What is the size OK **and appearance of the floc?** OK
How often are flocculation basins cleaned? Usually once per year. Sometimes every two years.
Are the flocculation speeds tapered (decreased) through the flocculation stages?
Yes ☒ No ☐
Are there flow splits after flocculation? Yes ☐ No ☒
Is flow distribution even? Yes ☐ No ☐
Observations: Number 1 floc basin and the softening basin have a small leak in the concrete near the ground surface.

Sedimentation Basins Inspected

Type	Number of Trains/ Stages	Volume (gallons)	% with tube settlers	Physical Condition
Upflow Clarifier	3 1	2,875,000		

What is the sedimentation turbidity goal? <1 NTU
What is the overflow rate of the basins? 888 gals/day/sqft
If an Actiflo process, what is the rise rate?
How often are the basins cleaned? Usually once per year. Sometimes every two years.
How often is sludge removed from the basins? Continously.
Is sludge removal mechanical? ☒ Or manual? ☐
What is the sludge depth at the time of the inspection? 1 Ft.
What is the settled water turbidity at the time of the inspection? 0.35 NTU
Is there evidence of short-circuiting (Flow or density currents)? Yes ☐ No ☒
Is baffling present in the basins? Yes ☐ No ☒
If yes, describe the baffling
If multiple sedimentation basins, describe the piping from the basins to the filters:
Is there evidence of floc carryover to the filters? Yes ☐ No ☒
Observations:

Filters

Number of Filters 8

Type	Media Type	Filter Rate (at inspection)	Filter control	Surface Wash Type	Filter to Waste	Filter Area	Physical Condition
High Rate	Dual Me	2.32 gpm/sqft	Rate of Fl	Air Scour	Yes☒ no☐	1760 sqft/ filter	GOOD New
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		

What is the filtered water turbidity goal? < 0.09

Does this apply to the combined filter effluent? Yes ☒ No ☐ **to individual filter effluents?** Yes ☒ No ☐

What Criteria are used for filter backwash? Running time,head loss, or rising turbidity.

What is the backwash rate in gallons per minute? 15.66/ Sqft.

Is filter backwash rate ramped up and down? Yes ☒ No ☐

Is backwash flow rate measured? Yes ☒ No ☐

Are filters ever bumped? Yes ☐ No ☒

Is air scouring used? Yes ☒ No ☐

Record the CFE turbidity at time of inspection 0.04 NTU

Are individual filters monitored for turbidity? Yes ☒ No ☐

Is this turbidity continuously recorded? Yes ☒ N o☐

Is filter to waste (rewash) present? Yes ☒ No ☐

Is it used? Yes ☒ No ☐

Can turbidity be measured while filtering to waste? Yes ☒ No ☐

Are flows adjusted on remaining in-service filters during a backwash? Yes ☒ No ☐

Observations

Residuals Handling

What percent of plant production is used for in-plant processes (backwash, chemical feed, sanitary)? 1.2% or 1.1 MGD

How are spent backwash water and other liquid residuals handled? Discharged to the settling ponds.

If applicable, is the spent backwash holding tank/lagoon volume adequate? Yes ☒ No ☐

Does the plant discharge water from this tank/lagoon back to a body of water? Yes ☒ No ☐

Does the plant have a KPDES discharge permit? Yes ☒ No ☐

Permit Number KY0003123

Is the discharge meeting permit requirements? Yes ☒ No ☐

Is spent backwash water recycled? Yes ☐ No ☒

Is it recycled as a "slug"? ☐ Or as a constant flow? ☐

What % of the flow is recycled?

Are chemical feed rates adjusted during recycle? Yes ☐ No ☐

Are raw water flows adjusted during recycle? Yes ☐ No ☐

Are all recordkeeping requirements of the Filter Backwash Rule being followed? Yes ☐ No ☐

How are solid residuals handled?Discharged to the settling lagoon.

Observations:

Chemical Feed Equipment

Chemical Name	Purpose	Feeder Type	Feed Point	Number &Condition
Ferric chloride	Coagulati	Metering	Pre Quick/I	4 Good
Lime	pH Adjust	Gravimet	Pre/Top of	2 Good
Soda Ash	pH Adjust	Gravimet	Pre/Top of	2 Good
Hydrofluosilicic Acid	Dental He	Metering	Clearwell	2 Good
Polymer	Coagulati	Metering	Quick/Flasl	2 Good
Polymer	Coagulati	Metering	Pre/Top of	2 Good
Powdered Activated Car	Taste Od	Metering	Quick/Flasl	3 Good

How are chemical feeders calibrated? Dry chemicals by pan check method.The feed rates are checked daily. Liquid feeders are spot checked weekly and full calibration twice per year.

How often are chemical feeders calibrated? No S.O.P. Cailbrated as needed if the rate check is off by more than 10%.

Are chemical dosages calculated? Yes ☒ No ☐

How often are dosages calculated? Reviewed daily, changes based on raw water conditions. Could be daily or several times per day.

Are chemicals NSF or United Laboratories approved? Yes ☒ No ☐
Do the bulk liquid feed systems have day tanks? Yes ☐ No ☒
Are at least two feeders provided for essential processes (such as coagulation, disinfection)? Yes ☒ No ☐
Are spare parts available? Yes ☒ No ☐
Is there enough storage for at least 30 days supply of chemicals used? Yes ☐ No ☒
Are there containment areas around the chemicals in case of spills or leaks? Yes ☒ No ☐
Are in-plant water supplies protected from back-flow? (Cross connections): Yes ☒ No ☐
Does a certified tester test backflow prevention devices? Yes ☒ No ☐
What is the testing frequency? Usually yearly. **Last Tested** 2003
Observations: There is a day tank for Fluoride.

Disinfection

Type	Application Point	Redundancy Available	Feeder Type
Chlorine gas	Pre Filter	Yes ☒ No ☐	Chlorinator
Chloramine	**Clearwell**	Yes ☒ No ☐	Chlorinator
		Yes ☐ No ☐	
		Yes ☐ No ☐	

What is the means used to measure disinfectant chemical usage? Scales
How is the disinfectant residual monitored? In line monitoring, lab, and portable Cl2 meter.
Is there an on-line, recording chlorine analyzer on the plant tap? Yes ☒ No ☐
Observations:

Clearwells

Volume (gallons)	Baffling Type	Disinfectant Residual Total	Free
6,000,000		2.9	

Are hatches secured? Yes ☒ No ☐
Are vents screened? Yes ☒ No ☐
How often are clear wells cleaned? Has not been cleaned in 13 years.
Observations:

Water Plant Pumps

(Low service/raw water, high service/finished water and backwash)

Flow Stream	Location	Number of Pumps	Capacity (gpm)	Pump Type	Flow Control Method
Primary Raw Wate	River Rd	4	80,555	Centrifugal	Manual
Finished Water	River Rd High Service Bldg	6	4 (15 MGD) 2 (10MGD)		Manual
Backwash water	High Service Bldg	2	27,555 / pump	Vertical Tur	Automatic

Observations: The finished water pump is actually a mixed flow turbine.

Water Plant On-line Instrumentation

Type	Flow Stream (Location)	Manufacturer	Last Calibration Date
Turbidity	Individual Fi	Hach 1720 D	10/21/05
Turbidity	Combined Fi	Hach 1720 C	4/1/05
Turbidity	Raw Water	Hach 556	9/3/04
Chlorine	Individual Fi	Capitol Controls	11/22/05
Chlorine	Tap	GLI	8/30/05
pH	Tap	GLI	8/30/05
pH	Settled Wate	GLI	8/30/05
pH	Raw Water	GLI	8/30/05
pH			
pH			
Turbidity	Settled Wate	HACH 1720C	3/24/05
Turbidity	Tap	HACH 1720C	3/16/05
Turbidity			
Turbidity			

Observations:

Laboratory (Plant)

Parameters Tested For	Frequency	Equipment Used	Calibration Method
PH	4 times/ day	Electricrode & probe	Buffers
Chlorine	4 times/ day	Titration	Known Standards
Turbidity	4 times/ day	HACH bench unit	GEL Standards
Flouride	Once per shift	Colorimeter	Standards

Is space adequate? Yes☐ No ☐
Is lighting adequate? Yes ☐ **No** ☐
Are analyses conducted according to Standard Methods? Yes ☐ **No** ☐
Observations:All other parameters are being analyzed at the Crescent Hill plants lab. See the Crescent Hill sanitary survey for the complete list.

In-Plant Sampling
(for example, top and bottom of filters)

Site T 1	Cl. Free:3.2	Total: 3.3	pH:	Turbidity: .35	Other:
Site B 1	Cl. Free:2.9	Total: 3.0	pH:	Turbidity: .03	Other:
Site T 2	Cl. Free:3.2	Total: 3.3	pH:	Turbidity: .35	Other:
Site B 2	Cl. Free:2.9	Total: 3.0	pH:	Turbidity: .05	Other:
Site T 5	Cl. Free:3.2	Total: 3.3	pH:	Turbidity: .35	Other:
Site B 5	Cl. Free:2.9	Total: 3.0	pH:	Turbidity: .05	Other:
Site T 8	Cl. Free:3.2	Total: 3.3	pH:	Turbidity: .36	Other:
Site B 8	Cl. Free:2.9	Total: 3.0	pH:	Turbidity: .04	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:

Observations:

Distribution Storage Facilities Inspected

Location	Volume (gal)	Tank Type	Overflow Screen/ Flapper >10' From tank	Last Cleaned/ Inspected	Telemetry	% Turnover (Day)
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	
			Yes ☐ No☐ Yes ☐ No☐		Yes☐ No ☐	

Observations:See list in the Crescent Hill plant A sanitary survey.

Distribution Booster Pumps and or Booster Disinfection Facilities Inspected

Location	Pump = P Disinfection = D	Number & Capacity of pumps (gpm)	Disinfection Type	Auxiliary Power
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐
	P ☐ D ☐	@		Yes ☐ No ☐

Does a certified distribution operator oversee distribution activities? Yes ☒ No ☐
How many pressure zones are there?
    What is the range of distribution pressures?
    Do any distribution areas require reduced pressure valves?
What piping materials are included in the distribution system (in general)?
Is there a formal flushing schedule? Yes ☐ No ☐ **Written Procedure?** Yes ☐ No ☐
Describe the process for sterilizing new mains/main breaks:
Are there maintenance schedules and procedures? Yes ☐ No ☐
What types of on-line instrumentation are located at booster or pump stations and tanks?

Is there corrosion protection in the tanks? Yes ☐ No ☐
How often are tanks inspected? **Cleaned?**
Is there a valve exercise/replacement program? Yes ☐ No ☐
Is water loss tracked? Yes ☐ No ☐
    If so what is the percentage of water lost?
Is there a water meter replacement program? Yes ☐ No ☐
Does the utility have distribution maps? Yes ☐ No ☐
Are there main break/emergency notification procedures? Yes ☐ No ☐
Does the system have a cross-connection prevention program? Yes ☐ No ☐
    Does a certified tester test the backflow prevention devices on a regular basis?
        Yes ☐ No ☐
Has a calibrated hydraulic model been developed for the system? Yes ☐ No ☐
Observations:SEE Crescent Hill plant A sanitary survey.

Distribution Sampling

Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:

Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:

Observations:SEE Crescent Hill plant A sanitary survey.

Gas Chlorine Safety:

Is the chlorine room enclosed and separate from other operating areas? Yes ☒ No ☐
Is there a working exhaust fan in the chlorine room? Yes ☒ No ☐
Does it provide one complete air change per minute? Yes ☐ No ☐
Does it exhaust from floor level? Yes ☐ No ☒
Is intake air near the ceiling? Yes ☐ No ☒
Are switches located outside the chlorine room? Yes ☒ No ☐
Are chlorine tanks secured? Yes ☒ No ☐
Are the scales operational? Yes ☒ No ☐
Is automatic switchover of chlorine cylinders provided? Yes ☒ No ☐
Is there a shatterproof viewing window in chlorine room? Yes ☒ No ☐
Is there a crash bar on the door of the chlorine room? Yes ☒ No ☐
Does it open out and to the exterior of the building? Yes ☒ No ☐
Is there a SCBA unit meeting NIOSH standards out side the chlorine room? Yes ☒ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is the "buddy system" practiced when changing or moving chlorine cylinders?
Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
Is there a chlorine tank repair kit? Yes ☒ No ☐
Are personnel trained and certified to use the kits? Yes ☒ No ☐
Is ammonia available for chlorine leak detection? Yes ☒ No ☐
Is a lockout tag-out system used for electrical repairs? Yes ☒ No ☐
Observations:The Cl2 Intake is at floor level and it goes to a scrubber that is located outside the building.

Chlorine Dioxide Safety: Not Applicable

Is sodium chlorite stored in a separate room? Yes ☐ No ☐
Is it stored away from organic material? Yes ☐ No ☐
Many materials will catch fire and burn violently when in contact with chlorite.
Observations:

Ammonia Safety: Inspected

Is the ammonia room enclosed and separate from other operating areas? Yes ☒ No ☐
Is there a working exhaust fan in the ammonia room? Yes ☐ No ☒
Does it provide one complete air change per minute? Yes ☐ No ☐
Does it exhaust from ceiling level? Yes ☒ No ☐
Is intake air near the floor? Yes ☐ No ☒

Are switches located outside the ammonia room? Yes ☐ No ☒
Are ammonia tanks secured? Yes ☒ No ☐
Is there a shatterproof viewing window in ammonia room? Yes ☒ No ☐
Is there a crash bar on the door of the ammonia room? Yes ☒ No ☐
Does it open out and to the exterior of the building? Yes ☐ No ☒
Is there a SCBA unit meeting NIOSH standards out side the ammonia room? Yes ☒ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
How are ammonia leaks detected? Automatic detectors on the tank and with sulfur sticks.
Is a lockout tag-out system used for electrical repairs? Yes ☒ No ☐
Observations:The ammonia room is only for small 150-pound cylinders that may be used as a back up during emergencies or during repairs to the main tank. The main ammonia tank is outside of any building and holds 2000 gals.

Maintenance:

Is plant housekeeping adequate? Yes ☒ No ☐
Is distribution storage housekeeping adequate? Yes ☒ No ☐
Are adequate supplies of spare parts kept on hand? Yes ☒ No ☐
Are needed tools available? Yes ☒ No ☐
What is the general condition of operating equipment? Good
Is there a written preventive maintenance program? Yes ☒ No ☐
If not, is preventive maintenance performed? Yes ☐ No ☐
Observations:

Comments:

Compliance Status - No violations observed

VI. Discharge/Emission Compliance

Comments:

Compliance Status - Not Inspected

VII. Monitoring/Analyses Evaluation

Comments:

Compliance Status - Not Inspected

VIII. Environmental /Health Impact

Work Site Hazard Assessment : ☐ ATTACHED ☐ REVIEWED

Comments:

Compliance Status – Not Inspected

IX. Documentation

- ☒ **Samples taken by DEP**
- ☐ **Samples taken by outside source**
- ☒ **Instrument readings taken by DEP regional office**
- ☐ **Photographs obtained by DEP**
- ☐ **Copies of records obtained by DEP**
- ☐ **Other documentation**

Inspector: Brad Trivette	Title: Environmental Inspector III	Date: 12/5/05

Compliance/TAO: Eric Sutton
Title: Environmental Technologist III
Date:

Overall Compliance Status
☒ **No Violations Observed**
☐ **No Violations Observed, but impending violation trends observed** – Advisory Action Taken
☐ **Out of Compliance. Non-recurrent deficiency noted** – Verbal notice given or violation corrected at time of insp.
☐ **Out of Compliance. Non-recurrent administrative or O & M deficiency noted** – Warning Notice issued
☐ **Out of Compliance** – NOV issued

Comments:

Delivery Method: E-mail	Cert. Mail #:

System Contact Mailing Address
Administrative Contact Mailing List

Distribution Storage Facilities

Location	Volume	Tank Type	Overflow		Fenced Locked	Telemetry	Last Cleaned
			Screen/Flapper	>10 ft from tank			
Bardstown-8612 Old Bardstown Rd	5 M	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2000
Billtown- 6105 Billtown Rd	1M	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Blankenbaker- 2702 Eletron Dr	1M	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2004
Brooks Hill-409 Old Brooks Hill Rd	300,000	SP	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	2002
Cedar Groove-230 Ohm DR	500,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2001
Cardinal Hill Reservoir- 7907 Cardinal Hill Rd.	30 M	Res	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Crestwood-6428 East Highway 146	500,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2004
English Station Tank-207 N English Station RD	500,000	EL	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1990
English Station Stand Pipe 207 """ " "	10 M	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1990
Finley Hill--8100 Glimmer Way	300,000	SP	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1998
Gap in Knob--1970 HYWY 146	350,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Jefferson Forest 12304 Holsclaw Hill RD	150,000	EL	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	2005
Kenwood Hill Res-5209 RollingwoodTrace	100,000	RES	Yes ☒ No ☐	Yes ☐ No ☐	Yes ☐ No ☒	Yes ☐ No ☐	2001
Kosmodale--7206 Shipley Lane	500,000	EL	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2003
Reamers Road- 13401 Holsclaw Hill Rd	1M	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☐ No ☐	2004
Long Run--1501 Flat Rock Rd	850,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2003
Mitchel Hill--Ray Hill Rd	100,000	SP	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	2002
North Nelson	500,000	SP	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	2004
Oak Hill--1513 Dawn Dr	500,000	SP	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	2003
ParkRidge--1913 Grand Ridge Rd	250,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2003
Peaceful Valley--285 West Peaceful Court	235,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Phelps Knob--2025 HYWY 2673	500,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Prospect-- 13595 Hunters Ridge DR	1M	EL	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Smyrna Reservoir--7801 Smyrna Rd	2.5 M	RES	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2004
Standard- Behind 2707 Colonel DR(golf course	500,000	EL	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☐ No ☐	2003
Wesport Rd-- 4828 Wesport Rd	1M	EL	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	2000
Windsor Forest--8218 Lakeridge Dr.	250,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Zoneton-- 160 Columbia Lane	150,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	

FAX 564-9899

BOOSTER PUMP SPECIFICATIONS

1.	CITY SYSTEM TO ELEVATED SERVICE AREA			
	Hikes Point	#1,2,3	2.5 MGD @ 225' TDH	125 HP
	Smyrna	#3,5,6	4.7 MGD @ 220' TDH	300 HP
		#4	2 MGD @ 220' TDH	150 HP
	Westport	#1,2	5 MGD @ 108' TDH (770 PP)	150 HP
		#3,4,5,6,7	9 MGD @ 220' TDH (860 PP)	500 HP
		#8	5 MGD @ 220' TDH (860 PP)	300 HP
2.	ELEVATED SERVICE BOOSTER PUMPAGE			
	Aiken Road	#1,2,3	1 MGD @ 100'	30 HP
	Blankenbaker Crossing	#1,2	1.15 MGD @ 100'	30 HP
	Curry Crossings (Hydropneumatic)	#1,2	0.12 MGD @ 135'	5 HP
	Frey's Hill	#1,2,3,4	2 MGD @ 225'	125 HP
	Gelhaus Lane	#1,2,3,4	0.42 MGD @ 73'	7.5 HP
	Hwy 22	#1,2,3	1 MGD @ 152'	40 HP
		#4 (spare)		
	Shelbyville Road	#1,2	0.86 MGD @ 68'	15 HP
	Billtown / Shady Acres	#1,2,3	1 MGD @ 140'	40 HP
3.	CITY SYSTEM BOOSTER PUMPAGE			
	Big Valley (Hydropneumatic)	#1,2	0.06 MGD @ 224'	5 HP
	Blevins Gap (Hydropneumatic)	#1	0.07 MGD @ 100'	3 HP
	Brooks Hill	#1,2	0.72 MGD @ 160'	40 HP
	Brooks Hill II	#1,2	0.36 MGD @ 330'	30 HP
	Cabin Creek (Hydropneumatic)	#1,2	0.04 MGD @ 245'	3 HP
	Finley Hill	#1,2	0.30 MGD @ 170'	15 HP
	Cedar Grove	#1,2,3	700 GPM @ 127'	40 HP
	Kenwood Hill	#1,2,3	0.40 MGD @ 120'	15 HP
	Kenwood Hill II (Hydropneumatic)	#1,2	0.05 MGD @ 140'	3 HP
	Lonesome Hollow	#1	0.02 MGD @ 125'	¾ HP
		#2,3	0.06 MGD @ 130'	3 HP
	Martin Hill	#1, 2, 3	0.43 MGD @ 311'	40 HP

Mitchell Hill (Hydropneumatic)	#1,2	0.07 MGD @ 100'	3 HP
Oak Hill	#1,2	0.72 MGD @ 200'	40 HP
Parkridge	#1	0.07 MGD @ 150'	5 HP
	#2,3	0.29 MGD @ 150'	15 HP
PRP	#1,2,3	1.3 MGD @ 140'	50 HP
Stoneridge Landing (Hydropneumatic)	#1,2	0.07 MGD @ 85'	3 HP
Sugartree	#1,2,3	0.60 MGD @ 184'	30 HP
Zoneton	#1,2	0.19 MGD @ 180'	10 HP

4. HYDROPNEUMATIC SYSTEM BOOSTER PUMPAGE

Big Valley	#1 & 2	60,480 GPD @ 224'	5 HP (ea.)
*Blevins Gap	#1 & 2	72,000 GPD @ 100'	3 HP (ea.)
**Cabin Creek	#1 & 2	41,760 GPD @ 245'	3 HP (ea.)
*Curry Crossings	#1 & 2	122,400 GPD @ 135'	5 HP (ea.)
*Forest Hill Road	#1 &2	72,000 GPD @75'	1.5 HP (ea)
Kenwood Hill II	#1,2	50,000 GPD @ 140'	3 HP (ea.)
*Mitchell Hill	#1 & 2	72,000 GPD @ 100'	3 HP (ea.)
** Oak Point Estates	#1 & 2	60 GPM @ 100'	1.5 HP (ea)
*Oakwood Drive	#1 & 2	72,000 GPD @ 165'	5 HP (ea)

* These hydro stations each contain 2 bladder type hydropneumatic tanks. Air compressor systems are not used with these types of tanks, so no adjustments are necessary by Operators. Recommend that air pressure in tanks be checked annually by maintenance mechanics. Air pressure in tank should equal lead pump's "cut-in" pressure.

** The hydropneumatic tank vault for this station is located up the hill from the pump vault.

5. BULLITT COUNTY ELEVATED BOOSTER PUMPAGE

Peaceful Valley	#1,2, & 3	400 GPM @ 172'	30 HP (ea)

Beckmar

ENVIRONMENTAL
LABORATORY

Jeffersontown Business Park
8257 Ruckriegel Parkway
Jeffersontown, KY 40299
502.266.6533
FAX 502.266.6446

Date of Issue: November 30, 2005 Page 1 of 5

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Shawnee & Southwestern.

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160621
Sample Date: 11/29/2005
Sample Time: 11:19
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	< *1*	col/100ml	G	SM9223uv	11/29/2005 15:00	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

Beckmar

ENVIRONMENTAL
LABORATORY

Jeffersontown Business Park
3251 Ruckriegel Parkway
Jeffersontown, KY 40299
502.266.6533
FAX 502.266.6446

Date of Issue: November 30, 2005

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Oakland Hills Dr..

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160622
Sample Date: 11/29/2005
Sample Time: 13:00
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	*< 1*	col/100ml	G	SM9223uv	11/29/2005 15:00	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

Beckmar

ENVIRONMENTAL
LABORATORY

Jeffersontown Business Park
3251 Rockriegel Parkway
Jeffersontown, KY 40299
502.266.6533
FAX 502.266.6446

Date of Issue: November 30, 2005

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Brush Run Rd. & Routt Rd..

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160623
Sample Date: 11/29/2005
Sample Time: 13:30
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	*< 1*	col/100ml	G	SM9223uv	11/29/2005 15:00	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

Beckmar

ENVIRONMENTAL
LABORATORY

Jeffersontown Business Park
3251 Ruckriegel Parkway
Jeffersontown, KY 40299
502.266.6535
FAX 502.266.6446

Date of Issue: November 30, 2005

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Shelbyville Road - 1 mile from Shelby Line..

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160624
Sample Date: 11/29/2005
Sample Time: 14:10
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	*<1*	col/100ml	G	SM9223uv	11/29/2005 15:00	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

Beckmar

Date of Issue: November 30, 2005

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Plenmar Drive.

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160617
Sample Date: 11/28/2005
Sample Time: 13:20
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	*< 1*	col/100ml	G	SM9223uv	11/28/2005 17:30	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

ENVIRONMENTAL
LABORATORY
Jeffersontown Business Park
3251 Rurkriegel Parkway
Jeffersontown, KY 40299
502.266.6535
FAX 502.266.6546

Beckmar

ENVIRONMENTAL
LABORATORY

Jeffersontown Business Park
3751 Ruckriegel Parkway
Jeffersontown, KY 40299
502.266.6533
FAX 502.266.6446

Date of Issue: November 30, 2005

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Dixie Highway at Colonial Estates.

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160618
Sample Date: 11/28/2005
Sample Time: 14:00
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	*< 1*	col/100ml	G	SM9223uv	11/28/2005 17:30	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

Beckmar

ENVIRONMENTAL
LABORATORY

Jeffersontown Business Park
3251 Ruckriegel Parkway
Jeffersontown, KY 40299
502.266.6533
FAX 502.266.6446

Date of Issue: November 30, 2005

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Cane Run Rd. & Clarinet Dr..

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160619
Sample Date: 11/28/2005
Sample Time: 14:35
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	*< 1*	col/100ml	G	SM9223uv	11/28/2005 17:30	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

Beckmar

ENVIRONMENTAL
LABORATORY

Jeffersontown Business Park
3251 Ruckriegel Parkway
Jeffersontown, KY 40299
502.266.6533
FAX 502.266.6496

Date of Issue: November 30, 2005

Kentucky Division of Water c/o Mr. Brad Trivette
9116 Leesgate Rd.
Louisville, KY 40222-5084

RE: Analysis results for: Barbizone Court.

Kentucky State Laboratory Certification Number: 00044

BECKMAR CERTIFICATE OF ANALYSIS # 160620
Sample Date: 11/28/2005
Sample Time: 13:30
Sampled by: Mr. Brad Trivette
Sample Source: Municipal

Parameter	Results	Units	Type	Method	Analyzed Date / Time	Analyst
Total Coliform	*<1*	col/100ml	G	SM9223uv	11/28/2005 17:30	PDB

Interpretation:

*The above water sample **DOES** meet current microbiological standards of the EPA and the Ky. Division of Water, in that regard, is considered **SAFE** for human consumption.*

Remarks:

If you have any questions please call.

Thank you,

Joe P. Carney
Quality Control Officer

JPC:dwt

Beckmar Environmental Laboratory
3251 Ruckriegel Parkway
Louisville, KY 40299
(502) 266-6533
Fax: (502) 266-6446
www.beckmarlab.com

CHAIN OF CUSTODY

Beckmar

Lou. Water Co. Sample

Client / Company Name: Ky. Div. of Water

Sampled by (print name): Brad Trivette

Signature: Brad Trivette

P/O#:

Tests / Analysis Requested

Beckmar ID #	Collection Date	Collection Time	Sample Type	Sample Point / Description	Number of Containers	Sample Matrix	Total Coliform	Preservative
160621 E	11/24/05	11:15	G	Sycamore + South Westerly	1	DW	✓	
160622 F	11/24/05	1:00	G	Oakland Hills DR	1	DW	✓	
160623 G	11/24/05	1:30	G	Brush Run Rd + Routt Rd	1	DW	✓	
160624 H	11/24/05	2:10	G	Shelbyville Rd 1 mi. from Shelby Line	1	DW	✓	

Relinquished by:	Received by:	Date:	Time:
Brad Trivette	[signature]	11/24/05	2:45
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

FIELD DATA

Calibration ID:	pH ______ SU
D.O. ______ mg/l	Total Chlorine ______ mg/l
Temperature ______ °C	Free Chlorine ______ mg/l

LABORATORY DATA

Temperature Received ______ °C	
HNO_3 PH ______ SU	H_2NO_4 PH ______ SU
NaOH PH ______ SU	UNP PH ______ SU

Comments:
Total Coliform
For Lou. Water Co....

Sample Types: Composite (C), Grab (G)

Matrix Codes: DW = Drinking Water, WW = Wastewater, GW = Ground Water, SW = Surface Water, S = Soil, SL = Sludge

Beckmar Environmental Laboratory
3251 Ruckriegel Parkway
Louisville, KY 40299
(502) 266-6533
Fax: (502) 266-6446
www.beckmarlab.com

CHAIN OF CUSTODY

PAGE 5 OF 5

Beckmar

Client / Company Name: KY. DIV OF WATER

Sampled by (print name):

Signature: P/O#:

Beckmar ID #	Collection Date	Collection Time	Sample Type	Sample Point / Description	Number of Containers	Sample Matrix	Tests / Analysis Requested: Coliform	Preservative
160617 A	11/28/05	1:20	G	~~BARRIZON CT~~ PLENMAR DR	1	DW		
160618 B	11/28/05	2:00	G	DIXIE HWY at COLONIAL ESTATES	1	DW		
160619 C	11-28-05	2:35	G	CAIN RUN Rd + CLAYHITE DR	1	DW		
160620 D	11-28-05	3:30	G	BARRIZON CT	1	DW		

Relinquished by:	Received by:	Date:	Time:
[signature]	[signature]	11-28-05	4:00
Relinquished by:	Received by:	Date:	Time:
Relinquished by:	Received by:	Date:	Time:

Comments:
TOTAL COLIFORM

FIELD DATA		LABORATORY DATA	
Calibration ID:	pH ______ SU	Temperature Received ______ °C	
D.O. ______ mg/l	Total Chlorine ______ mg/l	HNO_3 PH ______ SU	H_2NO_4 PH ______ SU
Temperature ______ °C	Free Chlorine ______ mg/l	NaOH PH ______ SU	UNP PH ______ SU

Sample Types: Composite (C), Grab (G)

Matrix Codes: DW = Drinking Water, GW = Ground Water, S = Soil, WW = Wastewater, SW = Surface Water, SL = Sludge

HENRY C. LIST
SECRETARY

PAUL E. PATTON
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
14 REILLY RD
FRANKFORT KY 40601

January 27, 2003

RECEIVED JAN 3 1 2003

Mr. Gregory Heitzman, P.E.
Louisville Water Company
550 South Third Street
Louisville, KY 40202

RE: Water Storage Tanks Overflows

Dear Mr. Heitzman:

The Drinking Water Branch received the pictures of the water storage tanks cited in our October 21, 2002, cover letter regarding the overflows being less than ten (10) feet from the base of the tanks. You are correct in your correspondence of January 9, 2002, that this requirement is not in "Ten States Standards". The intent of our stipulation is to direct the overflow of water away from the base of the tanks to prevent erosion. However, it has been a stipulation in approval letters for decades and is regarded as "best professional judgement".

The Oak Hill Standpipe clearly meets this stipulation. However, be sure that the discharge point of the pipe is 12 to 24 inches above the ground surface and that it is properly screened.

The Westport Road elevated storage tank does not meet the criteria to direct the overflow away from the base of the tank and erosion is clearly visible. At a minimum, install a large splash plate and enough rock to direct the flow away from all support columns for the tank.

The overflow pipe at the Brooks Hill Standpipe is acceptable but the splash plate of rocks is insufficient and the overflow is not directed far enough away from the tank to prevent erosion. At a minimum, install a large splash plate and enough rock to direct the flow away from the base of the tank.

The overflow pipe at the Jefferson Memorial elevated tank is acceptable but the splash plate is insufficient to prevent erosion, which is visible. Install a larger splash plate that extends towards the base of the tank and overflow pipe. The rock leading away from the tank appears to be sufficient to direct the flow of water away from the tank supports.

If you have any further questions or need assistance, please contact me at 502.564.3410 x 555.

Sincerely,

Vicki L. Ray

Vicki L. Ray, Manager
Drinking Water Branch
Division of Water

VLR

C: Louisville Field Office
DWB Files

LOUISVILLE WATER COMPANY

550 SOUTH THIRD STREET • LOUISVILLE, KENTUCKY 40202

TEL 502-569-3600 FAX 502-569-0815

January 16, 2003

Ms. Vicki L. Ray
Manager, Drinking Water Branch
Kentucky Division of Water
Frankfort Office Park
14 Reilly Rd
Frankfort, KY 40601

Re: PWS ID 0560258
2002 Sanitary Survey

Dear Ms. Ray:

Thank you for your letter of October 21, 2002. We appreciate the professional support from your staff in conducting the 2002 survey. I want to provide the following response to your survey findings:

1. Storage Tank Overflow Screens - The English Station, Finley Hill, Kosmosdale, Mitchell, and Standard storage tanks do not have screens on the overflow piping. Each of these overflows will be modified with screens and will be installed by May 1, 2003.

2. Storage Tank Drain Extensions - The Brooks Hill, Jefferson Forest, and Westport storage tanks do not currently have a drain that extends 10 feet beyond the base of the tank. These sites will be modified and drains extended along with installation of either rip rap or concrete spill way. In order to assure we meet the expectation of the Division of Water, we request a reference to a design standard to assure compliance. The Oak Hill Tank has an existing drain extension beyond 10 feet from the base of the tank; therefore we will improve the drain area with rip rap or concrete spillway. These modifications will be complete by September 1, 2003.

3. Feed Pump Calibration SOPs – Staff currently uses the manufacturer's manuals for calibration. As a result, the procedures are not consistent, therefore we will develop SOPs using a standard format, which includes all feed pump manufacturers in use and references the manufacturer manuals. The SOPs will be completed by July 1, 2003.

4. BE Payne Plant Turbidimeter Calibration – The calibration for the turbidimeters at the BE Payne Plant are performed routinely by laboratory staff at the Crescent Hill Plant to assure quality control. The formazin standard used for calibration at BE Payne is no longer in use, and therefore the standard and SOP will be removed from the BE Payne Plant. A written turbidimeter calibration SOP will be developed for both plants, referencing manufacturers instructions, and be available by July 1, 2003.

I appreciate the opportunity to work with your staff on the Sanitary Survey. We will proceed to correct these issues as outlined above. If there are any concerns regarding my response or timetable, please let me know. I can be reached at 502-569-3681 or gheitzman@lwcky.com.

Sincerely,

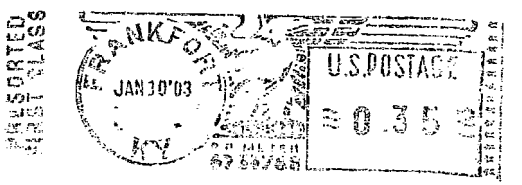
Gregory C. Heitzman, P.E.
Vice President of Operations and Chief Engineer

Cc: Jack Wang, LWC

An Equal Opportunity Employer

DW

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND
ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
14 REILLY RD
FRANKFORT KY 40601



LOUISVILLE WATER COMPANY
ATTN: GREGORY HEITZMAN, P.E.
550 SOUTH THIRD STREET
LOUISVILLE KY 40202

L-MKAMP 40202

Memorandum

LOUISVILLE WATER COMPANY

TO: Project File

FROM: James Mok

DATE: January 17, 2003

RE: **03-802 Corrective Action on Tank Overflow Piping**

PROJECT DESCRIPTION

In June of 2002, the Division of Water personnel conducted a Sanitary Survey reviewing the Louisville Water Company facilities. A Sanitary Survey report dated October 21, 2002 was issued by the Division of Water to the Louisville Water Company and it identified deficiencies at a few water storage facilities that require corrective action.

- Screens are required to be installed on the tanks overflow outlet piping at the following location; English Station, Finley Hill, Kosmodale, Mitchell Hill, Oak, and Standard.
- Overflow outlet which is less than 10 feet from the base of the tank needs to be extended 10 feet beyond the base of the tank at the following location; Brooks Hill, Jefferson Forest, Oak Hill, and Westport Road.

SCOPE OF WORK

- Screens will be installed on the overflow piping at the above listed site. The work will be performed by in house personnel.
- The discharge point of the overflow piping will be reconfigured to discharge at a location greater than 10 feet beyond the tank base. Catch basins will be installed at the overflow piping discharge outlet and rip rap will be placed for erosion control. Bid contract will be prepared for this scope of work.

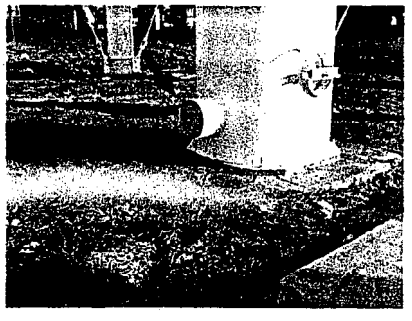
PROPOSED SCHEDULE

Final design of the plan to reconfigure the overflow outlets is underway. Construction to reconfigure the overflow outlets will be implemented and be completed by September 1, 2003. The project is scheduled to bid in April 2003. Work is expected to commence following approval by the Bid & Award Committee.

Oak Hill Water Storage Standpipe

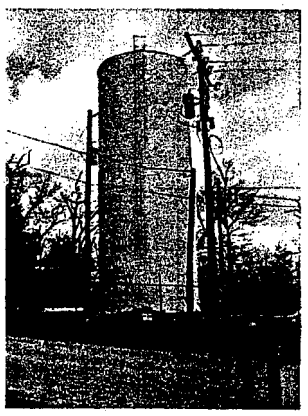
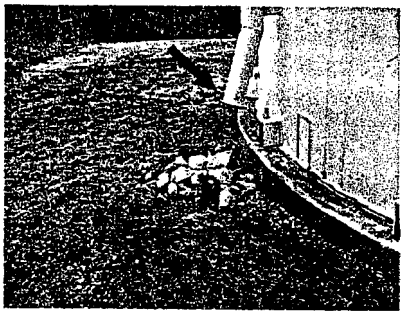
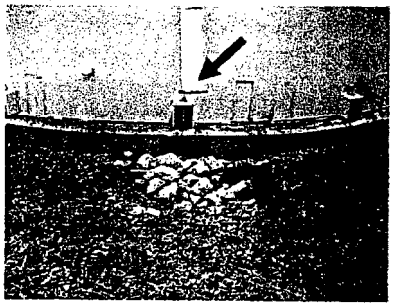
The overflow pipe (blue color) is attached to the side of the standpipe. The overflow pipe than is buried underneath the roadway and discharge at a point above the ground level, of to the hillside.

Westport Road Elevated Water Storage Tank



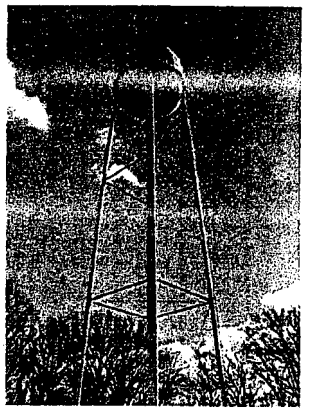
Overflow pipe outlet located at the tank column and the outlet pipe is more than one foot above the ground surface.

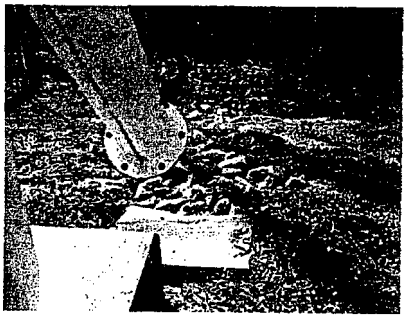
Brooks Hill Water Storage Standpipe

The overflow pipe is attached to the side of the standpipe and the overflow pipe outlet is more than one foot above the ground surface.

Jefferson Memorial Elevated Water Storage Tank





The overflow pipe is attached to one of the elevated tank support column. The overflow pipe outlet is more than one foot above the ground surface.

Tank Overflow Corrective Action

	Length	Unit	Unit Rate	Cost
Oak Hill Tank				
install catch basin	1	Ea.	$ 2,000	$ 2,000
place rip rap for erosion control	56	C.Y.	$ 40	$ 2,222
Brooks Hill Standpipe				
Install 8-inch piping	20	L.F.	$ 30	$ 600
install catch basin	1	Ea.	$ 2,000	$ 2,000
place rip rap for erosion control	56	C.Y.	$ 40	$ 2,222
Jefferson Memorial Tank				
Install 8-inch piping	20	L.F.	$ 30	$ 600
install catch basin	1	Ea.	$ 2,000	$ 2,000
place rip rap for erosion control	33	C.Y.	$ 40	$ 1,333
Westport Road Tank				
Install 24-inch pipe	40	L.F.	$ 50	$ 2,000
install catch basin	1	Ea.	$ 2,000	$ 2,000
place rip rap for erosion control	111	C.Y.	$ 40	$ 4,444
			Sub-Total	**$ 21,422**
Engineering & Supervision	1	LS	$ 7,000	**$ 7,000**
Drainage Easement	1	LS	$ 10,000	**$ 10,000**
Contingency			20%	**$ 7,684**
Total Cost				**$ 46,107**

JAMES E. BICKFORD
SECRETARY

PAUL E. PATTON
GOVERNOR

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
FRANKFORT OFFICE PARK
14 REILLY RD
FRANKFORT KY 40601

October 21, 2002

Greg Heitzman
Louisville Water Company
7400 Upper River Road
Louisville KY 40206

RE: PWS ID: 0560258
Sanitary Survey

Dear Mr. Heitzman:

Division of Water personnel conducted a Sanitary Survey beginning on June 25, 2002. The purpose of this survey was to comply with the requirements of the Interim Enhanced Surface Water Treatment Rule, which became effective January 1, 2002. During this inspection no significant deficiencies were noted. However, the following deficiencies were noted and should be addressed in a timely manner:

1. The following storage tanks need screens on the overflows: English Station, Finley Hill, Kosmodale, Mitchell Hill, Oak Hill and Standard.
2. The following tanks had overflows less than 10 feet from the base of the tank: Brooks Hill, Jefferson Forest, Oak Hill and Westport Road. These overflows need to be extended to greater than 10 feet from the base of the tank.
3. It is recommended that written Standard Operating Procedures (SOPs) be developed for the calibration of the feeder pumps.
4. B.E. Payne Plant B: During the inspection it was noted that the formazin standard used for calibration of the tubidimeters was old and no fresh formazin could be located. The turbidity meters should be calibrated routinely according to manufacturers' instructions. Fresh formazin standards should be available for these calibrations. It is recommended that a written SOP for calibration of meters be established.

Please submit a response to the Drinking Water Branch by January 17, 2003, outlining Louisville Water Company's plan to address the deficiencies. If the item(s) have already been corrected, include the date they were corrected and remedies taken. Failure to respond to this correspondence may result in additional actions.

If you need further assistance feel free to contact your Field Office inspector at the Louisville Regional Office at (502) 425-4671 or your Compliance Officer, Emily Harkenrider, at 502.564.3410 x 488.

Sincerely,

Vicki L. Ray

Vicki L. Ray, Manager
Drinking Water Branch
Division of Water

VLR:WT

Attachments

C: Louisville Regional Office
DWB files

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

Drinking Water Sanitary Survey

Site/Permit ID: 0560258A	Division: Water		Regional Office: Louisville
Site Name: Louisville Water Company: Crescent Hill Plant A		Program: Drinking Water	
Site Address: 3018 Frankfort Avenue			
City: Louisville	State: KY	Zip: 40206	County: Jefferson
Inspection Type: Sanitary Survey	Purpose: Comprehensive		Not/Com #:
Inspection Dates: 6/25/02	Time: Start 9:00 AM End AM		
Latitude: 38 15 15.7	Longitude: 85 40 48.6		
Coordinate Collection Method: G40-Handheld receiver			

Drinking Water Data **Revision Code: #040902**
(To be changed by Central Office Staff only)

SANITARY SURVEY CODE: 83
INSPECTOR EMPLOYEE CODE:

PWSID: 0560258A **Plant Name:**Louisville Water Company: Crescent Hill Plant A **Plant Contact:**Bo Williams, Administrative **Plant Type:**C (community) **Plant Class:**IV (>3 MGD)
Distribution Class:IVD-Pop. >50,000 **County:**Jefferson **Phone Number:**502/569-3628, Extension 3628 **Fax Number:**502/569-0826 **E- Mail Address:**bowilliams@lwcky.com
Service Connections:250,229 Connections **System Population Served:** 825,756 Persons
Total No. Purchasers:11 Systems **Total Population Served:** 909,255 Persons

Treatment

Primary Source: Ohio River **Secondary Source:**Well #1 **Maximum Pumping Rate:**285 MGD
Plant Capacity MGD:240 MGD **Filter Design Rate:** 3 GPM/sq ft **Total Storage Capacity (gallons):**55,000,000 Gal
Pre-sedimentation Size: **Aeration Code:**
Sedimentation (Primary) Code:T-Conventional/Tubes/Plates **Sedimentation 2 (if 2 different processes) Type:**
Filter (Primary) Code:M-High Rate/Mixed **Filter 2 (if 2 different filter types) Type:**
Clear well Size (gallons):25,000,000 Gal

Chemicals

Pre-Disinfection Code:G-Chlorine Gas **Post-Disinfection Code:** A-Chloramines
Primary Coagulant Code:L-Ferric/Lime/Polymer **Secondary Coagulant (Name):**Soda ash is used in rare occasions of very high turbidity. **Filter Aid Name:**Polyaluminum Chloride (Sometimes Polymer)
Corrosion Control Code:L-pH adjustment/Lime **Taste and Odor Code:**C-Activated Carbon/Powdered
Softening Code:
Iron (and Manganese) Removal Code: **Fluoride Supplement Code:**A-Hydrofluosilicic Acid
Other Code:X-NONE **Other Name:**Potassium permanganate is fed at the intake for zebra mussel control.

Legend – NA – Not Applicable **NI** – Not Inspected

I. Administrative Requirements

Comments: Lime is not used as a coagulant.
Compliance Status - No violations observed

II. Operator Certification/Accreditation Requirements

(Check with Certification Section)

Plant Class	Plant Capacity (MGD)	Hours operated (annual average)	Shifts Operated (per day)	Operator Class Required Plant	Distribution
IV A	250 MGD	8,760 Hours Per Year	2 (12 Hour)	IV A	IV D

Does the plant have operators with the appropriate class certificate? Yes ☒ No ☐
Are the certifications up-to-date? Yes ☒ No ☐
Does the system appear well operated and maintained? Yes ☒ No ☐

List Operators and certification numbers:

Operator Name	Plant Certification #	Distribution Certification #
Austin, David	IV A	
Barker, Paul	IV A	
Blume, Robert	IV A	
Buechel III, Clifford	IV A	IV D
Calloway, Robert	IV A	IV D
Carr, Derrick	IV A	
Chervenak, David		IV D
Dougherty, Susan		IV D
Fennell, Timothy		IV D

Comments: Certified Operators List Continued: Fitzgerald, John (IV A); Goodlet, Shawn (IV A); Hainline, Troy (IV A); Harris, Eric (IV D); Horrell, Joseph (IV A); Hubbs, Stephen (IV A); Hunt, Harold (IV D); Ilari, Vincent (IV A and IV D); Jakoby, David (III A); Lannan, William (IV A); Manley, Morris (IV D); Meeks, Billy (IV D); Meyer, Timothy (IV A); Payne, John (IV A); Ralston, John (II D); Samuels, Stephen (IV A); Schaftlein, Angelita (IV A); Scott, Phillip (IV A and IV D); Snider, Charles (IV A); Wang, Dr. Jack (IV A and IV D); Wheeler, Richard (IV A); Zelch, Glennon (IV D) *Not all certified operators actually perform operational duties. These certified operators may operate at either the A or the B plant of Louisville Water Company.

Compliance Status - No violations observed

III. Record Keeping Requirements

Records to be kept on site	Time it must be kept	Check Yes or No
Data Summaries (if actual data not retained)	Based on data replaced	Yes☒ No☐ N/A☐
Bacteriological Analyses	5 years	Yes☒ No☐
Chemical Analyses	10 years	Yes☒ No☐
Turbidity Analyses	1 year	Yes☒ No☐
Records of Violation Certification (required after May 1, 2002)	10 years	Yes☒ No☐ Yes☐ No☐
Records of Sanitary Surveys	10 years	Yes☒ No☐
Records of Variance and Exemption	5 years	Yes☐ No☐ N/A☒
Distribution Map	Updated August, 2001	Yes☒ No☐
O & M Manual	Updated Continually	Yes☒ No☐
Sampling Plan Map	Updated December, 2001	Yes☒ No☐
Consumer Confidence Report and Certification (CWS only)	On File	Yes☒ No☐ N/A☐
CT/ Profiling Data		Yes☒ No☐

Comments: Analytical data prior to 1999 is archived with a receipt-retrieval process. Receipts were available for data collected 1998 and earlier to prove that the data has been retained. Data 1999-2002 is retained and organized by quarters. Keeping analytical data in order by contaminant group would be more efficient/accurate. Finding specific laboratory reports was a tedious process when grouped quarterly.

Compliance Status - No violations observed-Advisory action taken

IV. Reporting Requirements

(To be completed by Compliance Officer)

Reporting Item	**Normal Reporting** (list last reporting period and note any exceptions)	**Emergency Reporting** (List any reports to the public)
Asbestos	☒ At Least 2 Samples (2002-2004)	☐
Bacteriological	☒ 120 Samples (Monthly)	☐
Consumer Confidence Report (CCR)	☒ CCR and Certification Due by July 1 (Annually)	☐
Dioxin	☒ 4 Consecutive Quarters (2002-2004)	☐
Fluoride (supplemental)	☒ 2 Samples (Monthly)	☐
Inorganic Chemicals (IOCs)	☒ 1 Complete Set Due 2nd Quarter (Annually)	☐
Lead & Copper	☒ 50 Samples (06/01/03-09/30/03)	☐
Nitrate	☒ 1 Samples Due in 2nd Quarter (Annually)	☐
Nitrite	☒ 1 Samples Due in 2nd Quarter (Annually)	☐
Operational Reports (MORs)	☒ Complete MOR (Monthly)	☐
Radionuclides (RADs)	☒ 4 Consecutive Quarters (If Grandfathering Data)	☐
Secondary Contaminants (SECs)	☒ 2 Complete Sets (Annually: 1 Wet Season and 1 Dry Season)	☐
Corrosivity	☒ 2 Complete Sets (Annually: Taken with Secondaries)	☐
Sodium	☒ 2 Complete Sets (Annually: Taken with Secondaries)	☐
Synthetic Organic Compounds (SOCs)	☒ 2 Complete Sets within the Same 12 Month Period (2002-2004) *Detections have special monitoring.	☐
Total Trihalomethanes (TTHMs)	☒ Raw, Distribution, and Maximum Retention Samples (Quarterly)	☐
Turbidity (Greater than 1 or 5 NTUs report ASAP)	☒ 1 Measurement (Every 4 Hours of Operation)	☐
Unregulated Contaminants (UCMR)	☒ EPA Defined	☐
Volatile Organic Chemicals (VOCs)	☒ 1 Complete Set (Annually) *Detections have special monitoring.	☐
Haloacetic Acids	☒ Raw, Distribution, and Maximum Retention	☐

	Samples (Quarterly)	
Chlorite (Chlorine Dioxide Only)	☐ Not Currently Applicable	☐
Bromate (Ozone only)	☐ Not Currently Applicable	☐
Chlorine/Chloramines	☒ Residual Measurements Collected with Bacteriologicals (Monthly)	☐
Chlorine Dioxide	☐ Not Currently Applicable	☐
Total Organic Carbon	☒ Raw, CFE, and Total Alkalinity (Monthly)	☐
Emergency Reports Immediately	☒ Line Breaks, ☒ Loss of Pressure, ☒ Loss of Disinfection	☐
Sample Siting Plan	☒ Updated December, 2001	☐

Comments:

Compliance Status - No violations observed

V. Operation & Maintenance/Performance Requirements

MANAGEMENT AND SYSTEM OPERATION

Organization:

What is the utility's governing body? Water Board

Are the members familiar with water treatment? Yes ☒ No ☐

How often does this body meet? Monthly

Do operators attend? Yes ☐ No ☒

Is there an organization chart? (Provide) Yes ☒ No ☐

Does the chart include the WTP? If not provide additional chart. Yes ☒ No ☐

Communications:

Does the system have a Mission Statement? (Provide) Yes ☒ No ☐

Does the system have water quality goals? (Provide) Yes ☒ No ☐

Are the operators aware of these goals? Yes ☒ No ☐

Does the system have regular staff meetings? Yes ☒ No ☐

How often? There are several different core groups differentiated to specific areas of expertise. These groups meet regularly at various frequencies depending on the requirements of the core group.

Who is involved? The core groups are devised to include those who specialize in or are affected by the particular area of specialty.

Do the administrators visit the water plant? Yes ☒ No ☐

How often? There are various levels of administration at Louisville Water Company. While some administrators are located on-site at the plant, others make site visits. The visits are not scheduled on a regular basis such as monthly.

Does the plant provide reports to the superintendent? Yes ☒ No ☐

Types The superintendent is provided with logs, readings, operational events, incident reports, etc.

Frequency These reports are provided daily and as-needed.

Does the superintendent provide reports to administrators? Yes ☒ No ☐

Types Administrators are provided with budget/spending reports. A database is available to track resource reports continually.

Frequency These reports are available as requested by administrators.

Is there an Operations and Maintenance manual? Yes ☒ No ☐

How often is it up-dated? The operations and maintenance manual is very comprehensive and is up-dated on a continual basis.

Who up-dates the manual? Everyone involved in operations participates in up-dating the manual. Vince Ilari does the drafting.

Does the system provide any public relations or education activities? Yes ☒ No ☐

Who is responsible for providing this? Barbara Crow

What types of public relations or education are done? Louisville Water Company provides excellent educational resources for the community. School programs range from activities for small children to science experiments in the classroom. Small children are educated about the importance of handwashing and the proper procedures. Older children have a wide range of activities available including a "gameshow", website, and the Louisville Water Company mascot, Tapper the water bottle. LWC also provides teachers' curriculum and international education. Plant tours are no longer available for security reasons. Louisville also provides the mandatory Consumer Confidence Report to customers each year.

Who answers customer inquiries? Customer Service or Barbara Crow

Planning:

Does the system have any short-term needs? Yes ☒ No ☐

Are they documented? Yes ☒ No ☐

How are they developed? System owners and process owners develop the budget. A strategic plan is developed with the annual budget consisting of six components. The rate structure is up-dated annually.

Who provides input into these needs? Planning is performed by numerous groups from within the Louisville Water Company family as well as consulting engineers and outside sources as needed. LWC has a wealth of available resources for planning purposes.

Are the operators involved? Yes ☒ No ☐

Does the system have any long-term needs? Yes ☒ No ☐

Are they documented? Yes ☒ No ☐

How are they developed? Strategic planning is developed in light of key business issues and technical advisories. LWC is priority driven through ownership planning. Water quality is the uncompromised priority of Louisville Water Company.

Who provides input into these needs? Planning is performed by numerous groups from within the Louisville Water Company family as well as consulting engineers and outside sources as needed. LWC has a wealth of available resources for planning purposes.

Are the operators involved? Yes ☒ No ☐

What security measures are in place at the water plant? Louisville Water Company has a comprehensive security program in place with specialists devoted to this purpose.
What security measures are in place in the distribution system? There is an excellent response process for any incidents of theft, vandalism, etc. The process involves several levels of response. Not all storage tanks, etc. are lit at night. In some cases, this is because of community concerns about light pollution.
Has the system performed, or had performed, a Vulnerability Assessment? Yes ☒ No ☐

Personnel: **Note: Detailed Operator Certification Info in a Separate Section**
Certified Operators **Number** 8
Adequate to cover needed shifts, vacations, and vacancies? Yes ☒ No ☐
What is the attitude of the staff? **Administration** Good
Operators Good
Are the operators cross-trained? Yes ☒ No ☐
Do the operators perform maintenance as well as operations? Yes ☐ No ☒
Is someone cross-trained with the plant lead operator/supervisor? Yes ☒ No ☐
Do you have contingency plans for replacing retiring personnel? Yes ☒ No ☐

Plant Coverage:
Is there shift operation at the plant? Yes ☒ No ☐
Length of shift 12 Hours
Number of operators per shift 2
Number of shifts/day 2
How are weekends and holidays covered? All operations are regularly staffed in shifts.
Does this system have unstaffed operations? Yes ☐ No ☒
Are there safeguards for when operators may be doing work outside the plant? Yes ☒ No ☐
What types of safeguards? There are always operators present at the plant.

Financial:
Does the system have a budget? Provide 1-page summary if available. Yes ☒ No ☐
Is the water plant meeting its expenses? Yes ☒ No ☐
Does the water plant revenue go to meet other city expenses (such as sewer or garbage)? Yes ☐ No ☒
Who prepares the budget? The annual budget is developed by executive leadership and final approval is given by the Board of Water Works.
Do the operators have any input into the budget? Yes ☒ No ☐
Is there a rate structure in place? Yes ☒ No ☐
When was the last rate increase? Rates are reviewed and modified annually as-needed. The rate structure follows AWWA guidence for rate increases. There was a 4.25% rate increase put into place 01/01/02.
Does the system have any long-term debts? Yes ☒ No ☐
Is the debt being paid on time? Yes ☒ No ☐
Does the system have a reserve account? Yes ☒ No ☐
Does the system have a capital improvement plan? Yes ☒ No ☐
How many years does the plan cover? 20

What is the spending authority of the plant superintendent? Credit cards are provided to mechanics, union members, administrators, president, water board, etc. The credit cards come in six levels of spending authority based on the needs of the position.
Is there a purchase order process? Yes ☒ No ☐

General Observations: Louisville Water Company is a large institution with five corporate officers, a President, Vice President, Board of Water Works, Financial Officers, and numerous other administrators and staff. It is semi-publicly owned.

PLANT AND DISTRIBUTION SYSTEM OPERATIONS

Insert a plant schematic (can be provided by DWB)
Include the following details:

- **Source water type/location**
- **Major unit processes (including baffling factors and volumes)**
- **Flow measurement locations**
- **Chemical injection locations**
- **Piping Flexibility (including number of raw and finished water mains)**
- **On-line monitoring type/location**
- **Waste handling**

Source

Name	Water Withdrawal Number	Permitted Amount	Is Capacity Adequate?	Are there Water Quality issues?
South Ohio River	0100	160 MGD-190 MGD	Yes☒ No☐	Yes☐ No☒
Well #1	0829	2.5 MGD	Yes☒ No☐	Yes☐ No☒
			Yes☐ No☐	Yes☐ No☐
			Yes☐ No☐	Yes☐ No☐

List upstream land uses: Agriculture, Recreational,and residential.
List upstream discharges (Within 5 miles): none known
Is there a source water protection plan in place? Yes ☐ No ☐
Is the system drought-vulnerable? Yes ☐ No ☒
Observations: Well # 1 is not in use. Water source protection done by the organization ORSANCO. There is a 24 hour organic detection system in place. It takes 8 samples/day at the Payne plant and 1/day at the Cresent Hill plant. This is coordinated with OSANCO.

Intake Structure

Location	Type	Number of Inlets	Screen Size	Is Flooding a problem?	Is silt build-up a problem?
Zorn Ave	screened tower	4	Trash bars 12"-18" Traveling 1/4"-1/2"	Yes☐ No☒	Yes☐ No☒
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐

Is raw water pumped? ☒ **Or gravity fed?** ☐
Number of raw water mains 3
Is raw water flow measured? Yes ☒ No ☐
If so when was the meter last calibrated:
List any chemicals fed at the source: Potassium permanganate
If source is a reservoir is it aerated? Yes ☐ No ☒
List depths of intake levels (normal pool): Lower is 17' below normal pool. Upper is 10 FT. below pool.
Are screens stationary? ☒ **Or mechanical?** ☒
Is screen clogging a problem? Yes ☐ No ☒
Are Zebra mussels a problem? Yes ☐ No ☒
If yes list actions taken: Potassium permanganate twice/year
Are emergency power generators available? Yes ☒ No ☐
Are emergency interconnections with other supplies available? Yes ☐ No ☒
If yes list supplies and PWSID numbers:
Observations: Emergency connections to another electric utility is available.

Pre-sedimentation

Capacity (gallons)	Flexibility to Bypass	Chemical Feed Capability	List Chemicals Fed
110,000,000	Yes☒ No☐	Yes☒ No☐	Carbon, potassium copper sulfate
	Yes☐ No☐	Yes☐ No☐	

Is alga growth a problem? Yes☐ No☒
Observations: This is the reservoir information.

Aeration Not Applicable

Type	Capacity (gallons)	Reason for Aeration

Observations: No aeration

Rapid Mix

Type	Number	Volume (gallons)	Physical Condition
In Line Mixer	4		Good

List chemicals fed in order they are fed: KMNO4, Powered Activated Carbon, Cu Sulfate, Ferric, Cationic Poly, Soda Ash, Alum, Chlorine, Ammonia, Soda ash, lime, Alum, Poly Alumimum Chloride, Hydroflorisidic acid Chlorine.
Is adequate mixing of chemicals taking place? Yes ☒ No ☐
Are there flow splits after the quick mix? Yes ☒ No ☐
If so is the flow distribution even? Yes ☐ No ☒
Observations: South train is larger

Flocculation Basins

Type	# of Trains	Stages	Variable Speed Drive	Volume (gallons)	Physical Condition
Horizon	4	Multipl	Yes☐ No☒	2,183,053	Good
Horizon	4	Multipl	Yes☒ No☐	2,793,671	Good
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		

What is the size OK **and appearance of the floc?** OK
How often are floc basins cleaned? approx once every two years.
Are the floc speeds tapered (decreased) through the floc stages? Yes ☒ No ☐
Are there flow splits after flocculation? Yes ☐ No ☒
Is flow distribution even? Yes ☒ No ☐
Observations: One floc. basin is out of operation until 6-25-03. Its out for repairs. A second floc. basin is out for two more weeks from today due to its sedimentation basin being out for repairs on the sludge line.

Sedimentation Basins

Type	Number of Trains/ Stages	Volume (gallons)	% with tube settlers	Physical Condition
Upflow Clarifer	4 1	20,869,200	0	Good
Upflow Clarifer	4 1	22,372,453	0	Good

How often are the basins cleaned? Every two years

How often is sludge removed from the basins? continously

Is sludge removal mechanical? ☒ **Or manual?** ☐

What is the sludge depth at the time of the inspection? <6ft.

What is the settled water turbidity at the time of the inspection? 1.3 North & .96 South

Is there evidence of short circuiting (Flow or density currents)? Yes ☐ No ☒

Is baffling present in the basins? Yes ☐ No ☒

If (yes) describe the baffling.

Is there evidence of floc carryover to the filters? Yes ☐ No ☒

Observations: One sed. basin is out for repairs until 6-25-03. A second is out for repairs to its sludge line for another two weeks from today.

Filters

Number of Filters 33

Type	Media Type	Filter Rate (at inspection)	Filter control	Surface Wash Type	Filter to Waste	Filter Area	Physical Condition
High Rat	Dual Medi	1.7gal/min/	Rate of F	Fixed No	Yes☐ no☒	(12)1100 sqft	good
High Rat	Dual Medi	1.73gal/m	Rate of F	Rotary	Yes☐ no ☒	(15)2100 sqft	good
High Rat	Dual Medi	1.36gal/m	Rate of F	Air Scou	Yes☐ no☒	(6)2100 sqft	good
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		

What Criteria are used for filter backwash? maximum run time, loss of head, and turbidity.

What is the backwash rate in gallons per minute? North Bank 10.7 South Bank 14.8 East Bank 13.8

Is filter backwash rate ramped up and down? Yes ☒ No ☐

Is backwash flow rate measured? Yes ☒ No ☐

Are filters ever bumped? Yes ☐ No ☒

Is air scouring used? Yes ☒ No ☐

Record the CFE turbidity at time of inspection .07 NTU

Are individual filters monitored for turbidity? Yes ☒ No ☐

Is this turbidity continuously recorded? Yes ☒ N o☐

Is filter to waste (rewash) present? Yes ☐ N o ☒ **Is it used?** Yes ☐ No ☐

Can turbidity be measured while filtering to waste? Yes ☐ No ☐

Are flows adjusted on remaining filters during a backwash? Yes ☒ No ☐

Is the spent backwash holding tank/lagoon volume adequate? Yes ☒ No ☐

Does the plant discharge water from this tank/lagoon back to a body of water? Yes ☒ No ☐

Does the plant have a KPDES discharge permit? Yes ☒ No ☐

Permit Number KY0003123

Meeting permit requirements? Yes ☒ No ☐

Is spent backwash water recycled? Yes ☐ No ☒

Is it recycled as a "slug"? ☐ Or as a constant flow? ☐

What % of the flow is recycled?

Are chemical feed rates adjusted during recycle? Yes ☐ No ☐

Are raw water flows adjusted during recycle? Yes ☐ No ☐

Observations:

Chemical Feed Equipment

Chemical Name	Purpose	Feeder Type	Feed Point	Number &Condition
KMnO4	Taste Odor	Volumetric	Intake	1 Good
Powdered Activa	Taste Odor	Metering Pump	Pre Flocculation	3 Good
Powdered Activa	Taste Odor	Metering Pump	Intake	2 Good
Ferric	Coagulation	Metering Pump	Pre Flocculation	4 Good
Polymer	Coagulation	Metering Pump	Pre Flocculation	4 Good
Polymer	Coagulation	Metering Pump	Pre Filter	
Alum	Coagulation	Gavimetric	Pre Flocculation	3 Good
Soda Ash	Alkalinity	Volumetric	Pre Filter	2 Good
Polyaluninum Cl	Filter Aid	Metering Pump	Pre Filter	1 Good
Hydrofluosilicic	Dental Health	Metering Pump	Pre Filter	2 Good
Copper Sulfate	Taste Odor	Volumetric	Intake	1 Good
Lime	pH Adjustment	Gavimetric	Pre Filter	2 Good

How are chemical feeders calibrated? Gravimetric and volumetric are timed and pan catch and weigh. Metering pumps timed to graduated cylinders.

How often are chemical feeders calibrated? Chemical feeders are spot checked once a month. Full calibration is done based on the spot checks and when maintenance is done on the equipment.

Are Chemical dosages calculated? Yes ☒ No ☐

Are chemicals NSF approved? Yes ☒ No ☐

Do the bulk liquid feed systems have day tanks? Yes ☐ No ☒

Are at least two feeders provided for essential processes (such as coagulation, disinfection)? Yes ☒ No ☐

Are spare parts available? Yes ☒ No ☐

Is there enough storage for at least 30 days supply of chemicals used? Yes ☐ No ☒

Are there containment areas around the chemicals in case of spills or leaks? Yes ☒ No ☐

Are in plant water supplies protected from back-flow? (Cross connections): Yes ☒ No ☐

Are backflow prevention devices tested? Yes ☒ No ☐

What is the testing frequency? Once per year. **Last Tested** March and April 2002.

Observations: Calibration of chemical feeders does not have a set schedule or SOP.

Some chemicals may only have a 10 day supply in storage. In the table above gavimetric should be gravimetric.

Disinfection

Type	Application Point	Redundancy Available
Chloramine	Pre Filter	Yes ☒ No ☐
		Yes ☐ No ☐
		Yes ☐ No ☐
		Yes ☐ No ☐

Are scales provided? Yes ☐ No ☒
Are the scales operational? Yes ☐ No ☐
Is automatic switchover of chlorine cylinders provided? Yes ☐ No ☒
C-T Profiling Data Yes ☒ No ☐
Observations: Chlorine gas comes in rail tank cars. NH3 is in a large bulk tank.

Clearwell

Volume (gallons)	Baffling Type	Disinfectant Residual
25,000,000 Gal		2.6 mg/l

Are hatches secured? Yes ☒ No ☐
Are vents screened? Yes ☒ No ☐
List the plant tap: Chlorine residual: free2.05 **total**2.5**pH:**8.0
List any chemicals added to the clear well: Can add Cl2, NH3 and Soda Ash
How often are clear wells cleaned? No schedule. Last cleaned 10 years ago.
Observations:

Pumps
(Low service/raw water, high service/finished water and backwash)

Flow Stream	Location	Number of Pumps	Capacity (gpm)	Pump Type	Flow Control Method
Raw Water	Zorn Ave	3	65 MGD	Centrifugal	Manual
Raw Water	Zorn Ave	4	35MGD	Centrifugal	Manual
Finished Wate	Cresent Hill	2	65MGD	Centrifugal	Manual
Finished Wate	Cresent Hill	1	60 MGD	Centrifugal	Manual
Finished Wate	Cresent Hill	1	50MGD	Centrifugal	Manual
Finished Wate	Cresent Hill	3	35MGD	Centrifugal	Manual
Backwash wat	North filter bank		11,805 gpm	Elevated Tank	Automatic
Backwash wat	South filter bank		31,250 gpm	Elevated Tank	Automatic
Backwash wat	East filter bank		29,266 gpm	Elevated Tank	Automatic

Observations: They do not have backwash pumps at Crescent Hill. They use an elevated water storage tank to backwash the filters. The tank is 1.5 million gals. They can produce flow rates as follows: North filter bank- 17 MGD, South filter bank-45 MGD, East filter bank-42 MGD.

On-line Instrumentation

Type	Flow Stream (Location)	Manufacturer	Last Calibration Date
Turbidity	Individual Filter Efflu	HACH	12-7-01
Turbidity	Combined Filter Efflu	HACH	12-10-01
	Settled Water	HACH	5-02
	Tap	HACH	12-10-01
	Raw Water	HACH	5-02
Chlorine	Individual Filter Efflu	Capitol Controls	6/02
Chlorine	Tap	Capital Controls	6/02
pH	Tap	TBI	5/15/00
	Individual Filter Efflu	TBI	5/15/00
	Settled Water	TBI	5/15/00
	Raw Water	TBI	5/15/00
Chlorine	Settled Water	Capital Controls	6/02

Observations:

Distribution Storage Facilities

Location	Volume	Tank Type	Overflow		Fenced Locked	Telemetry	Last Cleaned
			Screen/Flapper	>10 ft from tank			
Bardstown-8612 Old Bardstown Rd	5 M	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2000
Billtown- 6105 Billtown Rd	1M	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	New
Blankenbaker- 2702 Eletron Dr	1M	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Brooks Hill-409 Old Brooks Hill Rd	300,000	SP	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	2002
Cedar Groove-230 Ohm DR	500,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2001
Cardinal Hill Reservoir- 7907 Cardinal Hill Rd.	30 M	Res	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Crestwood-6428 East Highway 146	500,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
English Station Tank-207 N English Station RD	500,000	EL	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1990
English Station Stand Pipe 207 """ " "	10 M	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1990
Finley Hill--8100 Glimmer Way	300,000	SP	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1998
Gap in Knob--1970 HYWY 146	350,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1998
Jefferson Forest 12304 Holsclaw Hill RD	150,000	EL	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	2001
Kenwood Hill Res-5209 RollingwoodTrace	100,000	RES	Yes ☒ No ☐	Yes ☐ No ☐	Yes ☐ No ☒	Yes ☐ No ☐	2001
Kosmodale--7206 Shipley Lane	500,000	EL	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1995
Reamers Road- 13401 Holsclaw Hill Rd	1M	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☐ No ☐	1999
Long Run--1501 Flat Rock Rd	850,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2000
Mitchel Hill--Ray Hill Rd	100,000	SP	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	2002
North Nelson	500,000	SP	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
Oak Hill--1513 Dawn Dr	500,000	SP	Yes ☐ No ☒	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	1998
ParkRidge--1913 Grand Ridge Rd	250,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Peaceful Valley--285 West Peaceful Court	235,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Phelps Knob--2025 HYWY 2673	500,000	SP	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
Prospect-- 13595 Hunters Ridge DR	1M	EL	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1999
Smyrna Reservoir--7801 Smyrna Rd	2.5 M	RES	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	1993
Standard- Behind 2707 Colonel DR(golf course	500,000	EL	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☐ No ☐	1995
Wesport Rd-- 4828 Wesport Rd	1M	EL	Yes ☒ No ☐	Yes ☐ No ☒	Yes ☒ No ☐	Yes ☒ No ☐	2000
Windsor Forest--8218 Lakeridge Dr.	250,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	
Zoneton-- 160 Columbia Lane	150,000	EL	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	Yes ☒ No ☐	2002
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	
			Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	

Distribution Storage Facilities

Location	Volume (gal)	Tank Type	Overflow Screen/ Flapper	Overflow >10' From tank	Last Cleaned/ Inspected	Telemetry
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐

Observations: See attached sheet. System has 28 storage tanks. The tanks known as Kenwood Hill, Reamers Rd and Standard had locked doors but no security fence. The tanks at English Station had a fench but it was not locked. See Attached List. The following tanks need screens on the overflow: English Station, Finley Hill, Kosmodale, Mitchel Hill, Oak Hill, and Standard. The following tanks had overflows <10 ft from the tank: Brooks Hill, Jefferson Forest, OakHill, and Westport Rd.

Water Purchased

Purchased From	Amount Monthly (average)	Amount Available by Contract (monthly)

Observations:

Water Sold

Water sold To	Amount	Contract Amount
Mt. Washington Water Company (0150300)	516,460,000	NO limit
Shepherdsville Water Company (0150395)	201,489,000	NO limit
Jim Beam Brands Company (0152087)	7,000	NO limit
Old KY Home Scout Reservation (0152891)	1,067,000	NO limit
Tyler Mountain Water Company (0560503)	4,059,000	NO limit
Ashley Point MHP (0560609)	16,802,000	NO limit
North Nelson Water District (0900323)	59,156,000	NO limit
Aqua Source/Goshen (0930235)	39,960,000	NO limit
North Shelby Water District (1060324)	217,728,000	NO limit
West Shelby Water District (1060457)	140,102,000	NO limit
Taylorsville Water Works (1080425)	413,070,000	NO limit

Observations: Tyler was fomerly Anita Water Co.

Distribution Booster Pumps and or Booster Disinfection Facilities

Location	Pump = P Disinfection = D	Number & Capacity of pumps (gpm)	Disinfection Type	Auxiliary Power
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐
	P☒ D☐	@		Yes☒ No☐

Does a certified distribution operator oversee distribution activities? Yes☒ No ☐
What piping materials are included in the distribution system (in general)? Ductile steel, PVC, cast iron, and some asbestos.
Is there a formal flushing schedule? Yes☒ No☐ **Written Procedure?** Yes☒ No☐
Are there maintenance schedules and procedures? Yes ☒ No ☐
Is there a valve exercise/replacement program? Yes☒ No ☐
Is water loss tracked? Yes ☒ No ☐
If so what is the percentage of water lost? 14.9-16%
Is there a water meter replacement program? Yes☒ No☐
Is there a cross-connection control inspection program? Yes☒ No☐
Does the utility have distribution maps? Yes☒ No☐
Are there Main break notification procedures? Yes☒ No
Observations: See attached list of booster pumps. They won't fit on this table.
The auxillary power is from mobile gas generators. There are schedules for main rehab and replacement. The valve exercise program goes along with the line rehab schedule. The flushing goal is to flush 1/3 of the system per year. They achieved 1/4 last year. This was initiated March 2001.
*** It is recommended that the entire system be flushed twice yearly (401KAR CH. 5).**

Laboratory (Plant)

Parameters Tested For	Frequency	Equipment Used	Calibration Method
TOC	weekly	doorman 180	standards
alkalinity	daily	titration	standards
hardness	daily	titration	standards
flouride	daily	probe	standards
calcium	daily	titration	standards
VOC's	daily	GC	Internal cal.
semi volatiles	<daily >weekly	GCMS	Internal cal.
lead	as needed	A.A.	standard
Total metals	as needed	A.A.	standards
Total Coliform	Daily(Distribution) twice at plant	colilert quantitray	negative and positive controls
E. Coli	Daily(Distribution) twice at plant	colilert quantitray	negative and positive controls
HPC	Daily(Distribution) twice at plant	Disk and media	
crypto sporidum Giardia	Twice /mo	Filter & microscope	Recovery of known amount.
Cl2 NTU PH Temp	4 hrs 4hrs daily daily	titration hach meter probe thermometer	standards standards Buffers Certified Thermometer

Is space adequate? Yes☒ No ☐
Is lighting adequate? Yes ☒ **No** ☐
Are analyses conducted according to Standard Methods? Yes ☒ **No** ☐
Observations:

In-Plant Sampling
(for example, top and bottom of filters)

Site Filter 1 Top	Cl. Free:	Total: 2.5	pH:	Turbidity: 2.87	Other:
Site Filter 1 Bottom	Cl. Free:	Total: 2.3	pH:	Turbidity: .13	Other:
Site Filter 6 top	Cl. Free:	Total: 2.5	pH:	Turbidity: 2.87	Other:
Site Filter 6 Bottom	Cl. Free:	Total: 2.4	pH:	Turbidity: .15	Other:
Site Filter 10 Top	Cl. Free:	Total: 2.5	pH:	Turbidity: 2.87	Other:
Site Filter 10 Bottom	Cl. Free:	Total: 2.1	pH:	Turbidity: .12	Other:
Site Filter 11 Top	Cl. Free:	Total: 2.5	pH:	Turbidity: 2.87	Other:
Site Filter 11 Bottom	Cl. Free:	Total: 2.3	pH:	Turbidity: .12	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:

Observations: The on-line Turbidity and LWC labs turbidity readings were lower than our readings. Bottom of fiter 1 was .07, bottom of filter 6 was .06, Bottom of 10 was .06, Bottom of filter 11 was .08 (LWC readings).

Distribution Sampling

Site B- 995 clearmont rd	Cl. Free:	Total: >2.2 pH:	Turbidity: .19	Other:
Site B-7963 HYWY 480	Cl. Free:	Total: >2.2 pH:	Turbidity: .42	Other:
Site B-Hywy 44 E. Shell	Cl. Free:	Total: >2.2 pH:	Turbidity: .18	Other:
Site J-15514 Dixie	Cl. Free:	Total: 1.04 pH:	Turbidity: .32	Other:
Site B-2112 Brooks Hill	Cl. Free:	Total: 2.1 pH:	Turbidity:	Other:
Site O-1851 Hucklebury	Cl. Free:	Total: 1.81 pH:	Turbidity: .76	Other:
Site O-HYWY399at 171	Cl. Free:	Total: 1.56 pH:	Turbidity: .85	Other:
Site O- 146 Edds Ct.	Cl. Free:	Total: 1.62 pH:	Turbidity: .82	Other:
Site J-Us60& Brent lawn	Cl. Free:	Total: 1.67 pH:	Turbidity: .16	Other:

Observations: The letters before the address J-Jefferson , B-Bullitt, and O-Oldham. Other samples were taken. All had a Total chlorine Residual >.5 and Turbidity readings much less than 5 NTU.

Chlorine Safety:

Is the chlorine room enclosed and separate from other operating areas? Yes ☒ No ☐
Is there a working exhaust fan in the chlorine room? Yes ☒ No ☐
Does it provide one complete air change per minute? Yes ☐ No ☐
Does it exhaust from floor level? Yes ☒ No ☐
Is intake air near the ceiling? Yes ☒ No ☐
Are switches located outside the chlorine room? Yes ☒ No ☐
Are chlorine tanks secured? *Yes* ☒ No ☐
Is there a shatterproof viewing window in chlorine room? Yes ☒ No ☐
Is there a crash bar on the door of the chlorine room? Yes ☒ No ☐
Does it open out and to the exterior of the building? Yes ☒ No ☐
Is there a SCBA unit meeting NIOSH standards out side the chlorine room? Yes ☒ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
Is there a chlorine tank repair kit? Yes ☒ No ☐
Are personnel trained and certified to use the kits? Yes ☒ No ☐
Is ammonia available for chlorine leak detection? Yes ☒ No ☐
Is a lockout tag-out system used for electrical repairs? Yes ☒ No ☐
Observations: The also have a Air system for changing the Cl2 tank cars. Its precautionary.

Chlorine Dioxide Safety:

Is sodium chlorite stored in a separate room? Yes ☐ No ☐
Is it stored away from organic material? Yes ☐ No ☐
Many materials will catch fire and burn violently when in contact with chlorite.
Observations:

Ammonia Safety:

Is the ammonia room enclosed and separate from other operating areas? Yes ☐ No ☐
Is there a working exhaust fan in the ammonia room? Yes ☐ No ☐

Does it provide one complete air change per minute? Yes ☐ No ☐
Does it exhaust from ceiling level? Yes ☐ No ☐
Is intake air near the floor? Yes ☐ No ☐
Are switches located outside the ammonia room? Yes ☐ No ☐
Are ammonia tanks secured? Yes ☒ No ☐
Is there a shatterproof viewing window in ammonia room? Yes ☐ No ☐
Is there a crash bar on the door of the ammonia room? Yes ☐ No ☐
Does it open out and to the exterior of the building? Yes ☐ No ☐
Is there a SCBA unit meeting NIOSH standards out side the ammonia room? Yes ☒ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
How are ammonia leaks detected? Automatic detecters and Sulfur sticks.
Is a lockout tag-out system used for electrical repairs? Yes ☐ No ☐
Observations: The Ammonia is in an outside tank. 12,000 gal tank. It was inspected last year. Its not in a room.

Maintenance:

Is housekeeping adequate? Yes ☒ No ☐
Are adequate supplies of spare parts kept on hand? Yes ☒ No ☐
Are needed tools available? Yes ☒ No ☐
What is the general condition of operating equipment? good
Is there a written preventive maintenance program? Yes ☒ No ☐
If not, is preventive maintenance performed? Yes ☒ No ☐
Observations: Some have written SOP's and schedules. The scheduled maintenance items are pump replacement, electric motors, bearings and oil. Other items would be inspection driven or due to maintenance crew findings during their daily rounds.

Comments:

Compliance Status - No violations observed

VI. Discharge/Emission Compliance

Comments:

Compliance Status - Not Inspected

VII. Monitoring/Analyses Evaluation

Comments:

Compliance Status - No violations observed

VIII. Environmental /Health Impact

Work Site Hazard Assessment : ☐ ATTACHED ☒ REVIEWED

Comments:

Compliance Status – No violations observed

IX. Documentation

☐ **Samples taken by DEP**
☐ **Samples taken by outside source**
☒ **Instrument readings taken by DEP regional office**
☐ **Photographs obtained by DEP**
☐ **Copies of records obtained by DEP**
☐ **Other documentation**

Inspector: Brad Trivette	Title: Environmental Inspector III	Date: 9-25-02

Compliance: Emily Harkenrider Title: Environmental Technologist I Date: 07/19/02

Overall Compliance Status
☐ **No Violations Observed**
☒ **No Violations Observed, but impending violation trends observed** – Advisory Action Taken
☐ **Out of Compliance. Non-recurrent deficiency noted** – Verbal notice given or violation corrected at time of insp.
☐ **Out of Compliance. Non-recurrent administrative or O & M deficiency noted** – Warning Notice issued
☐ **Out of Compliance** – NOV issued

Comments: Some of the storage tanks need to be brought up to Ten State Standards specifications. See the list of storage tanks attachment. The flushing schedule is much less than the regulations recommend. The calibration of the chemical feeders may need to be on a more definite schedule and the methods spelled out in an SOP.

Delivery Method: E-mail	Cert. Mail #:

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
KENTUCKY DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER

Drinking Water Sanitary Survey

Site/Permit ID: 0560258B	Division: Water		Regional Office: Louisville
Site Name: Louisville Water Company: B. E. Payne Plant B		Program: Drinking Water	
Site Address: 7400 Upper River Road			
City: Louisville	State: KY	Zip: 40059	County: Jefferson
Inspection Type: Sanitary Survey	Purpose: Comprehensive		Not/Com #:
Inspection Dates: 6/27/02	Time: Start 9:00 AM End AM		
Latitude: 38 20 33.4	Longitude: 85 37 38.8		
Coordinate Collection Method: G40-Handheld receiver			

Drinking Water Data

Revision Code: #040902

(To be changed by Central Office Staff only)

SANITARY SURVEY CODE: 83
INSPECTOR EMPLOYEE CODE:

PWSID: 0560258B **Plant Name:**Louisville Water Company: B. E. Payne Plant B **Plant Contact:**Bo Williams, Administrative **Plant Type:**C (community) **Plant Class:**IV (>3 MGD)
Distribution Class:IVD-Pop. >50,000 **County:**Jefferson **Phone Number:**502/569-3628, Extension 3628 **Fax Number:**502/569-0826 **E- Mail Address:**bowilliams@lwcky.com
Service Connections:250,229 Connections **System Population Served:**825,756 Persons
Total No. Purchasers: **Total Population Served:**909,255 Persons

Treatment

Primary Source: Ohio River **Secondary Source:**Well #2 **Maximum Pumping Rate:**60 MGD
Plant Capacity MGD:60 MGD **Filter Design Rate:** 3 GPM/sq ft **Total Storage Capacity (gallons):**55,000,000 Gal
Pre-sedimentation Size: **Aeration Code:**
Sedimentation (Primary) Code:T-Conventional/Tubes/Plates **Sedimentation 2 (if 2 different processes) Type:**
Filter (Primary) Code:M-High Rate/Mixed **Filter 2 (if 2 different filter types) Type:**
Clear well Size (gallons):6,000,000 Gal

Chemicals

Pre-Disinfection Code:G-Chlorine Gas **Post-Disinfection Code:** A-Chloramines
Primary Coagulant Code:L-Ferric/Lime/Polymer **Secondary Coagulant (Name):**Soda ash is used in rare occasions of very high turbidity. **Filter Aid Name:**Polymer
Corrosion Control Code:L-pH adjustment/Lime **Taste and Odor Code:**C-Activated Carbon/Powdered
Softening Code:L-Lime/Soda Ash
Iron (and Manganese) Removal Code: **Fluoride Supplement Code:**A-Hydrofluosilicic Acid
Other Code:X-NONE **Other Name:**Potassium permanganate is fed at the intake for zebra mussel control.

Legend – NA – Not Applicable **NI** – Not Inspected

I. Administrative Requirements

Comments: Lime is not used as a coagulant. Soda ash is not used in the softening process, only Lime.
Compliance Status - No violations observed

II. Operator Certification/Accreditation Requirements

(Check with Certification Section)

Plant Class	Plant Capacity (MGD)	Hours operated (annual average)	Shifts Operated (per day)	Operator Class Required	
				Plant	Distribution
IV A	60 MGD	8,760 Hours Per Year	2 (12 Hour)	IV A	IV D

Does the plant have operators with the appropriate class certificate? Yes ☒ No ☐
Are the certifications up-to-date? Yes ☒ No ☐
Does the system appear well operated and maintained? Yes ☒ No ☐

List Operators and certification numbers:

Operator Name	Plant Certification #	Distribution Certification #
Austin, David	IV A	
Barker, Paul	IV A	
Blume, Robert	IV A	
Buechel III, Clifford	IV A	IV D
Calloway, Robert	IV A	IV D
Carr, Derrick	IV A	
Chervenak, David		IV D
Dougherty, Susan		IV D
Fennell, Timothy		IV D

Comments: Certified Operators List Continued: Fitzgerald, John (IV A); Goodlet, Shawn (IV A); Hainline, Troy (IV A); Harris, Eric (IV D); Horrell, Joseph (IV A); Hubbs, Stephen (IV A); Hunt, Harold (IV D); Ilari, Vincent (IV A and IV D); Jakoby, David (III A); Lannan, William (IV A); Manley, Morris (IV D); Meeks, Billy (IV D); Meyer, Timothy (IV A); Payne, John (IV A); Ralston, John (II D); Samuels, Stephen (IV A); Schaftlein, Angelita (IV A); Scott, Phillip (IV A and IV D); Snider, Charles (IV A); Wang, Dr. Jack (IV A and IV D); Wheeler, Richard (IV A); Zelch, Glennon (IV D) *Not all certified operators actually perform operational duties. These certified operators may operate at either the A or the B plant of Louisville Water Company.

Compliance Status - No violations observed

III. Record Keeping Requirements

Records to be kept on site	Time it must be kept	Check Yes or No
Data Summaries (if actual data not retained)	Based on data replaced	Yes☒ No☐ N/A☐
Bacteriological Analyses	5 years	Yes☒ No☐
Chemical Analyses	10 years	Yes☒ No☐
Turbidity Analyses	1 year	Yes☒ No☐
Records of Violation Certification (required after May 1, 2002)	10 years	Yes☒ No☐ Yes☐ No☐
Records of Sanitary Surveys	10 years	Yes☒ No☐
Records of Variance and Exemption	5 years	Yes☐ No☐ N/A☒
Distribution Map	Updated August, 2001	Yes☒ No☐
O & M Manual	Updated Continually	Yes☒ No☐
Sampling Plan Map	Updated December, 2001	Yes☒ No☐
Consumer Confidence Report and Certification (CWS only)	On File	Yes☒ No☐ N/A☐
CT/ Profiling Data		Yes☒ No☐

Comments: Analytical data prior to 1999 is archived with a receipt-retrieval process. Receipts were available for data collected 1998 and earlier to prove that the data has been retained. Data 1999-2002 is retained and organized by quarters. Keeping analytical data in order by contaminant group would be more efficient/accurate. Finding specific laboratory reports was a tedious process when grouped quarterly.

Compliance Status - No violations observed-Advisory action taken

IV. Reporting Requirements

(To be completed by Compliance Officer)

Reporting Item	**Normal Reporting** (list last reporting period and note any exceptions)	**Emergency Reporting** (List any reports to the public)
Asbestos	☒ At Least 2 Samples (2002-2004)	☐
Bacteriological	☒ 120 Samples (Monthly)	☐
Consumer Confidence Report (CCR)	☒ CCR and Certification Due by July 1 (Annually)	☐
Dioxin	☒ 4 Consecutive Quarters (2002-2004)	☐
Fluoride (supplemental)	☒ 2 Samples (Monthly)	☐
Inorganic Chemicals (IOCs)	☒ 1 Complete Set Due 2nd Quarter (Annually)	☐
Lead & Copper	☒ 50 Samples (06/01/03-09/30/03)	☐
Nitrate	☒ 1 Samples Due in 2nd Quarter (Annually)	☐
Nitrite	☒ 1 Samples Due in 2nd Quarter (Annually)	☐
Operational Reports (MORs)	☒ Complete MOR (Monthly)	☐
Radionuclides (RADs)	☒ 4 Consecutive Quarters (If Grandfathering Data)	☐
Secondary Contaminants (SECs)	☒ 2 Complete Sets (Annually: 1 Wet Season and 1 Dry Season)	☐
Corrosivity	☒ 2 Complete Sets (Annually: Taken with Secondaries)	☐
Sodium	☒ 2 Complete Sets (Annually: Taken with Secondaries)	☐
Synthetic Organic Compounds (SOCs)	☒ 2 Complete Sets within the Same 12 Month Period (2002-2004) *Detections have special monitoring.	☐
Total Trihalomethanes (TTHMs)	☒ Raw, Distribution, and Maximum Retention Samples (Quarterly)	☐
Turbidity (Greater than 1 or 5 NTUs report ASAP)	☒ 1 Measurement (Every 4 Hours of Operation)	☐
Unregulated Contaminants (UCMR)	☒ EPA Defined	☐
Volatile Organic Chemicals (VOCs)	☒ 1 Complete Set (Annually) *Detections have special monitoring.	☐
Haloacetic Acids	☒ Raw, Distribution, and Maximum Retention	☐

	Samples (Quarterly)	
Chlorite (Chlorine Dioxide Only)	☐ Not Currently Applicable	☐
Bromate (Ozone only)	☐ Not Currently Applicable	☐
Chlorine/Chloramines	☒ Residual Measurements Collected with Bacteriologicals (Monthly)	☐
Chlorine Dioxide	☐ Not Currently Applicable	☐
Total Organic Carbon	☒ Raw, CFE, and Total Alkalinity (Monthly)	☐
Emergency Reports Immediately	☒ Line Breaks, ☒ Loss of Pressure, ☒ Loss of Disinfection	☐
Sample Siting Plan	☒ Updated December, 2001	☐

Comments:

Compliance Status - No violations observed

V. Operation & Maintenance/Performance Requirements

MANAGEMENT AND SYSTEM OPERATION

Organization:

What is the utility's governing body? Water Board

Are the members familiar with water treatment? Yes ☒ No ☐

How often does this body meet? Monthly

Do operators attend? Yes ☐ No ☒

Is there an organization chart? (Provide) Yes ☒ No ☐

Does the chart include the WTP? If not provide additional chart. Yes ☒ No ☐

Communications:

Does the system have a Mission Statement? (Provide) Yes ☒ No ☐

Does the system have water quality goals? (Provide) Yes ☒ No ☐

Are the operators aware of these goals? Yes ☒ No ☐

Does the system have regular staff meetings? Yes ☒ No ☐

How often? There are several different core groups differentiated to specific areas of expertise. These groups meet regularly at various frequencies depending on the requirements of the core group.

Who is involved? The core groups are devised to include those who specialize in or are affected by the particular area of speciality.

Do the administrators visit the water plant? Yes ☒ No ☐

How often? There are various levels of administration at Louisville Water Company. While some administrators are located on-site at the plant, others make site visits. The visits are not scheduled on a regular basis such as monthly.

Does the plant provide reports to the superintendent? Yes ☒ No ☐

Types The superintendent is provided with logs, readings, operational events, incident reports, etc.

Frequency These reports are provided daily and as-needed.

Does the superintendent provide reports to administrators? Yes ☒ No ☐

Types Administrators are provided with budget/spending reports. A database is available to track resource reports continually.

Frequency These reports are available as requested by administrators.

Is there an Operations and Maintenance manual? Yes ☒ No ☐

How often is it up-dated? The operations and maintenance manual is very comprehensive and is up-dated on a continual basis.

Who up-dates the manual? Everyone involved in operations participates in up-dating the manual. Vince Ilari does the drafting.

Does the system provide any public relations or education activities? Yes ☒ No ☐

Who is responsible for providing this? Barbara Crow

What types of public relations or education are done? Louisville Water Company provides excellent educational resources for the community. School programs range from activities for small children to science experiments in the classroom. Small children are educated about the importance of handwashing and the proper procedures. Older children have a wide range of activities available including a "gameshow", website, and the Louisville Water Company mascot, Tapper the water bottle. LWC also provides teachers' curriculum and international education. Plant tours are no longer available for security reasons. Louisville also provides the mandatory Consumer Confidence Report to customers each year.

Who answers customer inquiries? Customer Service or Barbara Crow

Planning:

Does the system have any short-term needs? Yes ☒ No ☐

Are they documented? Yes ☒ No ☐

How are they developed? System owners and process owners develop the budget. A strategic plan is developed with the annual budget consisting of six components. The rate structure is up-dated annually.

Who provides input into these needs? Planning is performed by numerous groups from within the Louisville Water Company family as well as consulting engineers and outside sources as needed. LWC has a wealth of available resources for planning purposes.

Are the operators involved? Yes ☒ No ☐

Does the system have any long-term needs? Yes ☒ No ☐

Are they documented? Yes ☒ No ☐

How are they developed? Strategic planning is developed in light of key business issues and technical advisories. LWC is priority driven through ownership planning. Water quality is the uncompromised priority of Louisville Water Company.

Who provides input into these needs? Planning is performed by numerous groups from within the Louisville Water Company family as well as consulting engineers and outside sources as needed. LWC has a wealth of available resources for planning purposes.

Are the operators involved? Yes ☒ No ☐

What security measures are in place at the water plant?Louisville Water Company has a comprehensive security program in place with specialists devoted to this purpose.
What security measures are in place in the distribution system?There is an excellent response process for any incidents of theft, vandalism, etc. The process involves several levels of response. Not all storage tanks, etc. are lit at night. In some cases, this is because of community concerns about light pollution.
Has the system performed, or had performed, a Vulnerability Assessment? Yes ☒ No ☐

Personnel: **Note: Detailed Operator Certification Info in a Separate Section**
Certified Operators **Number** 8
Adequate to cover needed shifts, vacations, and vacancies? Yes ☒ No ☐
What is the attitude of the staff? **Administration** Good
Operators Good
Are the operators cross-trained? Yes ☒ No ☐
Do the operators perform maintenance as well as operations? Yes ☐ No ☒
Is someone cross-trained with the plant lead operator/supervisor? Yes ☒ No ☐
Do you have contingency plans for replacing retiring personnel? Yes ☒ No ☐

Plant Coverage:
Is there shift operation at the plant? Yes ☒ No ☐
Length of shift 12 Hours
Number of operators per shift 2
Number of shifts/day 2
How are weekends and holidays covered? All operations are regularly staffed shifts.
Does this system have unstaffed operations? Yes ☐ No ☒
Are there safeguards for when operators may be doing work outside the plant? Yes ☒ No ☐
What types of safeguards? There are always operators present at the plant.

Financial:
Does the system have a budget? Provide 1-page summary if available. Yes ☒ No ☐
Is the water plant meeting its expenses? Yes ☒ No ☐
Does the water plant revenue go to meet other city expenses (such as sewer or garbage)? Yes ☐ No ☒
Who prepares the budget? The annual budget is developed by executive leadership and final approval is given by the Board of Water Works.
Do the operators have any input into the budget? Yes ☒ No ☐
Is there a rate structure in place? Yes ☒ No ☐
When was the last rate increase? Rates are reviewed and modified annually as-needed. The rate structure follows AWWA guidence for rate increases. There was a 4.25% rate increase put into place 01/01/02.
Does the system have any long-term debts? Yes ☒ No ☐
Is the debt being paid on time? Yes ☒ No ☐
Does the system have a reserve account? Yes ☒ No ☐
Does the system have a capital improvement plan? Yes ☒ No ☐
How many years does the plan cover? 20

What is the spending authority of the plant superintendent? Credit cards are provided to mechanics, union members, administrators, president, water board, etc. The credit cards come in six levels of spending authority based on the needs of the position.
Is there a purchase order process? Yes ☒ No ☐

General Observations: Louisville Water Company is a large institution with five corporate officers, a President, Vice President, Board of Water Works, Financial Officers, and numerous other administrators and staff. It is semi-publicly owned.

PLANT AND DISTRIBUTION SYSTEM OPERATIONS

Insert a plant schematic (can be provided by DWB)
Include the following details:

- **Source water type/location**
- **Major unit processes (including baffling factors and volumes)**
- **Flow measurement locations**
- **Chemical injection locations**
- **Piping Flexibility (including number of raw and finished water mains)**
- **On-line monitoring type/location**
- **Waste handling**

Source

Name	Water Withdrawal Number	Permitted Amount	Is Capacity Adequate?	Are there Water Quality issues?
Well #2	1435	22 MGD	Yes ☒ No ☐	Yes ☐ No ☒
			Yes ☐ No ☐	Yes ☐ No ☐
			Yes ☐ No ☐	Yes ☐ No ☐
			Yes ☐ No ☐	Yes ☐ No ☐

List upstream land uses: Residential, Agricultural, Recreational
List upstream discharges (Within 5 miles): None known
Is there a source water protection plan in place? Yes ☒ No ☐
Is the system drought-vulnerable? Yes ☐ No ☒
Observations: ORSANCO does the protection plan for the OHIO river. There is a well head protection plan in development for the 22 MGD well. It is due July 2003.

Intake Structure

Location	Type	Number of Inlets	Screen Size	Is Flooding a problem?	Is silt build-up a problem?
7400 River Rd	Tower	2	4.25" by2 1/3"	Yes☐ No☒	Yes☐ No☒
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐
				Yes☐ No☐	Yes☐ No☐

Is raw water pumped? ☒ **Or gravity fed?** ☐
Number of raw water mains 2 at 60"
Is raw water flow measured? Yes ☒ No ☐
If so when was the meter last calibrated: 10-1-2000
List any chemicals fed at the source: Potassium permanganate
If source is a reservoir is it aerated? Yes ☐ No ☐
List depths of intake levels (normal pool): 40ft below pool.(Two intakes)
Are screens stationary? ☒ **Or mechanical?** ☐
Is screen clogging a problem? Yes ☐ No ☒
Are Zebra mussels a problem? Yes ☐ No ☒
If yes list actions taken: KMNO4 twice/year
Are emergency power generators available? Yes ☐ No ☒
Are emergency interconnections with other supplies available? Yes ☒ No ☒
If yes list supplies and PWSID numbers: Cresent Hill Plant 0560258A
Observations:

Pre-sedimentation

Capacity (gallons)	Flexibility to Bypass	Chemical Feed Capability	List Chemicals Fed
	Yes☐ No☐	Yes☐ No☐	
	Yes☐ No☐	Yes☐ No☐	

Is alga growth a problem? Yes☐ No☐
Observations:

Aeration

Type	Capacity (gallons)	Reason for Aeration

Observations:

Rapid Mix

Type	Number	Volume (gallons)	Physical Condition
Mechanical Mixer	3	444,600	Good

List chemicals fed in order they are fed: KMNO4, PAC, soda ash, ferric, polymer, lime, CL2, Cationic poly, NH3 and Flouride.
Is adequate mixing of chemicals taking place? Yes ☒ No ☐
Are there flow splits after the quick mix? Yes ☐ No ☒
If so is the flow distribution even? Yes ☐ No ☐
Observations:

Flocculation Basins

Type	# of Trains	Stages	Variable Speed Drive	Volume (gallons)	Physical Condition
Horizon	3	Multipl	Yes☐ No☒	680,000 each	Good
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		
			Yes☐ No☐		

What is the size Pinpoint **and appearance of the floc?** OK
How often are floc basins cleaned? annual
Are the floc speeds tapered (decreased) through the floc stages? Yes ☒ No ☐
Are there flow splits after flocculation? Yes ☐ No ☒
Is flow distribution even? Yes ☐ No ☐
Observations: One floc basin is out for general repairs and cleaning. It should be back in service by July 2002.

Sedimentation Basins

Type	Number of Trains/ Stages	Volume (gallons)	% with tube settlers	Physical Condition
Upflow Clarifer	3 1	2,875,000 each		Good

How often are the basins cleaned? Annual
How often is sludge removed from the basins? continuusly
Is sludge removal mechanical? ☒ Or manual? ☐

What is the sludge depth at the time of the inspection? <6ft
What is the settled water turbidity at the time of the inspection? 2.0
Is there evidence of short circuiting (Flow or density currents)? Yes ☐ No ☒
Is baffling present in the basins? Yes ☐ No ☒
If (yes) describe the baffling.
Is there evidence of floc carryover to the filters? Yes ☐ No ☒
Observations: One clarifier down for cleaning and repairs. Back in service in July 2002.

Filters

Number of Filters 8

Type	Media Type	Filter Rate (at inspection)	Filter control	Surface Wash Type	Filter to Waste	Filter Area	Physical Condition
High Rat	Dual Medi	2.4gal/min/ SqFt Lowest	Rate of F	Rotary	Yes☐ no☒	1,760 sqft	good
High Rat	Dual Medi	2.7gal/min Highest	Rate of F	Rotary	Yes☐ no ☒	1760 sqft	good
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		
					Yes☐ no☐		

What Criteria are used for filter backwash? Run time, head loss, or turbidity going up.
What is the backwash rate in gallons per minute? 15.66/SqFt
Is filter backwash rate ramped up and down? Yes ☒ No ☐
Is backwash flow rate measured? Yes ☒ No ☐
Are filters ever bumped? Yes ☐ No ☒
Is air scouring used? Yes ☐ No ☒
Record the CFE turbidity at time of inspection .06
Are individual filters monitored for turbidity? Yes ☒ No ☐
Is this turbidity continuously recorded? Yes ☒ N o ☐
Is filter to waste (rewash) present? Yes ☐ N o ☒ **Is it used?** Yes ☐ No ☐
Can turbidity be measured while filtering to waste? Yes ☐ No ☐
Are flows adjusted on remaining filters during a backwash? Yes ☒ No ☐
Is the spent backwash holding tank/lagoon volume adequate? Yes ☒ No ☐
Does the plant discharge water from this tank/lagoon back to a body of water? Yes ☒ No ☐
Does the plant have a KPDES discharge permit? Yes ☒ No ☐
Permit Number KY0003123
Meeting permit requirements? Yes ☒ No ☐
Is spent backwash water recycled? Yes ☐ No ☒
Is it recycled as a "slug"? ☐ Or as a constant flow? ☐
What % of the flow is recycled?
Are chemical feed rates adjusted during recycle? Yes ☐ No ☐

Are raw water flows adjusted during recycle? Yes ☐ No ☐

Observations:

Chemical Feed Equipment

Chemical Name	Purpose	Feeder Type	Feed Point	Number &Condition
KMnO4	Taste Odor	Gravimetric	Intake	1 Good
Copper Sulfate	Taste Odor	Gavimetric	Intake	1 Good
Ferric	Coagulation	Metering Pump	Quick/Flash mix	4 Good
Lime	pH Adjustment	Gavimetric	Pre Filter	2 Good
Soda Ash	pH Adjustment	Gavimetric	Pre Filter	2 Good
Hydrofluosilicic	Dental Health	Metering Pump	Clearwell	2 Good
Polymer	Coagulation	Metering Pump	Quick/Flash mix	2 Good
			Pre Filter	
Powdered Activa	Taste Odor	Metering Pump	Quick/Flash mix	3 Good

How are chemical feeders calibrated? Pan check method. The feed rates are checked daily by the operators.

How often are chemical feeders calibrated? No SOP.--Done as needed if the rate checked is off..

Are Chemical dosages calculated? Yes ☒ No ☐

Are chemicals NSF approved? Yes ☒ No ☐

Do the bulk liquid feed systems have day tanks? Yes ☐ No ☒

Are at least two feeders provided for essential processes (such as coagulation, disinfection)? Yes ☒ No ☐

Are spare parts available? Yes ☒ No ☐

Is there enough storage for at least 30 days supply of chemicals used? Yes ☐ No ☒

Are there containment areas around the chemicals in case of spills or leaks? Yes ☒ No ☐

Are in plant water supplies protected from back-flow? (Cross connections): Yes ☒ No ☐

Are backflow prevention devices tested? Yes ☒ No ☐

What is the testing frequency? Quarterlyl **Last Tested**

Observations: Back flow devices in the plant are checked quarterly. The connection to the finished supply is done annually. Under feeder type, gavimetric should be gravimetric.

Disinfection

Type	Application Point	Redundancy Available
Chlorine gas	Pre Filter	Yes ☒ No ☐
Chloramine	Clearwell	Yes ☒ No ☐
		Yes ☐ No ☐
		Yes ☐ No ☐

Are scales provided? Yes ☒ No ☐
Are the scales operational? Yes ☒ No ☐
Is automatic switchover of chlorine cylinders provided? Yes ☒ No ☐
C-T Profiling Data Yes ☒ No ☐
Observations:

Clearwell

Volume (gallons)	Baffling Type	Disinfectant Residual
6,000,000 Gal		3.1 at plant Tap

Are hatches secured? Yes ☒ No ☐
Are vents screened? Yes ☒ No ☐
List the plant tap: Chlorine residual: free,>05 **total**3.1**pH:**7.7
List any chemicals added to the clear well: Ammonia & flouride
How often are clear wells cleaned? Hasn't been cleaned in ten years!
Observations: The electronic sensors on the clearwell hatches don't work. The clearwell is fenced and the hatches are locked. There is also a security guard that drives by and does an Inspection from his car. He doesn't walk around the grounds to check the locks or fence.

Pumps
(Low service/raw water, high service/finished water and backwash)

Flow Stream	Location	Number of Pumps	Capacity (gpm)	Pump Type	Flow Control Method
Raw Water	River Rd	4	80,555	Centrifugal	Manual
	water station				
Finished Wate	River RD High Service BLDG	4	41,666	Mixed flow turbine	Manual
Backwash wat	High Servive Bldg	2	55,555	Vertical Turbine	Automatic

Observations:

On-line Instrumentation

Type	Flow Stream (Location)	Manufacturer	Last Calibration Date
Turbidity	Individual Filter Efflu	Hach 1720 D	10-22-02
Turbidity	Combined Filter Efflu	Hach 1720 C	10-11-02
	Settled Water		
	Raw Water	Hach 556	11-5-01
Chlorine	Individual Filter Efflu	Capitol Controls	5-1-02
	Tap	Capitol Controls	6-1-02
pH	Tap	TBI	7-25-02
	Combined Filter Efflu	TBI	7-25-02
	Settled Water	TBI	7-25-02
	Raw Water	TBI	7-25-02

Observations:

Distribution Storage Facilities

Location	Volume (gal)	Tank Type	Overflow Screen/ Flapper	Overflow >10' From tank	Last Cleaned/ Inspected	Telemetry
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐
			Yes ☐ No☐	Yes ☐ No☐		Yes☐ No☐

Observations: See Attached List. The following tanks need screens on the overflow: English Station, Finley Hill, Kosmodale, Mitchel Hill, Oak Hill, and Standard. The following tanks had overflows <10 ft from the tank: Brooks Hill, Jefferson Forest, OakHill, and Westport Rd.

Water Purchased

Purchased From	Amount Monthly (average)	Amount Available by Contract (monthly)

Observations:

Water Sold

Water sold To	Amount	Contract Amount
Mt. Washington Water Company (0150300)	516,460,000	No limits
Shepherdsville Water Company (0150395)	201,489,000	No limits
Jim Beam Brands Company (0152087)	7,000	No limits
Old KY Home Scout Reservation (0152891)	1,067,000	No limits
Tyler Mountain Water Company (0560503)	4,059,000	No limits
Ashley Point MHP (0560609)	16,802,000	No limits
North Nelson Water District (0900323)	59,156,000	No limits
Aqua Source/Goshen (0930235)	39,960,000	No limits
North Shelby Water District (1060324)	217,728,000	No limits
West Shelby Water District (1060457)	140,102,000	No limits
Taylorsville Water Works (1080425)	413,070,000	No limits

Observations: Tlyer Mountain Water was formerly Anita Spring Water Co.

Distribution Booster Pumps and or Booster Disinfection Facilities

Location	Pump = P Disinfection = D	Number & Capacity of pumps (gpm)	Disinfection Type	Auxiliary Power
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐
	P ☐ D ☐	@		Yes☐ No☐

Does a certified distribution operator oversee distribution activities? Yes☒ No ☐
What piping materials are included in the distribution system (in general)? Cast iron, PVC, ductile steel and some asbestos.
Is there a formal flushing schedule? Yes☒ No☐ **Written Procedure?** Yes☒ No☐
Are there maintenance schedules and procedures? Yes ☒ No ☐
Is there a valve exercise/replacement program? Yes☒ No ☐
Is water loss tracked? Yes ☒ No ☐
If so what is the percentage of water lost? 14.9%---16%
Is there a water meter replacement program? Yes☒ No☐
Is there a cross-connection control inspection program? Yes☒ No☐
Does the utility have distribution maps? Yes☒ No☐
Are there Main break notification procedures? Yes☒ No
Observations: See attached list of booster pumps. They won't fit on this table.
The auxillary power is from mobile gas generators. There are schedules for main rehab and replacement. The valve exercise program goes along with the line rehab schedule. Flushing goal is to flush 1/3 of the system per year. They achieved 1/4 last year. This was initiated March 2001.
*** It is recommended that the entire system be flushed twice a year (401KAR CH..5).**

Laboratory (Plant)

Parameters Tested For	Frequency	Equipment Used	Calibration Method
Ph	4 times per day	Electricrode &probe	Buffers
Chlorine	4 times per day	Titration	Known standards
Turbidity	4 times per day	Hach bench unit	Gel standards
Flouride	Once per shift	Colorimeter	Standards

Is space adequate? Yes☒ No ☐
Is lighting adequate? Yes ☒ No ☐
Are analyses conducted according to Standard Methods? Yes ☒ No ☐
Observations: The bench turbidity unit is used to check the on-lines. The on-line reading is the one being reported on the Turbidity Logs. The turbidity results that are entered on the MOR are done at the lab at the Cresent Hill plant. All other parameters are done at the main lab at the Cresent Hill Plant. See Cresent hill Sanitary Survey for complete list.

In-Plant Sampling
(for example, top and bottom of filters)

Site Top all filters	Cl. Free:3.5 Total: 3.7 pH: Turbidity: 1.66 Other:
Site Bottom of fliter 1	Cl. Free:3.3 Total: 3.5 pH: Turbidity: .15 Other: .o81
Site Bottom of fliter 2	Cl. Free:3.15 Total: 3.35 pH: Turbidity: .23 Other: .121
Site Bottom of fliter 3	Cl. Free:3.15 Total: 3.30 pH: Turbidity: .36 Other: None
Site Bottom of fliter 4	Cl. Free:3.2 Total: 3.30 pH: Turbidity: .22 Other: .135
Site Bottom of fliter 5	Cl. Free:3.15 Total: 3.4 pH: Turbidity: .20 Other: .093
Site Bottom of fliter 6	Cl. Free: Total: pH: Turbidity: Other:
Site Bottom of fliter 7	Cl. Free:3.2 Total: 3.42 pH: Turbidity: .15 Other: .062
Site Bottom of fliter 8	Cl. Free: Total: pH: Turbidity: Other:

Observations:

Turbidity readings 2nd Time Filters	1	2	3	4	5	7
DOW ----------	.16	.10	.21	.13	.21	.13
Payne Plant in line readings 2nd time ----	.08	.097	---	.145	.102	06
Payne Turbidty Bench unit ----------	.1	.09	.07	.09	.07	.08

The lab at Payne plant didn't have a good SOP for checking the calibration of the bench turbidity meter. The mixed standard of formazin was old. The operator could not locate any fresh formazin to check the bench turbidity meter. The Dow turbidity meter is only 6 months old and its calibration is checked before each use. The plant should have the lab turbidity meter and the on-lines checked for calibration. They use the on-line turbidity readings for the turbidity logs where turbidty is monitored every 4 hrs. Once a day, lab techs from the main lab at Cresent Hill plant pick up samples to be analized for turbidity

on top of the filters. These samples are analized 30-40 minutes later. These results are used on the MOR.

Distribution Sampling

Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:
Site	Cl. Free:	Total:	pH:	Turbidity:	Other:

Observations: See Cresent Hill Plant sanitary survey. They both serve the system. The TRC levels were adequate all over the system. Turbidity levels were all well below 5 NTU.

Chlorine Safety:

Is the chlorine room enclosed and separate from other operating areas? Yes ☒ No ☐
Is there a working exhaust fan in the chlorine room? Yes ☒ No ☐
Does it provide one complete air change per minute? Yes ☒ No ☐
Does it exhaust from floor level? Yes ☒ No ☐
Is intake air near the ceiling? Yes ☐ No ☒
Are switches located outside the chlorine room? Yes ☒ No ☐
Are chlorine tanks secured? Yes ☒ No ☐
Is there a shatterproof viewing window in chlorine room? Yes ☒ No ☐
Is there a crash bar on the door of the chlorine room? Yes ☒ No ☐
Does it open out and to the exterior of the building? Yes ☒ No ☐
Is there a SCBA unit meeting NIOSH standards out side the chlorine room? Yes ☒ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
Is there a chlorine tank repair kit? Yes ☒ No ☐
Are personnel trained and certified to use the kits? Yes ☒ No ☐
Is ammonia available for chlorine leak detection? Yes ☒ No ☐
Is a lockout tag-out system used for electrical repairs? Yes ☒ No ☐
Observations: The air intakes are at ground level on the opposite side of the building from the exhaust. Ten state standards require the intakes be near the ceiling.

Chlorine Dioxide Safety:

Is sodium chlorite stored in a separate room? Yes ☐ No ☐
Is it stored away from organic material? Yes ☐ No ☐
Many materials will catch fire and burn violently when in contact with chlorite.

Observations:

Ammonia Safety:

Is the ammonia room enclosed and separate from other operating areas? Yes ☐ No ☐
Is there a working exhaust fan in the ammonia room? Yes ☐ No ☐
Does it provide one complete air change per minute? Yes ☐ No ☐
Does it exhaust from ceiling level? Yes ☐ No ☐
Is intake air near the floor? Yes ☐ No ☐
Are switches located outside the ammonia room? Yes ☐ No ☐
Are ammonia tanks secured? Yes ☐ No ☐
Is there a shatterproof viewing window in ammonia room? Yes ☐ No ☐
Is there a crash bar on the door of the ammonia room? Yes ☐ No ☐
Does it open out and to the exterior of the building? Yes ☐ No ☐
Is there a SCBA unit meeting NIOSH standards out side the ammonia room? Yes ☒ No ☐
Are personnel trained to use the SCBA? Yes ☒ No ☐
Is leak detection provided? Yes ☒ No ☐
If so is there an external audible and visual alarm? Yes ☒ No ☐
How are ammonia leaks detected? Automatic detectors on the tank and with sulfur sticks.
Is a lockout tag-out system used for electrical repairs? Yes ☒ No ☐
Observations: The ammonia tank is outside the building, it holds 2000 gals.

Maintenance:

Is housekeeping adequate? Yes ☒ No ☐
Are adequate supplies of spare parts kept on hand? Yes ☒ No ☐
Are needed tools available? Yes ☒ No ☐
What is the general condition of operating equipment?
Is there a written preventive maintenance program? Yes ☒ No ☐
If not, is preventive maintenance performed? Yes ☐ No ☐
Observations:

Comments:

Compliance Status - Not Inspected

VI. Discharge/Emission Compliance

Comments:

Compliance Status - Not Inspected

VII. Monitoring/Analyses Evaluation

Comments:

Compliance Status - No violations observed

VIII. Environmental /Health Impact

Work Site Hazard Assessment : ☐ ATTACHED ☒ REVIEWED

Comments:

Compliance Status – No violations observed

IX. Documentation

- ☐ **Samples taken by DEP**
- ☐ **Samples taken by outside source**
- ☒ **Instrument readings taken by DEP regional office**
- ☐ **Photographs obtained by DEP**
- ☐ **Copies of records obtained by DEP**
- ☐ ***Other documentation***

Inspector: Brad Trivette	Title: Environmental Inspector III	Date: 9-27-02

Compliance: Emily Harkenrider Title: Environmental Inspector I Date: 07/19/02

Overall Compliance Status
☐ **No Violations Observed**
☒ **No Violations Observed, but impending violation trends observed** – Advisory Action Taken
☐ **Out of Compliance. Non-recurrent deficiency noted** – Verbal notice given or violation corrected at time of insp.
☐ **Out of Compliance. Non-recurrent administrative or O & M deficiency noted** – Warning Notice issued
☐ **Out of Compliance** – NOV issued

Comments: Some of the storage tanks in the distribution system need to be brought up to the Ten State Standards requirements. The Chlorine room was not built to the specifications of Ten State Standards. The turbidity readings of the On-lines below each filter and the lab meter were not the same as the DOW readings. They should be checked and recalibrated if needed. The operators are using the in-line turbidity readings for the daily logs instead of the lab bench unit.

Delivery Method: E-mail	Cert. Mail #:

BOOSTER PUMP SPECIFICATIONS

1.	CITY SYSTEM TO ELEVATED SERVICE AREA			
	Hikes Point	#1,2,3	2.5 MGD @ 225' TDH	125 HP
	Smyrna	#3,5,6	4.7 MGD @ 220' TDH	300 HP
		#4	2 MGD @ 220' TDH	150 HP
	Westport	#1,2,3	5 MGD @ 195'	200 HP
		#5,6	3 MGD @ 130'	200 HP
2.	ELEVATED SERVICE BOOSTER PUMPAGE			
	Aiken Road	#1,2,3	1 MGD @ 100'	30 HP
	Blankenbaker Crossing	#1,2	1.15 MGD @ 100'	30 HP
	Curry Crossings (Hydropneumatic)	#1,2	0.12 MGD @ 135'	5 HP
	Frey's Hill	#1,2,3,4	2 MGD @ 225'	125 HP
	Hwy 22	#1,2,3	1 MGD @ 152'	40 HP
		#4 (spare)		
	Shelbyville Road	#1,2	0.86 MGD @ 68'	15 HP
	Billtown / Shady Acres	#1,2,3	1 MGD @ 140'	40 HP
3.	CITY SYSTEM BOOSTER PUMPAGE			
	Big Valley (Hydropneumatic)	#1,2	0.06 MGD @ 224'	5 HP
	Blevins Gap (Hydropneumatic)	#1	0.07 MGD @ 100'	3 HP
	Brooks Hill	#1,2	0.72 MGD @ 160'	40 HP
	Brooks Hill II	#1,2	0.25 MGD @ 301'	20 HP
	Cabin Creek (Hydropneumatic)	#1,2	0.04 MGD @ 245'	3 HP
	Finley Hill	#1,2	0.30 MGD @ 170'	15 HP
	Cedar Grove	#1,2,3	700 GPM @ 127'	40 HP

Kenwood Hill	#1,2,3	0.40 MGD @ 120'	15 HP
Kenwood Hill II (Hydropneumatic)	#1,2	0.05 MGD @ 140'	3 HP
Mitchell Hill (Hydropneumatic)	#1,2	0.07 MGD @ 100'	3 HP
Oak Hill	#1,2	0.72 MGD @ 200'	40 HP
Parkridge	#1	0.07 MGD @ 150'	5 HP
	#2,3	0.29 MGD @ 150'	15 HP
PRP	#1,2,3	1.3 MGD @ 140'	50 HP
Stoneridge Landing (Hydropneumatic)	#1,2	0.07 MGD @ 85'	3 HP
Zoneton	#1,2	0.19 MGD @ 180'	10 HP

4. HYDROPNEUMATIC SYSTEM BOOSTER PUMPAGE

Big Valley	#1 & 2	60,480 GPD @ 224'	5 HP (ea.)
*Blevins Gap	#1 & 2	72,000 GPD @ 100'	3 HP (ea.)
**Cabin Creek	#1 & 2	41,760 GPD @ 245'	3 HP (ea.)
*Curry Crossings	#1 & 2	122,400 GPD @ 135'	5 HP (ea.)
Kenwood Hill II	#1,2	50,000 GPD @ 140'	3 HP (ea.)
*Mitchell Hill	#1 & 2	72,000 GPD @ 100'	3 HP (ea.)
** Oak Point Estates	#1 & 2	60 GPM @ 100'	1.5 HP (ea)

* These hydro stations each contain 2 bladder type hydropneumatic tanks. Air compressor systems are not used with these types of tanks, so no adjustments are necessary by Operators. Recommend that air pressure in tanks be checked annually by maintenance mechanics. Air pressure in tank should equal lead pump's "cut-in" pressure.

** The hydropneumatic tank vault for this station is located up the hill from the pump vault.

5. BULLITT COUNTY ELEVATED BOOSTER PUMPAGE

Peaceful Valley	#1,2, & 3	400 GPM @ 172'	30 HP (ea)