

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF NORTHERN)
KENTUCKY WATER DISTRICT (A) FOR)Case No. 2010-00094
AN ADJUSTMENT OF RATES;)
(B) ISSUANCE OF BONDS; AND)
(C) TARIFF CHANGES)

BRIEF

I. General Overview of Application

Northern Kentucky Water District serves retail customers in Campbell and Kenton Counties and part of Boone County, and sells water at wholesale to non-affiliated water distribution systems in Pendleton, Grant, and Boone Counties. NKWD's current customer base is just over 80,000 retail accounts and three wholesale customers. The total population base served by the District is approximately 300,000 people. Northern owns and operates three water treatment plants with a total capacity of approximately 64 million gallons per day. The District's net plant is approximately \$275,651,336.00.

The District has a number of capital construction projects that have been approved, but with temporary financing, through bond anticipation notes (BANS). Those projects are more specifically discussed in Richard Harrison's pre-filed testimony. To finance those projects the District needs to issue bonds. The

amount and costs of those bonds is described by Mr. Brock in his pre-filed testimony. Additionally, there are other pro forma adjustments to reflect actual test year expenses and revenues, which are reflected in the pre-filed testimony of Mr. Bragg and Mr. Herbert. As a result of the additional financing and the pro forma adjustments, customers' rates will have to be adjusted. Finally, there are a number of housekeeping changes to the tariffs to make them more understandable, as well as changes to reflect current Commission policy or changes in District policy. Those changes are discussed by Mr. Harrison in his pre-filed testimony.

A key component in the rate adjustment being proposed is the capital projects. These projects allow the District to continue to provide high quality service and drinking water. Consequently, all customers benefit from these projects and all customers should equally share the costs.

The District is faced with increasingly stringent water quality standards and aging infrastructure which necessitate a number of improvements to the treatment plants and related distribution facilities. These projects require funding in the approximate amount of \$46,000,000. The District is requesting approximately \$46,000,000 in permanent financing for projects which are scheduled for the year 2010 or earlier. Those projects are summarized in Exhibit O of the Application, which includes approximately \$28 000,000 in BAN projects and \$18,000,000 in KIA loan funded projects. See also Harrison Hearing Testimony @ 14:01 and 14:02. Because the District needs permanent financing for the current year's projects, as explained by our financial advisor, Keith Brock of

Ross Sinclair and Associates, the cost of that financing along with prior Bond Anticipation Notes is included in this application.

As in prior cases, the District also included in its application a list of the projects anticipated to be constructed over the next five years in order to alert the Commission to the future needs of the system and the need for the District to fund these projects over the next few years. See Exhibit R of the Application. The District has a five year construction program of approximately \$163,000,000. Because of the number of projects and the amount of funding involved, it will be necessary for the District to file additional rate adjustments at some time in the future to reflect the financing of these projects. For the projects being funded in this case, the District has already obtained certificates for projects, has filed a separate application for the project or they are ordinary extensions, which fall within the parameters previously recognized by the Commission as ordinary. These projects were generally described in the five year construction program presented to the Commission in the last rate case filed in May, 2007. As a general practice the District provides the Commission with its annually revised five year capital construction program. Lovan Hearing Testimony @ 16:06; Harrison Testimony @ 13:35.

As with any ongoing business, the projects change from time to time based on immediate needs, change in priorities and unforeseen events. Many of these projects relate to modifications to treatment facilities to meet more stringent EPA standards.

a. Phased-In Rates

Rather than put the total proposed rate adjustment into effect at the issuance of the final order in this case, the District proposes to implement

approximately 50% of the proposed adjustment in the first year after approval and will defer the additional 50% adjustment related to the 2011 BAN refinancing to permanent financing until January, 2012. The effect of this proposal is that customers will only see an approximate \$4.00 per month adjustment in rates in January, 2011 (assuming the final order is issued by then) and an approximate \$4.00 per month adjustment in rates in January, 2012. By including the 2011 debt in this case, the District avoids the cost of another rate case in 2011. That saves costs not only for the District and its customers, but for the Commission and the Attorney General as well.

The phase in of the rate adjustment will minimize the rate impact on the customers and gradually adjust the rates over a period of time rather than a one time adjustment. Bragg Hearing Testimony @14:27

b. BAN Financing

The District has a Bond Anticipation Note (BAN) that matures in November of 2011. That BAN supports several current construction projects that have been approved by the Commission. There are a couple of options to deal with that financing. The BAN could be rolled over until our next rate case. That would cause the District to incur the re-financing costs as well as probably increase the interest rate paid. See Brock Pre filed testimony. To avoid those costs, the District proposes to include the cost of permanently financing that debt with bonds in this case. The benefits of the issuance of bonds to replace that BAN is to eliminate the costs associated with the BAN refinancing, reduce the risk of higher bond rates and eliminate the need for a rate case or a financing

case in 2011. Brock Prefiled Testimony. The sooner bonds can be issued for this debt, the more likely it is that higher debt costs can be avoided. Brock Hearing Testimony, @11:54.

The District is assuming for purposes of determining revenue requirements in this case that it will issue bonds in 2011 to replace the BAN. Those debt costs are included in the proposed rate adjustment The District has discussed a number of options with its financial and cost of service consultants. Based on the review of our revenue needs over the next few years and the expected increase in the cost of borrowing funds to cover the required improvements to our treatment and distribution facilities, it is expected that additional rate adjustments will be needed. The adjustments are driven primarily by capital projects, many of which are mandated by the Environmental Protection Agency and are unfunded.

In 2011 a BAN will either have to be rolled over or converted to permanent financing. To avoid the cost of a roll over and the cost of a separate rate case in 2012, it seems prudent to recover the cost of that financing in this case, but defer the collection of the portion of the rate adjustment until the debt is actually incurred, which will be 2012. The District saves some expense that would be associated with a BAN roll over and possibly another rate case application. Those types of savings benefit our customers in the form of lower rates.

II. Specific Rate Adjustments

During the course of the application review, several specific rate adjustments were questioned. For example, the acquisition adjustment related to

the purchase of Newport in 2002 was questioned. The District believes this adjustment is appropriate because it meets the criteria established in the Delta

Case NO. 9059:

This Commission has concluded that plant acquisition adjustments should not be denied as a matter of rigid rate-making policy but that each instance should be evaluated on its own merits and, if it is demonstrated that the acquisition at a cost above book value is in the public interest, the utility should be allowed to recover its investment. The Commission maintains its position that the net original cost of plant devoted to utility use is the fair value for rate-making purposes, unless the utility can prove, with conclusive evidence, that the overall operations and financial condition of the utility have benefited from acquisitions at prices in excess of net book value. The burden of proof is upon the utility to justify its investment at the price in excess of net original cost based on economic and quality of service criteria. In order to meet this burden of proof, evidence must be submitted that shows that the purchase price was established upon arms-length negotiations, the initial investment plus the cost of restoring the facilities to required standards will not adversely impact the overall costs and rates of the existing and new customers, operational economies can be achieved through the acquisition, the purchase price of utility and non-utility property can be clearly identified, and the purchase will result in overall benefits in the financial and service aspects of the utility's operation.

The District purchased the utility at arms length which was approved by the Commission in Case No. 2002-00066. The acquisition of the utility has not necessitated any specific rate adjustment on existing customers, the consolidation of the former Newport system has allowed greater economies of scale by expanding the total customer base and more significantly the acquisition of the Newport treatment plant allowed the District to avoid substantially greater costs of constructing a new treatment plant. The adjustment is consistent with the standards of the Delta case and should be

recoverable by the District.

Calculation of the revenue requirement was also an issue. The initial cost of service study incorrectly included an amount of \$1.8 million of contributed property as a revenue item. However, that error was corrected in the revised exhibit filed on October 25, 2010, Item 3, which reflects the proper revenue requirement for this application. This results in a corrected revenue requirement for this rate adjustment of \$49,803,525.

Another issue involves the calculation of the debt service coverage. The District initially included tap fees and contributed property in the DSC calculation. After several questions about the issue, the District's accountant agreed with the staff that contributed property should be excluded, but tap fees should be included. This issue is important because of the District's bond provisions. The 1985 and subsequent bonds require a minimum 1.2 times coverage. Failure to meet the coverage requirement could lead to a bond covenant violation, loss of control of the District's operations or a declaration of default on the bonds. Even a short term loss of coverage could lead to a lowering of the District's credit rating, increased capital costs or limited access to financial markets. Brock Hearing Testimony @ 11:36-38.

The District believes that its proposed revenue requirement will comply with the bond mandate, in part due to the fact that a portion of its proposed debt is KIA issued debt. That debt does not require principle payments until funds are fully drawn. That is not expected to occur until

2011, so the District will not have debt payments for the entire requested debt issuance for almost two years.

Related to this issue is the ability of the District to take advantage of Build America Bonds (BAB). If those bonds are not available, the debt cost to the District will increase and will have a direct impact on the coverage level. The District's Financial Advisor provided a detailed explanation of the financial benefits and cost savings of the BABs. See Item 4 to the Post Hearing Responses, Dated November 10, 2010. Crucial to the BAB's is the timing of the final order in this case. The BABs may expire on December 31st. Mr. Brock emphasized the benefits of the BAB's in his Hearing Testimony @ 11:50. Failure to acquire these bonds will lead to higher interest rates and increased capital costs for the District. Brock @ 11:50.

The staff also questioned the cost consultant's weather normalization. Mr. Herbert agreed that his adjustment is not really a weather adjustment, but is a usage adjustment to reflect an average water usage to compensate for the test year's abnormal rainfall. See Hearing Video @ 10:55 and Post Hearing Response of November 10, 2010, Item 3.

Another of his adjustments to the customer charge was questioned. The cost of service study indicated a need for a significant adjustment in the charge. However, it was only adjusted proportionally. The reason for the difference in the adjustment versus the cost study is the avoidance of rate shock and a gradual adjustment in the rate over time. Herbert Hearing Testimony @ 11:08.

III. Construction and Financing Issues

Several questions about the District's process of obtaining approval of construction projects and their financing were raised during the hearing. For years, the District has consistently followed a process for capital projects. For projects that require a substantial financial cost and consequently a certificate of convenience and necessity, the District seeks approval of the construction with the filing of an application for a certificate of convenience and necessity (CCN). The District does not seek approval of financing for the project, because it uses interim financing through BANS pending the filing of a general rate case and permanent financing of the projects through the issuance of bonds to replace the BANS.

For projects that do not involve significant financial outlays, but qualify as ordinary extensions, the District through its Five Year Capital Project List identifies a number of small projects usually less than \$1M that will be constructed within the next twelve to eighteen months. Once a sufficient number of these projects and larger CCN projects have been identified and approved internally and amount to a sufficient financing requirement to make the issuance of a BAN feasible, the District submits the application or applications for CCN's for those projects in excess of \$1M. When those applications have been approved, the District goes to the financial market to obtain a BAN sufficient to cover the interim financing of the CCN and ordinary extension projects.

If the District were to file an application for a CCN for each of its

projects, it would generate a great deal of time and expense for the District and the Commission. For example, as the table below shows, ordinary extension projects of less than \$1M each made up 74% of the projects included in the current BAN. If the District were to file an application for a CCN for those projects, its applications would increase from five applications to twenty five in this year. The same is true for the two prior BANS as reflected in the attached exhibit. The total of the entire construction cost for this BAN is only 10% of the District's total net plant in service.

2010 Rate Case		% of \$ Amount	# of Projects
BAN 2009 Total Amount	\$ 27,727,634		25
- Certificate of Need Projects	\$ 7,260,034	26.18%	5
- Ordinary Course of Business	\$ 20,467,600	73.82%	20

The process for filing the CCN's has developed over a number of years and is explained in detail in the orders in Case No. 2000-00481:

A utility is not required to obtain a Certificate for a project merely because it is funded through the issuance of a BAN that will eventually be refinanced through the issuance of revenue bonds whose issuance may require an adjustment of the utility's rates.

Because the District always gets a CCN for major projects prior to issuance of a BAN or a bond to finance the project, it believes that rates supporting the debt service for that financing will be approved as stated in Case No. 2000-00481:

If the Commission has issued a Certificate for the construction of a utility facility, that facility and its associated expenses are presumed

to be reasonable. If no Certificate has been issued, then we must review the reasonableness of the facility and its associated costs at the utility's next rate proceeding before allowing those costs to be recovered through the utility's rates. If we find that the facility's construction was reasonable, then we must allow recovery of the costs associated with that facility.

Because the District submits its five year construction plan regularly with the Commission, for example, it has been filed as Exhibit R in each of the rate cases since 2002, it notified the Commission of the projects it has classified as ordinary extensions and provides the Commission an opportunity to direct it to file a CCN application for some or all of those projects.

This process allows the Commission complete oversight of the District's construction projects and gives it prior review of the proposed construction. The only issue remaining during a rate case related to the financing is the reasonableness of the cost of the proposed bonds. The capital projects have been previously either awarded a CCN or have been at least implicitly approved as ordinary extensions. There is no opportunity for the District to simply obtain a BAN and hold that money in an account or to fund projects that have not been submitted to the Commission.

For the District to issue a BAN without having attached identifiable and previously submitted projects to it would subject the District to the possibility of rejection of the permanent financing of that BAN. Such denial would seriously jeopardize the District's financial position, because its only source of revenue to cover the debt service is rates.

IV. Intervenor Issues

The issue raised by the Kentucky Tea Party intervenor relates to the mandatory water quality standards imposed on the District by the federal Environmental Protection Agency (EPA), the Kentucky Division of Water (DOW) and the Public Service Commission (Commission). The EPA has established extensive standards for water quality generally set forth in 40 CFR § 141 ff. These regulations codify the mandates of the Safe Drinking Water Act of 1974. The DOW in 401 KAR 8:020 ff has enacted extensive, comprehensive regulations to govern all aspects of water quality. These regulations adopt the EPA standards. For example:

401 KAR 8:020 Public and Semi Public water systems: general provisions

Section 1. A public or semipublic water system shall be subject to the requirements of 401 KAR Chapter 8, except those exempted in 40 C.F.R. 141.3.

Section 2. (1) Public and semipublic water systems. A person shall not operate or commence operation of a public or semipublic water system except in compliance with the provisions of 401 KAR Chapter 8 and 40 C.F.R. 141. A water supply system constructed prior to November 11, 1990 may be continued in use, if the operation, maintenance, bacteriological, chemical, physical, and radiological standards comply with 401 KAR Chapter 8, or the system obtains a variance or exemption from those standards in accordance with 40 C.F.R. 141.

401 KAR 8:100. Design, construction and approval of facilities.

RELATES TO: KRS Chapter 224, 40 C.F.R. Part 141 (1995)

STATUTORY AUTHORITY: KRS 224.10-100, 224.10-110, 40 C.F.R. Part 141 (1995), 42 U.S.C. A 300f, 300g, 300j

NECESSITY, FUNCTION, AND CONFORMITY: KRS 224.10-110 directs the cabinet to enforce administrative regulations adopted

by the secretary for the regulation and control of the purification of water for public and semipublic use. The Safe Drinking Water Act, as amended by the Safe Drinking Water Act Amendments of 1986, provides for primary enforcement responsibility by states that have adopted regulations "no less stringent than the national primary drinking water regulations", as well as meeting other criteria stipulated by the Act. The Commonwealth of Kentucky has accepted and is currently exercising this primary enforcement responsibility. This administrative regulation sets out design plan requirements for the construction of new and expanded facilities that deliver pure water for public or semipublic use, as well as stipulating certain reporting requirements and requiring modifications to existing facilities for certain line replacements, and feeding activated carbon. There is no federal regulation that deals with this subject matter, therefore, this administrative regulation is no more stringent than the federal regulation. The plans review process specified in this administrative regulation allows plans to be reviewed and certain judgments to be made about water systems to ensure that other state and federal requirements are being met.

As to the specific requirements that forced the District to modify its treatment plants, the DOW has adopted disinfection and filtration standards set by the EPA. For example:

401 KAR 8:150. Disinfection, filtration, and recycling. Section 1. Disinfection...

(2) A public water system using surface water as a source or groundwater under the direct influence of surface water shall provide disinfection treatment as established in 40 C.F.R. 141.72(b).

Section 2. Filtration. (1) A public water system using a surface water source or a groundwater system with wells with variable or high turbidity due to characteristics of the raw water that may cause an adverse health effect shall establish a filtration system. The design for the system shall be submitted to the cabinet in accordance with 401 KAR 8:100 and shall comply with 40 C.F.R. 141.73.

It is not relevant to discuss the requirements imposed on water utilities such as Northern in great detail because this Commission cannot over-ride

the mandates of the EPA or of the DOW. The Commission regulates rates and service, but its regulations defer to DOW as to water quality. For example, 807 KAR 5:066 (3) states:

Section 3. Quality of Water. (1) Compliance with Natural Resources Cabinet. Any utility furnishing water service for human consumption or domestic use shall conform to all legal requirements of the Natural Resources Cabinet for construction and operation of its water system as pertains to sanitation and potability of the water.

Because the Commission does not regulate water quality, its regulations only require compliance with DOW water quality regulations. As such, DOW not the PSC, is the state agency that the intervenors should address their concerns about water quality standards. Of course, Congress is the ultimate source of authority to limit or modify the application of the EPA regulations. Because the District in compliance with the EPA/DOW regulations, its water is deemed to be "safe". Lovan Hearing Testimony @15:50; Harrison Hearing Testimony @ 13:42.

Unless and until the relevant agencies change the current regulations, the District has no alternative but to comply. Lovan Hearing Testimony @ 15:58. Failure to do so subjects the District and its officers to substantial penalties. For example, if the District were to be found in violation of the regulations, a court could enter a judgment "as the protection of public health may require", including civil penalties on the violators not to exceed \$25,000 per day for each day the violation occurs. The costs of those violations will be imposed on the ratepayers, not shareholders. See 40 CFR §300g-3(b). See Lovan Hearing Testimony @16:09-10.

To comply with the mandates of these regulations, the District filed for

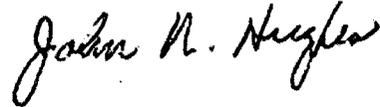
approval of the construction of improvements to its treatment plants at Memorial Parkway and Ft. Thomas. It must file for approval by the DOW and then once that approval has been obtained file for approval by the Commission. See Case Nos. 2010-00038 and 2010-00093. The District reviewed multiple strategies to minimize the cost of compliance. Harrison Hearing Testimony @ 13:28. A detailed memorandum discussing the extensive evaluation of the need for projects, the options available and the cost analysis is attached. It reflects the District's and Staff's review of the projects. The District obtained approval from the Commission for these improvements and is now entitled to recover rates to service the debt for the projects. The procedure for obtaining approval of the construction and the rates is consistent with the orders on Case No. 2000-00481.

Failure to be granted financing for the projects would cause great financial harm to the District. As previously reference in Mr. Brock's testimony, the District would lack sufficient funds to meet its debt payments and insufficient funds to cover its Debt Service Requirement specified in its bond resolutions. The inability to meet its debt obligations could lead to a down grade of its financial rating leading to higher financing costs or the inability to finance additional projects. It could also cause its bonds to be in default leading to additional financial consequences and possibly default.

The District has only rates to generate its revenue to fund its debt. Adequate rates are essential for it to continue to operate. For these reasons, the District should be granted approval to adjust its rates as reflected in the revised exhibits, obtain financing for the debt and any other authority necessary to fulfill

the demands of the Application.

SUBMITTED BY:

A handwritten signature in black ink that reads "John N. Hughes". The signature is written in a cursive style with a large, looping initial "J".

John N. Hughes
Attorney at Law
124 West Todd St.
Frankfort, KY 40601

Attorney for Northern Kentucky
Water District

2010 Rate Case

% of \$ Amount # of Projects

BAN 2009 Total Amount	\$ 27,727,634		25
- Certificate of Need Projects	\$ 7,260,034	26.18%	5
- Ordinary Course of Business	\$ 20,467,600	73.82%	20

SRF Loan included in Rate Case \$ 17,900,000

Total Rate Case	\$ 45,627,634		26
- Certificate of Need Projects	\$ 25,160,034	55.14%	
- Ordinary Course of Business	\$ 20,467,600	44.86%	

Design Engineering cost for future Certificate of Need Projects (consider Ord. Course of Bus. In this rate case)	\$ 1,833,000		
- Certificate of Need Projects	\$ 26,993,034	59.16%	
- Ordinary Course of Business	\$ 18,634,600	40.84%	

2007 Rate Case

% of \$ Amount # of Projects

BAN 2007 Total Amount	\$ 25,700,000		27
- Certificate of Need Projects	\$ 12,932,285	50.32%	9
- Ordinary Course of Business	\$ 12,767,715	49.68%	18

SRF Loan included in Rate Case \$ 4,000,000

Total Rate Case	\$ 29,700,000		27
- Certificate of Need Projects	\$ 16,932,285	57.01%	
- Ordinary Course of Business	\$ 12,767,715	42.99%	

Design Engineering cost for future Certificate of Need Projects (consider Ord. Course of Bus. In this rate case)	\$ 2,521,966		
- Certificate of Need Projects	\$ 19,454,251	65.50%	
- Ordinary Course of Business	\$ 10,245,749	34.50%	

2005 Rate Case

% of \$ Amount # of Projects

Total Rate Case Amount	\$ 25,276,500		30
- Certificate of Need Projects	\$ 12,710,000	50.28%	5
- Ordinary Course of Business	\$ 12,566,500	49.72%	25

Design Engineering cost for future Certificate of Need Projects (consider Ord. Course of Bus. In this rate case)	\$ 2,005,000		
- Certificate of Need Projects	\$ 14,715,000	58.22%	
- Ordinary Course of Business	\$ 10,561,500	41.78%	

INTRA-AGENCY MEMORANDUM
KENTUCKY PUBLIC SERVICE COMMISSION

TO: Cases File No. 2010-00038 and No. 2010-00093

FROM: Gerald Wuetcher
Executive Advisor

DATE: April 21, 2010

RE: Telephone Conference Call of April 19, 2010

On April 19, 2010, a conference call was conducted in the above-referenced cases. Participating were:

Jack Bragg	-	Northern Kentucky Water District
Richard Harrison	-	Northern Kentucky Water District
John N. Hughes	-	Northern Kentucky Water District
Barri Joslyn	-	Northern Kentucky Water District
Amy Kramer	-	Northern Kentucky Water District
Ron Lovan	-	Northern Kentucky Water District
Eddie Beavers	-	Commission Staff
Reggie Chaney	-	Commission Staff
Mark Frost	-	Commission Staff
Todd Osterloh	-	Commission Staff
Preston Robards	-	Commission Staff
George Wakim	-	Commission Staff
Gerald Wuetcher	-	Commission Staff

Commission Staff and officials of Northern Kentucky Water District (NKWD) arranged the conference call on April 15, 2010. Prior to the call, Commission Staff submitted a list of questions (Attachment 1) for discussion at the conference. At the start of the conference call, NKWD officials provided a chronology of events (Attachment 2) related to the proposed construction projects for which it seeks certificates of public convenience and necessity.

Beginning the conference, Mr. Osterloh stated that Commission Staff would prepare minutes of the conference for the case records, that a copy of these minutes would be provided to all parties, and that all parties would be given an opportunity to submit written comments upon those minutes.

Mr. Lovan then introduced the members of NKWD staff who were participating in the conference call. He noted that the proposed projects were intended to ensure NKWD's compliance with the Stage 2 Disinfectant and Disinfection Byproducts Rule

Case File No. 2010-00038
Case File No. 2010-00093
April 21, 2010
Page 2

and the Long Term 2 Enhanced Surface Water Treatment Rule. He further noted that the planning for compliance had been conducted in conjunction with the development of NKWD's strategic plan and its five-year capital budgets. This planning involved a continuous and constant review of the water utility's needs and objectives and the available means to accomplish those objectives. Mr. Harrison then discussed the chronology of events related to NKWD's compliance strategy

During this discussion, Commission Staff inquired about the bids submitted on both projects. Mr. Lovan, Mr. Harrison, and Ms. Kramer stated that the bids were very favorable to the water district and represented a once-in-a-lifetime opportunity. The bids for the Fort Thomas Water Treatment Plant ("FTTP") were 52 percent below estimated costs. The bids for the Memorial Parkway Treatment Plant ("MPTP") were 48 percent below estimated costs. Mr. Lovan and Ms. Kramer attributed the lower amounts to poor economic conditions, the lack of work in the construction sector in December and the desire of many contractors to accept work at lower cost to continue to employ their work crews. Ms. Kramer further stated that equipment suppliers had also made significant reductions in the cost of equipment. They noted that market conditions are now exerting upward pressure on prices. Market prices for metals are increasing. They have received reports that subcontractors have shown reluctance to further decreases in prices and are pressing for price increases.

Ms. Joslyn, NKWD's Vice-President of Water Quality and Production, discussed the compliance strategies for organics removal that NKWD considered. She noted that a summary of these strategies is found in the 2008 Preliminary Design Report at Table 1-4. She noted that several of the compliance strategies were not effective for use at either at the FTTP or MPTP. Granular Activated Carbon ("GAC") and Membranes were the only treatment methodologies that were considered effective. Ms. Joslyn noted that membrane treatment, while very effective, was three to four times more expensive than GAC treatment and was subject to bacteria buildup. No specific cost estimates were developed for membrane treatment. NKWD instead relied upon industry studies.

Ms. Joslyn noted that a recent article in the Journal of the American Water Works Association (Attachment 3) had declared GAC treatment to be "the most cost effective method available" for compliance. GAC treatment required no additional chemical, would assist in meeting expected new drinking water requirements, addressed taste and odor issues, was simple to use, and its spent media could be reactivated and reused.

As to other strategies that the U.S. Environmental Protection Agency has recommended, Ms. Joslyn stated that moving the point of chlorination was an effective compliance strategy, but noted that NKWD has already taken all available actions to optimize its chlorination efforts. NKWD currently chlorinates in two locations and has reduced its chlorine dosage during warm weather conditions. It experimented with enhanced softening, but found that process, which requires chemicals that increase the

pH of the treated water, would increase THM levels and reduce the effectiveness of its chlorination efforts. Finally, she noted that modifications to pre-sedimentation basin operations had not resulted in sufficient reductions of sedimentation.

Ms. Joslyn then discussed the design of the proposed GAC system. She noted that proposed system will use post-filter contactors. This system will be added on to NKWD's existing treatment process. Water is first treated through NKWD's existing treatment process. It then is run through GAC filters. The filters, which are 12 feet in depth at the FTTP and 10 feet in depth at the MPTP, provide for greater removal of organics than a GAC filter adsorber. Had NKWD used a GAC adsorber system, the existing filter basins at each treatment plant would have been used. Ms. Joslyn noted that these basins would have allowed for only three foot deep filters. She also noted that GAC adsorbers have a greater tendency to collect bacteria than a GAC post-filter contactor system. Ms. Joslyn stated that Division of Water did not express in writing any preference toward a particular system.

Mr. Lovan and Ms. Kramer explained NKWD's approach to compliance. The Board considered three different approaches: minimum, moderate, and aggressive. The minimum approach sought to achieve compliance with Stage 2 Disinfectant/Disinfection Byproduct Rule. It assumed a maximum contaminant level (MCL) equal to the MCL in the Rule and considered an empty bed contact time of 15 minutes as sufficient to achieve this goal. Under this approach, the water district could have some individual sampling events that tested above the Rule's maximum concentration levels for TTHM and HAA5, but still have a local running annual average within those levels. NKWD's Board viewed this approach as having significant risk since any change in sampling results could place the water district in a non-compliance status. ✓

The moderate approach sought to ensure that all individual sampling events were at or below MCL and that local running annual averages were equal to 80 percent of MCL or less. NKWD considered the necessary empty bed contact time for this approach to be 20 minutes. This approach would allow NKWD maintain compliance even if an unexpected sampling result occurred.

The aggressive approach sought to achieve levels so that all individual sampling events were at or below MCL and local running annual averages were equal to 60 percent of MCL or less. NKWD considered the necessary empty bed contact time for this approach to be 25 minutes. This approach allowed for compliance with existing requirements and to meet some anticipated future requirements without additional efforts.

The estimated costs of these compliance approaches were: Minimum approach - \$23 million; Moderate approach - \$28 million; and Maximum approach - \$35 million. The difference in cost stems from the size of the facilities necessary to ensure the



required contact time. A larger number of contactors and a larger building to house those contactors is necessary to ensure a longer contact times.

Mr. Lovan noted that in selecting the moderate approach, NKWD considered GAC's ability to address pharmaceutical contaminants. He noted that the water industry considers the likelihood of additional requirements to remove pharmaceuticals from water as very high. GAC allows NKWD to comply with such requirements.

Ms. Kramer also noted the problems associated with the configuration and lack of available space at both plants. The plants' limited footprint will prevent additional modifications after the proposed modification. Simply put, NKWD had to plan and implement all modifications at once. It would not be able to make further modifications in the future. The moderate approach better addressed this issue.

Mr. Harrison also noted that the moderate approach allowed easier compliance for wholesale water operations. It avoided excessive use of chlorine and increased levels of disinfection byproducts that would have prevented NKWD's delivery of water to wholesale customers and those customers' subsequent resale within acceptable levels.

Ms. Joslyn noted that NKWD is currently experiencing greater difficulty meeting MCL levels. Sampling at the worst locations within its water system in 2009, as present water quality regulations require, indicated that NKWD exceeded MCL levels. (Following the conference call, NKWD provided its compliance results for 2009. See Attachment 4.)

Ms. Kramer discussed NKWD's plans to expand the MPTP's treatment capacity. She noted that NKWD plans to make the expansion in phases. Various components of the plant, to include its raw water intake, will be replaced or upgraded during the next 18 years to permit the plant to operate at a capacity of 20 million gallons per day (MGD). Ms. Kramer noted that the proposed ultraviolet (UV) disinfection facilities are being built for 20 MGD capacity, despite the plant's current capacity of 10 MGD, because the cost of adding an additional 10 MGD of UV capacity at a later date would be much greater than constructing a 20 MGD facility now. Mr. Harrison noted that the proposed facilities are necessary even if the MPTP is not expanded in the near future. The water district expects to need the expanded plant capacity at some point in the future. ✓

Ms. Joslyn answered questions regarding the need for proposed UV disinfection facilities at FTTP and MPTP. She noted that *Cryptosporidium* had been detected in the Ohio River. Even at low levels, *Cryptosporidium* is capable of causing serious infection. She further noted that raw sewage bypasses have increased in frequency and severity in recent years. Sewage treatment facilities are located above NKWD's water intakes on the Ohio River and increase the risk of *Cryptosporidium* contamination. Runoff from non-point sources also increases this risk. Currently, NKWD has only one barrier to

micro-biological contamination — chlorine disinfection. She noted that GAC technology has shown an ability to store micro-biological contaminants.

Ms. Joslyn noted that the addition of UV disinfection presents several advantages. It is very effective against *Cryptosporidium*, does not produce any disinfection byproducts, and is effective against several micro-biological contaminants in addition to *Cryptosporidium*. She also that UV disinfection has a low capital cost and low operational cost.

Ms. Joslyn noted that there has been no change in regulatory requirements since the issuance of the Preliminary Design Report that would require the use of UV disinfection. While conceding that NKWD had not conducted any cost-benefit analysis regarding the addition of the UV process, she noted that the cost of the proposed systems at FTTP and MPTP compared very favorably to the cost of the UV system that NKWD installed at the Taylor Mill Water Treatment Plant in 2007. She noted that the cost of the respective UV systems represents less than five percent of the total cost of the MPTP improvements and approximately three percent of the total cost of the FTTP improvements.

Ms. Joslyn stated that the addition of the UV disinfection systems provided significant public health benefits. She noted that NKWD's is currently at risk for *Cryptosporidium*. Moreover, UV presents an additional backup in the event that NKWD experiences problems with its filters.

Ms. Joslyn noted that GAC technology does not provide an effective barrier against *Cryptosporidium*. It is effective against organic matter, but not against micro-biological contaminants. She also noted that UV is not very effective in disinfecting high turbidity water.

Ms. Kramer and Mr. Harrison stated that NKWD briefly considered treating the two proposed projects as a single project for bidding purposes, but determined that approach was not in the water district's best interests. They noted that requesting separate bids on each project encouraged competition among construction firms. Combining the projects as a single project would have increased the size of the required construction bond and thus lessen the number of construction firms financially capable of submitting bids. By staggering the submission time for potential bidders, it allowed firms additional time to closely evaluate the bid specifications of each project and to identify and eliminate unknowns or uncertainties regarding the project. By eliminating these uncertainties, the bidding firms reduced the potential risks associated with their bid and were able to reduce the amount of their bid.

Ms. Kramer also noted that bidding both projects as one project would have increased NKWD's risk. Unforeseen problems or delays experienced by the successor bidder would place completion of the required work at both water treatment plants at

risk. By bidding the projects separately, NKWD reduced the risk that a problem experienced by one successful contractor would affect the completion schedule of renovations at both plants.

Ms. Kramer conceded that bidding both projects as one project would have produced some efficiencies, primarily in construction administration and management. She further noted that, as the construction is not being performed at one work site, many of efficiencies that might be associated with combining two projects would not occur.

Prior to adjourning, the participants discussed NKWD's delivery of requested documents to Commission Staff and NKWD's timing requirements. It was agreed that NKWD would provide all documents by electronic mail and that these documents would be attached to the minutes of the conference call. NKWD representatives advised that, to ensure adequate time to issue a notice of award to the successful bidders, NKWD must have notice of the Commission's decision in both proceedings no later than 3:00 p.m. on April 21, 2010. (NKWD subsequently advised Commission Staff notice of the Commission's decision was required no later than 1:00 p.m.) NKWD representatives advised that the successful bidder on the MPTP project had informally agreed to a short extension of its bid but that further extensions were not likely. Failure to issue a decision on the applications by April 21, 2010 would likely require the projects to be rebid and result in higher bids.

The conference then adjourned.

cc: Parties of Record

Attachments:

- 1 - Questions Submitted By Commission Staff
- 2 - History of Activities in Chronological Order
- 3 - Journal AWWA Article
- 4 - Letter of 4/19/2010
- 5 - TTHM Sampling Data
- 6 - Minutes of NKWD Board Meetings

ATTACHMENT 1

**Questions for Northern Kentucky Water District related
to its request for certificates of public convenience and necessity.**

1. Identify all compliance strategies that NKWD considered. State the expected cost of each strategy and why the strategy was not selected. Identify the advantages and disadvantages of each strategy.

2. State whether the following options were considered to be implemented to address compliance with the EPA's Stage 2 D/DBP Rule.
 - a. Microfiltration
 - b. Nanofiltration
 - c. Moving the point of chlorination
 - d. Reducing chlorine dose under warm weather conditions
 - e. Enhanced Softening
 - f. Modifying Pre-sedimentation Basin Operations

3. For each of the options listed in the question above,
 - a. if the option was considered, provide a detailed description of why the treatment type was rejected.
 - b. if the option was not considered, explain the disadvantages the would not make the option a more reasonable solution to ensure NKWD's regulatory compliance.

4. On page 9 of Appendix B of the Preliminary Design of GAC Systems Report (March 2008), it states, "In determining whether GAC filter adsorbers or post-filter contactors would be more appropriate for the NKWD treatment plants, a variety of factors must be considered; especially the limitations associated with filter adsorbers and the chlorination preferences of the Kentucky Division of Water." Provide any correspondence between the Division of Water and NKWD or other materials that evidences the "preferences" of the Division of Water with respect to GAC filter adsorbers.

5. Provide all minutes of the Board of Directors' meetings at which the proposed project was discussed.

6. Provide all reports and other documents that were presented to NKWD Board of Directors, in order to advise the Board of options to comply with the D/DBP Rule.

7. Provide a detailed explanation of why NKWD adopted a moderate approach strategy to address future water quality goals, as opposed to a minimum or aggressive approach.

8. Explain whether any of the options (other than GAC post-filter adsorption) would satisfy the minimum approach to addressing future water quality goals.

9. On pages 2-3 and 2-11 of the Basis of Design Report (January 2009), it states that “Based on conservative assumptions for the distribution system (water age) and treatment (pH, chlorine residual concentration and water temperature), the PD Report, March 2008 predicted TTHM formation would occur at a concentration of 0.064 mg/L if the target GAC effluent TOC concentration is 1.25 mg/L.”

a. Identify what conservative assumptions were used and why those assumptions were used.

b. Explain how 1.25 mg/L was established as the target GAC effluent TOC concentration.

10. Explain how the sizing of the planned GAC contactors was determined and how that size will help achieve regulatory compliance.

11. Describe the plans to expand the Memorial Parkway Treatment Plant (“MPTP”) capacity and the current status of these plans.

12. Explain the effect on compliance strategies if scheduled treatment capacity expansion at MPTP does not occur.

13. Page 1-4 of the Basis of Design Report (January 2009) states that NKWD is proposing to have 5 fully functional GAC contactor beds and 1 empty bed for future expansion at the MPTP. If the MPTP capacity is currently set at 10 MGD and can be upgraded 100% to 20 MGD, explain why one additional bed (an upgrade of 20% over the other 5 beds) would be sufficient to handle the additional capacity.

14. At Section 1.5 of the Preliminary Design Study, the authors state: “Current knowledge of NKWD water quality indicates that *Cryptosporidium* detections are low and that additional treatment is not likely to be required. However in the event that regulatory requirements or source water quality characteristics change, or if the District desires to add an additional microbial barrier to the WTP process, UV disinfection is a cost-effective treatment alternative approved for *Cryptosporidium* removal/interaction by LT2ESWTR.”

- a. Given that *Cryptosporidium* detections are low and that additional treatment is not likely to be required, state why NKWD is requesting the addition of a UV facility to the proposed construction.
- b. Identify the regulatory requirements that have changed since March 2008.
- c. Identify the source water quality characteristics that have changed since March 2008.
- d. Identify all cost benefits of including the UV disinfection facilities in the present project, as opposed to adding the facilities at a future date.

15. At Section 3.1.2 of Basis of Design Report, authors state that “[a]lthough *Cryptosporidium* sampling of the NKWD source waters does not indicate a regulatory need to provide UV disinfection, the NKWD has identified the water quality improvement and public health benefit of UV disinfection as meriting the inclusion of UV facilities in the project.”

- a. What are the water quality improvement benefits of UV disinfection?
- b. What are the public health benefits of UV disinfection?
- c. Describe how NKWD quantified these benefits to determine that they exceeded construction and operation cost of UV facilities. Provide the calculations and all analyses performed.

16. At Section 5.1.6.1 of Basis of Design Report, the authors state that GAC adsorption is “an effective barrier for taste and odor control and for most emerging contaminants.” They further note that “NKWD has sampled for NDMA on a few occasions, and NDMA has not been detected in the raw water.” In light of the low level of *Cryptosporidium* detections and the effectiveness of GAC adsorption, why is UV disinfection necessary?

17. Explain why the two projects for which certificates are requested were not grouped together in the contractor bidding process.

18. Explain whether total cost for the projects could have been reduced if the projects were submitted for bids in tandem.

19. Paragraph 7 of the application in Case No. 2010-00093 states, “The total financing for which approval is sought is approximately \$30,000,000.” Paragraph 5 states that NKWD will finance this project through bond anticipation notes for which Commission approval may not be needed under KRS 278.300(8). Confirm whether or not NKWD is seeking Commission approval for financing in this case.

**History of Activities in Chronological Order - Advanced Treatment
Public Service Commission Informal Conference
April 19, 2010**

Date	Description
1992 - 1995	Preliminary GAC studies
Dec 15, 1998	2012 Regulatory Compliance – Board Presentation
2000 - 2007	Evaluations or Pilot Studies on 8 Treatment Options
May 2002	DOW visits UV pilot at TMTP
Aug 18, 2005	2012 Regulatory Compliance – Board Presentation
Feb 16, 2006	2012 Regulatory Compliance – Board Presentation
June 2006	TMTP UV Design Memo (Case # 2007-00052)
Aug 17, 2006	2012 Regulatory Compliance – Board Presentation
Oct 19, 2006	Board approves 07-11 cap budget including AT projects
Sep 20, 2007	2012 Regulatory Compliance – Board Presentation
Oct 18, 2007	Board approves 08-12 cap budget including AT projects
June 25, 2008	PSC Informal Teleconference – Eng Design for AT
July 31, 2008	Eng Design for AT – Board Presentation/Approved
Oct 16, 2008	Board approves 09-13 cap budget including AT projects
July 13, 2009	Applied for SRF Loan (UV key component)
Sep 3, 2009	PSC Presentation – Future Rates including AT Projects
Sep 3, 2009	Submitted FTTP and MPTP AT Project Designs to DOW
Sep 30, 2009	DOW approved AT preliminary design report
Oct 6, 2009	DOW Approved MPTP AT Project
Oct 15, 2009	Board approves 10-14 cap budget including AT projects
Nov 10, 2009	DOW Approved FTTP AT Project
Dec 6, 2009	KIA Approved 2% SRF Loan for \$8 M
Dec 16, 2009	MPTP AT Bids Opened (48% under engineer's estimate)
Jan 14, 2010	NKWD Tour – Presentation to PSC Commissioners/Staff
Jan 20, 2010	MPTP AT Bids – Board Presentation/Approved
Jan 21, 2010	FTTP AT Bids Opened (52% under engineer's estimate)
Jan 28, 2010	MPTP AT Certificate Initially Filed
Feb 19, 2010	FTTP AT Bids – Board Presentation/Approved
Feb 24, 2010	KIA Commitment Letter for SRF Loan Filed to PSC
Feb 24, 2010	PSC accepted MPTP AT Certificate as Filed
Feb 26, 2010	FTTP AT Certificate Initially Filed
Mar 8, 2010	PSC accepted FTTP AT Certificate as Filed
Mar 18, 2010	Sent PSC letter for expedited review of MPTP Certificate
Apr 14, 2010	PSC first contact with NKWD with any concerns
Apr 15, 2010	Phone conversation between PSC and NKWD staff
Apr 16, 2010	PSC sent list of 19 informal questions
Apr 16, 2010	Last day for PSC to approve MPTP before bids expire
Apr 18, 2010	MPTP AT Bids Expire per contract
Apr 19, 2010	Informal Conference Call – 19 questions
Apr 21, 2010	Anticipated PSC order for MPTP Certificate
Apr 21, 2010	Anticipated PSC order for FTTP Certificate
Apr 21, 2010	FTTP AT Bids Expire
Apr 21, 2010	Issue Notice of Award for MPTP and FTTP AT Projects
May 21, 2010	Issue Notice to Proceed MPTP and FTTP AT Projects
June 1, 2010	Contractor anticipated to begin construction
Apr 1, 2012	New regulations in place
May 21, 2012	Project substantial completion date

Acronym list

UV – Ultra Violet

GAC – Granular Activated Carbon

FTTP – Fort Thomas Treatment Plant

TMTP – Taylor Mill Treatment Plant

MPTP – Memorial Parkway Treatment Plant

AT – Advanced Treatment

SRF – State Revolving Fund

DOW – Division of Water

PSC – Public Service Commission

NKWD – Northern Kentucky Water District

Board – Northern Kentucky Water District Board of Commissioners

KIA – Kentucky Infrastructure Authority