

Question:

1. Refer to the Application, at page 6, which requests a deviation to allow Northern Kentucky to inspect approximately 20 percent of its valves on an annual basis and provide the following:
 - a. State how Northern Kentucky will track information concerning its inspections to ensure that all valves within its system are inspected as often as necessary but not less frequently than once every five years; and
 - b. State whether it is Northern Kentucky's position that the risks associated with inspecting a one-inch valve no less frequently than once every five years do not differ from the risks associated with inspecting a 42-inch valve no less frequently than once every five years. If it is Northern Kentucky's position that the risks differ, fully explain how they differ and identify all factors which justify utilizing the same minimum inspection frequency for all valves, regardless of size, within Northern Kentucky's system.

Answer:

- a. Northern Kentucky tracks its valve information through its computerized work order system. Valves operated by main breaks, normal system maintenance and valve exercising can be entered into the computer program to track the individual valve information. The work order system can generate a report indicating what valves are due for inspection based on the most recent inspection completed and the desired frequency. The inspection frequency will be determined based on the type of valve (mainline or fire hydrant) and the criticality (whether the valve is classified as high, medium, or low priority based on size).
- b. It is Northern Kentucky's position that the risks differ based on valve size and type of valve (for isolation of a water main or a fire hydrant). The larger the valve, the more potential impact it could have on customers during the shutdown of a water main failure in terms of system flows and pressure, disruption of traffic, and water loss.

Mainline valves 16 inch and larger are considered the most critical and given the highest priority and will be inspected based on the current frequency not less than once every two years. Based on the performance of the valves during our inspections, it is Northern Kentucky's position that this frequency is sufficient to maintain these larger valves in proper operating condition.

Mainline valves 4 inch through 14 inch have less impact on the system and are considered medium priority, so it is proposed these valves be inspected on a frequency not less than once every five years. Mainline valves 3 inches and smaller and valves on fire hydrant leads have significantly less impact on the system and are considered low priority, so it is proposed these valves be inspected once every 10 years. Based on the performance of the valves during operation, it is Northern Kentucky's position that this frequency is appropriate for reducing the consequences of inoperable valves.

Question:

2. Refer to the Application, at page 2, which states that Northern Kentucky “has approximately 22,850 valves in its system, which range in size from 1-inch to 42-inch,” and provide the following:
- a. A schedule that identifies each class of valve size in Northern Kentucky’s system and the corresponding number of valves within each class;
 - b. State whether Northern Kentucky distinguishes the function of a valve within its system as transmission or distribution infrastructure based upon valve size; and
 - c. State the smallest size valve class in the Northern Kentucky system that is considered part of the transmission system.

Answer:

- a. An updated schedule totaling 24,859 valves is presented in the tables below for two classes of valves 1) mainline valves by size and 2) hydrant valves on pipes connecting fire hydrants to the water mains:

Mainline Valves		
Priority Based On Criticality	Diameter, Inches	Number of Valves
High	16 to 42	968
Medium	4 to 14	11,590
Low	3 or smaller	199
Total		12,757

Fire Hydrant Valves – Low Priority	
Diameter, inches	Number of Valves
Up to 12”	12,102

- b. Northern Kentucky does not distinguish the function of a valve within its system as transmission or distribution infrastructure based upon valve size.
- c. Using the definition that a transmission main generally has no service connections with customers, then the smallest transmission main in the Northern Kentucky system is 36 inches.

Question:

3. State how Northern Kentucky's current system of systematic inspection of its system ensures that Northern Kentucky is conducting inspections of its valves as often as necessary but not less frequently than established in 807 KAR 5:006, Section 26(6)(b).

Answer:

3. Northern Kentucky's current system of valve inspection does not meet 807 KAR 5:006, Section 26(6)(b) and is the reason for requesting a deviation.

Question:

4. State whether Northern Kentucky will utilize the location of a valve in determining when to inspect the valve. If Northern Kentucky does not plan to utilize location of a valve in determining when to inspect the valve, explain why.

Answer:

4. Location is not the sole criterion for when to inspect a valve. The first criterion for when to inspect a valve is based on its assigned criticality as high, medium, or low priority. It is desired that valves due for inspection, based on criticality, in the same geographic area be inspected together as part of the valve exercising program or as part of other distribution system operations.

Question:

5. Refer to the Application, at page 2, which indicates that Northern Kentucky valves 16-inch and larger are operated every two years and state whether Northern Kentucky will utilize the size of a valve in determining when to inspect the valve. If Northern Kentucky does not plan to utilize the size of a valve in determining when to inspect the valve, explain why.

Answer:

5. As stated in the response to question 4, the first criterion for when to inspect a valve is based on its assigned criticality as high, medium, or low priority. The type of the valve (mainline or hydrant) and the size of the valve (mainline valves only) are both used in assigning the criticality.

Question:

6. State how Northern Kentucky detects valve damage short of failure and how Northern Kentucky detects a complete valve failure.

Answer:

6. Northern Kentucky detects valve damage based on the inability of the valve to completely shut off the water during a water main failure or maintenance work; or, during inspection, the number of turns required to open and close the valve and/or the amount of torque required to operate the valve do not meet expected values. Each valve has a set number of turns required to fully close or open the valve. If the number of turns does not match the expected number, or the torque required to operate the valve is excessive, then it can be concluded the valve has failed.

Question:

7. State whether Northern Kentucky has a written valve testing-replacement plan, and, if it does, provide a copy of the plan.

Answer:

7. Northern Kentucky has a written procedure titled "Standard Operating Guideline – Valve Program" attached to this response as Exhibit A.

Question:

8. Refer to the Application, at page 6, which requests a deviation to allow Northern Kentucky to inspect approximately 33 percent of its meters on an annual basis and provide the following:
 - a. State how Northern Kentucky will track information concerning its inspections to ensure that all meters and meter settings within its system are inspected as often as necessary but not less frequently than once every three years; and
 - b. State whether it is Northern Kentucky's position that risks associated with inspecting its smallest sized meters no less frequently than once every three years do not differ from the risks associated with inspecting its largest sized meters no less than once every three years. If it is Northern Kentucky's position that the risks differ, fully explain how they differ and identify all factors which justify utilizing the same minimum inspection frequency for all meters and meter settings, regardless of size, within Northern Kentucky's system.

Answer:

- a. Northern Kentucky tracks information concerning its inspections to ensure that all meters and meter settings within its system are inspected as often as necessary, but not less frequently than once every three years, in our Customer Information Systems (CIS) Infinity software program. As meters are changed out or inspected, information about the meter, including meter size, meter type, location of meter, date meter was changed out, and whether the meter passed or failed inspection and testing, is obtained and tracked in CIS.
- b. It is Northern Kentucky's position that the risks differ between large meters and small meters, with large meters posing more of a risk to the District. The main risk involved in a faulty meter is the loss of revenue since meters typically read less water consumed than more water consumed when a meter begins to fail. Since large meters track more water consumption than smaller meters, and have a larger impact to Northern Kentucky's revenue stream, large meters 4" and above are considered to pose more of a risk and are tested more frequently, up to every 6 months, but not less than every year.

Question:

9. State how Northern Kentucky's current system of systematic inspection of its system ensures that Northern Kentucky is conducting inspections of its meters and meter settings as often as necessary but not less frequently than established in 807 KAR 5:006, Section 26(6)(b).

Answer:

9. Northern Kentucky's current system of systematic inspection of its system of meters and meter settings does not meet 807 KAR 5:006, Section 26(6)(b) and is the reason for requesting a deviation.

Question:

10. Refer to the Application, at pages 3 and 4, and provide the following:

- a. Northern Kentucky stated that in 2015 it inspected and changed out 8,257 meters. State whether these meters were inspected as part of a routine program of inspection. If the meters were inspected as a part of a routine program of inspection, provide a description of the program. If the meters were not inspected as part of a routine program of inspection, explain why the meters were inspected;
- b. Explain why it was necessary to change out all 8,257 meters inspected in sub-part a;
- c. Describe the difference between a customer service inspection request and a billing inspection request, and state the most frequent reasons cited in support of a customer service inspection request;
- d. State whether Northern Kentucky, on its own initiative, inspects meters or meter settings as a result of billing information irregularities or whether inspections due to billing inspection requests are limited to requests made by a customer (as opposed to a request generated by Northern Kentucky's internal operations); and
- e. State whether Northern Kentucky manually reads any of the meters in its system, and, if it does conduct manual readings, identify the number of meters manually read and explain why the meters are manually read.

Answer:

- a. Northern Kentucky inspected and changed out 8,257 meters in compliance with our meter change out program in which meters must be changed out and tested every 10 years. All meters are listed by cycle/book, and all meters are listed with projected years in which they will be tested. Northern Kentucky's 2012-2022 change out schedule is provided as Exhibit B.
- b. This is necessary as it falls into compliance with our meter change out program as noted in Exhibit B.
- c. A customer service inspection is created when a customer calls in to our customer service office due to a high bill, possible leak, water turn off request, etc and a service order is created to go and inspect the issue. A billing inspection is typically computer generated through a high/low report within our billing department that has determined that a customer's bill is much higher or lower than their average. Other reasons could be that a meter did not read in AMR and an inspection is created to find the cause. The most frequent reason why a customer service inspection would be created is from a customer calling in and believing that their bill is too high.
- d. Northern Kentucky will take its own initiative the majority of the time based on results from the high/low report without customers' requests to inspect meters. The billing department will also send out a high bill card to customers to request the customer check their plumbing for possible leaks or plumbing issues.

- e. When Northern Kentucky sends out a service fieldman for a customer service inspection or a billing inspection, they obtain an electronic reading, as well as verify this number with a manual reading.

Question:

11. Refer to the Application, at page 4, and provide a copy of Northern Kentucky's written meter testing/replacement plan.

Answer:

11. In 2012, Northern Kentucky created a 10-year change out program by dividing our cycles into a yearly schedule. Please see Exhibit B. All meters that are removed during the program are tested by NKWD meter staff.

Question:

12. Refer to the Application, at page 3, which states, in pertinent part, that, as of December 31 , 2015, Northern Kentucky "had 83,781 meters and meter settings in service" and provide a schedule that identifies each class of meter size in Northern Kentucky's system and the corresponding number of meters within each class.

Answer:

12. An updated listing shows that Northern Kentucky had 83,924 meters and meter settings in service. Please see attached Exhibit C which provides a schedules that identifies each class of meter size in Northern Kentucky's system and the corresponding number of meters within each class.

Question:

13. Provide the following:

- a. State whether Northern Kentucky inspects a meter for unauthorized usage after service to a customer though that meter has been discontinued for nonpayment, and, if it does inspect the meter, describe the inspection process and frequency of inspections;
- b. State whether Northern Kentucky inspects a meter for unauthorized usage after service to a customer though that meter has been discontinued for reasons other than nonpayment, and, if it does inspect the meter, describe the inspection process and frequency of inspections;
- c. State whether Northern Kentucky inspects meters and meter settings of inactive accounts for evidence of damage or tampering, and, if it does inspect the meter and meter setting, describe the inspection process and frequency of inspections; and
- d. State whether Northern Kentucky ever turns off, locks, or pulls a meter when water service to the facility through that meter is discontinued or terminated. If it does, describe the inspection process and frequency of inspections for determining whether the meter remains turned off, locked, or has not been reconnected.

Answer:

- a. Northern Kentucky does inspect meters for unauthorized usage after service disconnection. After 2 weeks, we have a go-back process to check meters that have not yet paid to see if meter has been tampered with or turned back on. If the meter has been turned back on by a non-District employee, the meter is pulled. If the meter is still off after this amount of time, we make the determination that the property has been vacated.
- b. If Northern Kentucky shuts off for unauthorized usage after service, and that meter has been discontinued for reasons other than nonpayment, the same processes are in place as inspection for nonpayment. If there is still no consumption picked up after a year, a work order is created to go back and remove the meter.
- c. Please see response to part b. If there is any evidence of tampering or damage that is called to our customer service department, we will inspect it that day.
- d. As stated above, we pull the meter in our go back process after 2 weeks of original service termination.

STANDARD OPERATING GUIDELINE

VALVE PROGRAM

1.0 Purpose:

To establish a procedure to replace, repair, and maintain mainline valves in the Distribution system.

2.0 Scope:

This format will be used for Distribution as a guideline for the valve program.

3.0 Guidelines:

3.1 Adding/Repairing or replacing valves.

3.11 Need for work is identified.

3.12 If the work consists of adding a new valve to the Distribution system then a new valve number is obtained from the Auto Cad operator

3.13 Once you have received a number a work order can be written.

3.14 If work consists of repairing or replacing valves then there is no need to obtain a new number.

3.15 Work is completed following standard Distribution work order practice.

3.1.1 Standard practices include all necessary safety measures and the location of all utilities in the area.

3.16 Once work is completed in the field, standard map correction procedures will be followed.

3.2 Mapping of valves in Distribution system

3.21 Mapping plus the valve repair program is based on 5000 labor hours annually.

3.22 All valves are mapped using the GPS equipment.

3.23 Then coverage is transferred to the GIS format by the IS department.

3.24 Numbers are assigned to valves by the IS department to those valves that do not have numbers.

3.25 Maps are updated using this current information from the GIS.

3.3 Operating Large Valves

- 3.31 In addition to regular or standard maintenance on the valves, Distribution crews also operate 16" and larger transmission valves. This work is broken into a process that operates half of these valves within the system each year. (Therefore the entire system's large transmission valves are worked every two years).
- 3.32 The process is such that, one year, all valves south of Covington in the Kenton County system are operated and the following year all remaining large valves in Covington and Campbell County are operated.
- 3.33 After all large valves are operated a new report is updated.
- 3.34 A work order will be written to track when these valves are operated and that information will be in the GBA.
- 3.35 This report is located in the Distribution Warehouse Supervisor's files.
 - 3.3.1 This report details the operability and general condition and direction and number of turns for each valve.
 - 3.3.2 These reports also detail the number of men needed to operate the valves per day and the average length of time to operate. They also list which Pump stations are effected as well as the businesses that need special notifications in each area.

Approved: 

Date: 10/27/03

Author: Ed Prather/Phil Perry

2012-2022 CHANGE OUT SCHEDULE								
YEAR	CYCLE	5/8" & 1"		YEAR	CYCLE	1 1/2"	2"	TOTAL C/O'S
2012	12	3367		2012	12	45	49	
	14	3222			14	52	34	
	22	2173			38	1	0	
					42	31	74	
					18	13	26	
					32	10	14	
					36	18	24	
TOTAL		8762				169	221	9152
2013	54	4236		2013	SUBS	6	14	
	60	3348			24	32	40	
					40	6	31	
					60	42	68	
					19	23	33	
					39	10	16	
					55	16	27	
					50	42	14	
TOTAL		7584				177	243	8004
2014	38	344		2014	22	24	24	
	42	1355			34	64	56	
	52	5174			44	19	11	
	91	4			56	0	0	
					62	17	24	
					16	41	24	
					20	25	16	
					54	65	38	
TOTAL		6877				255	193	7325

2015	24	4164		2015	63	15	16	
	40	3708			65	0	4	
					67	5	2	
					91	22	7	
					46	72	99	
					52	87	56	
TOTAL		7872				201	184	8257
2016	63	1669		2016	12	45	49	
	65	1919			14	52	34	
	67	2086			38	1		
	SUBS	2798			42	31	74	
					18	13	26	
					32	10	14	
					36	18	24	
TOTAL		8472				169	221	8862
2017	18	4159		2017	SUBS	6	14	
	44	4201			24	32	40	
					40	6	31	
					60	42	68	
					19	23	33	
					39	10	16	
					55	16	27	
					50	42	14	
TOTAL		8360				177	243	8780

2018	20	5454		2018	22	24	24	
	62	1510			34	64	56	
					44	19	11	
					56	0	0	
					62	17	24	
					16	41	24	
					20	25	16	
					54	65	38	
TOTAL		6964				255	193	7412
2019	19	1802		2019	63	15	16	
	39	1427			65	0	4	
	55	2488			67	5	2	
	56	2551			91	22	7	
					46	72	99	
					52	87	56	
TOTAL		8268				201	184	8653
2020	34	4675		2020	12	45	49	
	46	3030			14	52	34	
					38	1		
					42	31	74	
					18	13	26	
					32	10	14	
					36	18	24	
TOTAL		7705				169	221	8095

2021	16	1831		2021	SUBS	6	14	
	32	1734			24	32	40	
	36	2400			40	6	31	
	50	1793			60	42	68	
					19	23	33	
					39	10	16	
					55	16	27	
					50	42	14	
TOTAL		7758				177	243	8178
10yr TOTAL		78622				802	841	80265

Number of Meters by Meter Class March 30, 2017

	5/8"	1"	1.5"	2"	3"	4"	6"	8"	10"	Total
Residential	76613	627	37	10	0	0	0	0	0	77287
Commercial	2612	685	357	507	68	43	22	17	0	4311
Industrial	14	9	12	32	15	14	6	4	2	108
Multifamily	645	313	429	204	18	17	34	11	0	1671
Government	189	73	45	146	48	23	10	4	2	540
Resale	0	0	0	0	0	3	4	0	0	7
Total	80073	1707	880	899	149	100	76	36	4	83924