

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

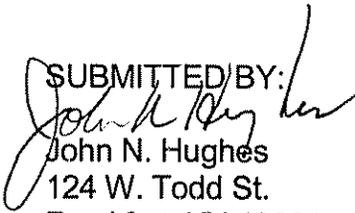
REC-11
MAY 08 2008
PUBLIC SERVICE
COMMISSION

In the Matter of:

APPLICATION OF NORTHERN KENTUCKY)
WATER DISTRICT FOR APPROVAL OF) CASE NO. 2008-00119
CONSTRUCTION AND ISSUANCE OF A)
CERTIFICATE OF CONVENIENCE)
AND NECESSITY FOR THE PURCHASE)
AND INSTALLATION OF AUTOMATED)
METER READING EQUIPMENT)

RESPONSE TO DATA REQUEST

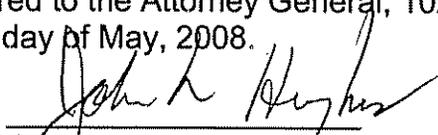
Northern Kentucky Water District (NKWD), by counsel, submits the attached responses to the Commission's Order of April, 30, 2008.

SUBMITTED BY:

John N. Hughes
124 W. Todd St.
Frankfort, KY 40601

Attorney for Northern
Kentucky Water District

Certificate:

I certify that a copy of this response was delivered to the Attorney General, 1024 Capital Center Dr., Frankfort, KY 40601 the 8th day of May, 2008.



John N. Hughes

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC COMMISSION**

**NORTHERN KENTUCKY WATER DISTRICT'S RESPONSE TO THE
COMMISSION STAFF'S INFORMATION REQUEST**

Q1. Provide a narrative explanation of NKWD's decision to implement an automated meter reading ("AMR") system. Include in the explanation all factors leading to NKWD's decision, including financial, reliability, and operational reasons.

A1. Witness: Lofland.

Through an RFP process the District contracted with HDR Engineering in 2005 to perform a Meter Reading Feasibility Study. The purpose was to evaluate the District's effectiveness with current reading process, to present meter reading alternatives, and then to make a recommendation as to what the most cost effective method would be. At the time the District did not consider a one year deployment but rather a 3 and 10 year deployment plan for cost modeling purposes. Additionally, a current (Quarterly) reading scenario was used as well as a monthly billing scenario. The District believes that at some point in time a move to monthly billing will be necessary and wants to establish a baseline cost with no alterations made to the current reading practice (Touch-Read) versus what the addition of AMR would realize. HDR developed a cost model based on the District's actual meter reading costs, then projected how AMR would impact efficiency. The cost model included every quantifiable aspect required to perform this task. Staffing and typical O&M expenses were included as well as capital expenditures necessary for the process of gathering meter readings.

The end result was a recommendation to move toward a Drive-by or Fixed Network Radio Read System based on information gathered projecting 10 and 15 year planning horizons and a 10 and 3 year deployment plan. A monthly reading and billing scenario served to strengthen this recommendation. After further evaluation the District decided to eliminate the meter expense from the project because of the current good condition of the District's existing meters. This a result of an aggressive testing and meter change-out program. NKWD felt that the reduction in capital expense would now allow for a more accelerated deployment program and a faster pay-off period. Bid specifications were developed using a one, two, and three year deployment. At conclusion, the District's best responses, lowest in cost, were for a one year deployment.

The evaluation process included; type of system (technology), support, warranty, system flexibility, ease of installation, qualification, training, compliance, and obviously cost.

Our decision to go with Mobile Drive-By was based on the reliability of the systems currently in place and cost. After several site visits we felt Mobile Drive-By, while not the newest technology, was a better fit for our type of topography. Fixed-Network still has difficulty with the type of diverse elevation NKWD has in its service area. Through bid results and our team evaluation Fixed-Network proved to be more expensive to install and maintain and did not have the dependability in operation and stability in technology that the District expects. Mobile Drive-by continues to dominate the industry with installations such as Cincinnati, Philadelphia, Milwaukee and the newest Badger installation - Chicago.

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NORTHERN KENTUCKY WATER DISTRICT'S RESPONSE TO THE
COMMISSION STAFF'S INFORMATION REQUEST

Q2. List the members of the NKWD AMR Selection Committee.

A2. Witness: Lofland.

Amy Kramer: Design Engineering Manager
Barb Northcutt: Team Leader Account Services
Chip Seibert: Meter Shop Foreman
Chris Bryant: Information Systems Manager
Chris Wetherell: Field Service Supervisor
Dave Powell: Meter Shop Crew Leader
Frances Robinson: Account Services Supervisor
Jack Bragg: VP of Finance
Mark Lofland: VP of Account Services and Billing
Melissa Bielo: Administrative Assistant
Ron Weyman: Inspector
Rusty Collinsworth: Distribution Supervisor
Vince DiGirolamo: Database Administrator

**COMMONWEALTH OF KENTUCKY
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**NORTHERN KENTUCKY WATER DISTRICT'S RESPONSE TO THE
COMMISSION STAFF'S INFORMATION REQUEST**

- Q3. Refer to NKWD's application, Exhibit C bid tabs.
- a. State the reason for selecting the Badger Orion AMR System instead of other systems.
 - b. Explain why the Itron Systems' lower bid was not considered.
 - c. Explain the meaning of Itron Systems' "conditional price."
 - d. Explain the meaning of Neptune Systems' "conditional price."

A3a. Witness: Lofland.

Badger's bid was the lowest cost for a reliable system. NKWD performed several "site visits" and felt very comfortable with this proposed system.

A3b. Witness: Lofland.

On August 15, 2007 NKWD held a pre-bid conference. All were encouraged to attend. Itron was present for the meeting. The District thoroughly reviewed the Bid process, specifically the difference between a typical proposal and what the District requires in a Bid. On September 20, 2007 all bids were opened. Itron's bid submittal clearly did not follow the "instructions to bidders". They attempted to submit another bid after the advertised date which could not be considered. If it had been considered, it was no longer the lowest bid.

A3c. Witness: Lofland.

In NKWD's Bid Specification dated July 23, 2007 it stated that each bidder must "accept the terms and conditions set forth in the contract documents." Itron placed conditions on database requirements, warranty, GPS Coordinates and the contract document in its entirety. Itron stated they would not accept our agreement and provided their own.

A3d. Witness: Lofland.

"Neptune Systems" bid was submitted by VSI. VSI listed conditions on GPS Coordinates, exceptions to retainage, and changes to contract. The Bid Specifications stated that for any of the three types of systems bid, submittals must include a 12, 24, and 36 month deployment schedule. VSI omitted the 36 month schedule on all submitted bids. VSI's higher bid was also a determining factor.

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC COMMISSION**

NORTHERN KENTUCKY WATER DISTRICT'S RESPONSE TO THE
COMMISSION STAFF'S INFORMATION REQUEST

Q4. Provide additional details of the expected cost of NKWD's AMR meter replacement program. Include a breakdown between costs for labor and materials. Also include the cost of the required annual inspections of customers' meters. Provide all work papers supporting the calculations.

A4. Witness: Lofland.

This project does not include any meter replacement. This project is for adding a Radio Frequency Unit to our existing meters. Badger's bid is as follows:

Equipment: \$4,743,195.00
Labor: \$2,445,916.64

Other fees such as bonds, management fees and training are \$162,544.15. Cost analysis is attached. NKWD does not perform annual inspections at meters.

From HDR Updated Feasibility Study									
Monthly Read One Year Deployment									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total
Salaries									
Touch Read	\$899,143	\$930,613	\$963,184	\$996,896	\$1,031,787	\$1,133,380	\$1,173,049	\$1,214,105	\$8,342,157
Mobile Drive By	\$449,571	\$179,992	\$186,292	\$192,812	\$199,561	\$206,545	\$213,775	\$221,257	\$1,849,805
Savings	\$449,572	\$750,621	\$776,892	\$804,084	\$832,226	\$926,835	\$959,274	\$992,848	\$6,492,352
Education									
Touch Read	\$6,850	\$7,124	\$7,409	\$7,705	\$8,014	\$8,821	\$9,174	\$9,541	\$64,638
Mobile Drive By	\$3,425	\$1,482	\$1,541	\$1,603	\$1,667	\$1,734	\$1,803	\$1,875	\$15,130
Savings	\$3,425	\$5,642	\$5,868	\$6,102	\$6,347	\$7,087	\$7,371	\$7,666	\$49,508
Mat. & Supplies									
Touch Read	\$26,025	\$26,936	\$27,879	\$28,854	\$29,864	\$32,810	\$33,958	\$35,147	\$241,473
Mobile Drive By	\$13,013	\$5,188	\$5,370	\$5,557	\$5,752	\$5,953	\$6,162	\$6,377	\$53,372
Savings	\$13,012	\$21,748	\$22,509	\$23,297	\$24,112	\$26,857	\$27,796	\$28,770	\$188,101
Contract Services									
Touch Read	\$20,850	\$21,580	\$22,335	\$23,117	\$23,926	\$26,426	\$27,351	\$28,308	\$193,893
Mobile Drive By	\$10,425	\$3,545	\$3,669	\$3,797	\$3,930	\$4,068	\$4,210	\$4,358	\$38,002
Savings	\$10,425	\$18,035	\$18,666	\$19,320	\$19,996	\$22,358	\$23,141	\$23,950	\$155,891
Fuel									
Touch Read	\$33,350	\$34,851	\$36,419	\$38,058	\$39,770	\$43,928	\$45,905	\$47,970	\$320,251
Mobile Drive By	\$16,675	\$7,498	\$7,835	\$8,188	\$8,556	\$8,941	\$9,344	\$9,764	\$76,801
Savings	\$16,675	\$27,353	\$28,584	\$29,870	\$31,214	\$34,987	\$36,561	\$38,206	\$243,450
Insurance									
Touch Read	\$55,550	\$58,328	\$61,244	\$64,306	\$67,521	\$75,492	\$79,267	\$83,230	\$544,938
Mobile Drive By	\$27,775	\$10,264	\$10,777	\$11,316	\$11,882	\$12,476	\$13,099	\$13,754	\$111,343
Savings	\$27,775	\$48,064	\$50,467	\$52,990	\$55,639	\$63,016	\$66,168	\$69,476	\$433,595

From HDR Updated Feasibility Study									
Monthly Read One Year Deployment									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total
Miscellaneous									
Touch Read	\$5,510	\$5,703	\$5,902	\$6,109	\$6,323	\$6,948	\$7,191	\$7,443	\$51,129
Mobile Drive By	\$2,755	\$1,092	\$1,130	\$1,170	\$1,211	\$1,253	\$1,297	\$1,342	\$11,250
Savings	\$2,755	\$4,611	\$4,772	\$4,939	\$5,112	\$5,695	\$5,894	\$6,101	\$39,879
Meter Read Eq Maint									
Touch Read	\$6,040	\$6,191	\$6,346	\$6,505	\$6,667	\$7,150	\$7,330	\$7,513	\$53,742
Mobile Drive By	\$6,850	\$4,255	\$4,360	\$4,470	\$4,580	\$4,695	\$4,814	\$4,934	\$38,958
Savings	(\$810)	\$1,936	\$1,986	\$2,035	\$2,087	\$2,455	\$2,516	\$2,579	\$14,784
Contractor									
Touch Read	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mobile Drive By	\$149,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$149,000
Savings	(\$149,000)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$149,000)
Customer Service									
Touch Read	\$1,255,539	\$1,299,483	\$1,344,965	\$1,392,039	\$1,440,760	\$1,491,186	\$1,543,378	\$1,597,396	\$11,364,746
Mobile Drive By	\$1,255,539	\$1,299,483	\$1,344,965	\$1,392,039	\$1,440,760	\$1,491,186	\$1,543,378	\$1,597,396	\$11,364,746
Savings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Totals									
Touch Read	\$2,308,857	\$2,390,809	\$2,475,683	\$2,563,589	\$2,654,632	\$2,826,141	\$2,926,603	\$3,030,653	\$21,176,967
Mobile	\$1,935,028	\$1,512,799	\$1,565,939	\$1,620,952	\$1,677,899	\$1,736,851	\$1,797,882	\$1,861,057	\$13,708,407
Savings	\$373,829	\$878,010	\$909,744	\$942,637	\$976,733	\$1,089,290	\$1,128,721	\$1,169,596	\$7,468,560

From HDR Updated Feasibility Study

Monthly Read One Year Deployment

Percent of Savings	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total (Avg.)
Salaries	120.26%	85.49%	85.40%	85.30%	85.21%	85.09%	84.99%	84.89%	89.58%
Education	0.92%	0.64%	0.65%	0.65%	0.65%	0.65%	0.65%	0.66%	0.68%
Mat. & Supplies	3.48%	2.48%	2.47%	2.47%	2.47%	2.47%	2.46%	2.46%	2.60%
Contract Services	2.79%	2.05%	2.05%	2.05%	2.05%	2.05%	2.05%	2.05%	2.14%
Fuel	4.46%	3.12%	3.14%	3.17%	3.20%	3.21%	3.24%	3.27%	3.35%
Insurance	7.43%	5.47%	5.55%	5.62%	5.70%	5.79%	5.86%	5.94%	5.92%
Miscellaneous	0.74%	0.53%	0.52%	0.52%	0.52%	0.52%	0.52%	0.52%	0.55%
Meter Read Eq Maint	-0.22%	0.22%	0.22%	0.22%	0.21%	0.23%	0.22%	0.22%	0.17%
Contractor	-39.86%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-4.98%
Customer Service	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	100.00%								

From HDR Updated Feasibility Study									
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Salaries									
Touch Read	\$899,143	\$930,613	\$963,184	\$996,896	\$1,031,787	\$1,133,380	\$1,173,049	\$1,214,105	\$8,342,157
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Savings	\$27,775	\$48,064	\$50,467	\$52,990	\$55,639	\$63,016	\$66,168	\$69,476	\$433,595

From HDR Updated Feasibility Study									
Monthly Read One Year Deployment									
Percent of Savings	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Total (Avg.)
Salaries	88.26%	93.28%	95.86%	95.81%	95.77%	88.22%	100.57%	70.03%	90.98%
Education	0.67%	0.70%	0.72%	0.73%	0.73%	0.67%	0.77%	0.54%	0.69%
Mat. & Supplies	2.55%	2.70%	2.78%	2.78%	2.77%	2.56%	2.91%	2.03%	2.64%
Contract Services	2.05%	2.24%	2.30%	2.30%	2.30%	2.13%	2.43%	1.69%	2.18%
Fuel	3.27%	3.40%	3.53%	3.56%	3.59%	3.33%	3.83%	2.69%	3.40%
Insurance	5.45%	5.97%	6.23%	6.31%	6.40%	6.00%	6.94%	4.90%	6.03%
Miscellaneous	0.54%	0.57%	0.59%	0.59%	0.59%	0.54%	0.62%	0.43%	0.56%
Meter Read Eq Maint	-0.16%	0.24%	0.25%	0.24%	0.24%	0.23%	0.26%	0.18%	0.19%
Contractor	-29.25%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-3.66%
Customer Service	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Capital (Net AMR Init)	26.61%	-9.12%	-12.25%	-12.32%	-12.40%	-3.69%	-18.34%	17.50%	-3.00%
Total	100.00%								

Northern Kentucky Water District
 Meter Reading Feasibility Study
 10-Year Planning Horizon Cost Model
 Summary of Results
 Monthly Meter Readings with One Year Deployment
 (Updated: February 21, 2008)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Monthly Read Frequency										
Touch Read	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mobile Drive-by	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Operating Budget										
Touch Read	\$ 2,308,857	\$ 2,390,807	\$ 2,475,683	\$ 2,563,588	\$ 2,654,632	\$ 2,826,142	\$ 2,926,601	\$ 3,030,653	\$ 3,138,426	\$ 3,250,056
Mobile Drive-by	\$ 1,935,028	\$ 1,512,797	\$ 1,565,939	\$ 1,620,951	\$ 1,677,899	\$ 1,736,852	\$ 1,797,880	\$ 1,861,057	\$ 1,926,458	\$ 1,994,162
Capital Budget										
Touch Read	\$ 409,200	\$ -	\$ -	\$ -	\$ -	\$ 88,153	\$ -	\$ 454,967	\$ -	\$ -
Mobile Drive-by	\$ 7,399,255	\$ 73,356	\$ 99,296	\$ 103,383	\$ 107,725	\$ 126,872	\$ 174,915	\$ 206,865	\$ 126,923	\$ 132,275
Total Operating + Capital Budget	\$ 2,718,057	\$ 2,390,807	\$ 2,475,683	\$ 2,563,588	\$ 2,654,632	\$ 2,914,295	\$ 2,926,601	\$ 3,485,620	\$ 3,138,426	\$ 3,250,056
Touch Read	\$ 9,334,283	\$ 1,586,153	\$ 1,665,235	\$ 1,724,334	\$ 1,785,624	\$ 1,863,725	\$ 1,972,795	\$ 2,067,922	\$ 2,053,381	\$ 2,126,437
Mobile Drive-by	\$ 20,642,016	\$ 7,776,019	\$ 12,865,997	\$ 12,865,997	\$ 12,865,997	\$ 12,865,997	\$ 12,865,997	\$ 12,865,997	\$ 12,865,997	\$ 12,865,997
Results and Inputs	<u>Total NPV</u>	<u>Capital NPV</u>	<u>Operating NPV</u>	<u>Rank</u>	<u>Yrs to Impl.</u>	<u>Reads/Day</u>	<u>Visits/Day</u>	<u>S/Pad, MIU</u>	<u>Startup-Infra.</u>	
Touch Read	\$ 20,645,127	\$ 733,634	\$ 19,911,493	2	1	400	25	\$ -	\$ 58.50	\$ 76,695
Mobile Drive-by	\$ 20,642,016	\$ 7,776,019	\$ 12,865,997	1	1	10,000	90	\$ -	\$ 58.50	\$ 76,695
Cost per Read										
Meter Readings	960,000	972,480	985,128	997,932	1,010,904	1,024,044	1,037,352	1,050,840	1,064,496	1,078,332
Field Service	9,360	9,482	9,605	9,730	9,856	9,984	10,114	10,246	10,379	10,514
Operating Cost/Read (Meter Readers + Field Service + Customer Service)										
Touch Read	\$ 2.38	\$ 2.43	\$ 2.49	\$ 2.54	\$ 2.60	\$ 2.73	\$ 2.79	\$ 2.86	\$ 2.92	\$ 2.98
Mobile Drive-by	\$ 2.00	\$ 1.54	\$ 1.57	\$ 1.61	\$ 1.64	\$ 1.68	\$ 1.72	\$ 1.75	\$ 1.79	\$ 1.83
Op.+Cap. Cost/Read										
Touch Read	\$ 2.80	\$ 2.43	\$ 2.49	\$ 2.54	\$ 2.60	\$ 2.82	\$ 2.79	\$ 3.28	\$ 2.92	\$ 2.98
Mobile Drive-by	\$ 9.63	\$ 1.62	\$ 1.67	\$ 1.71	\$ 1.75	\$ 1.80	\$ 1.88	\$ 1.95	\$ 1.91	\$ 1.95

Northern Kentucky Water District
 Meter Reading Feasibility Study
 10-Year Planning Horizon Cost Model
 Summary of Results
 Monthly Meter Readings with Two Year Deployment
 (Updated: February 21, 2008)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>
Monthly Read Frequency										
<i>Touch Read</i>	50.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<i>Mobile Drive-by</i>	50.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Operating Budget										
<i>Touch Read</i>	\$ 1,985,311	\$ 2,390,807	\$ 2,475,683	\$ 2,563,588	\$ 2,654,632	\$ 2,826,142	\$ 2,926,601	\$ 3,030,653	\$ 3,138,426	\$ 3,250,056
<i>Mobile Drive-by</i>	\$ 1,962,134	\$ 1,647,122	\$ 1,565,939	\$ 1,620,951	\$ 1,677,899	\$ 1,736,852	\$ 1,797,880	\$ 1,861,057	\$ 1,926,458	\$ 1,994,162
Capital Budget										
<i>Touch Read</i>	\$ 280,400	\$ 133,140	\$ -	\$ -	\$ -	\$ 69,145	\$ 19,483	\$ 312,472	\$ 147,483	\$ -
<i>Mobile Drive-by</i>	\$ 4,254,894	\$ 4,179,686	\$ 102,025	\$ 115,411	\$ 120,298	\$ 140,665	\$ 192,772	\$ 221,232	\$ 141,934	\$ 147,970
Total Operating + Capital Budget										
<i>Touch Read</i>	\$ 2,265,711	\$ 2,523,947	\$ 2,475,683	\$ 2,563,588	\$ 2,654,632	\$ 2,895,287	\$ 2,946,084	\$ 3,343,125	\$ 3,285,909	\$ 3,250,056
<i>Mobile Drive-by</i>	\$ 6,217,028	\$ 5,826,808	\$ 1,667,965	\$ 1,736,362	\$ 1,798,198	\$ 1,877,517	\$ 1,990,653	\$ 2,082,289	\$ 2,068,392	\$ 2,142,132
Results and Inputs	<u>Total NPV</u>	<u>Capital NPV</u>	<u>Operating NPV</u>		<u>Rank</u>	<u>Yrs to Impl.</u>	<u>Reads/Day</u>	<u>Visits/Day</u>	<u>\$/Pad, MIU</u>	<u>Startup-Infra.</u>
<i>Touch Read</i>	\$ 20,334,329	\$ 728,068	\$ 19,606,262		1	2	400	25	\$ -	
<i>Mobile Drive-by</i>	\$ 21,544,854	\$ 8,533,737	\$ 13,011,117		2	2	10,000	90	\$ 61.75	\$ 81,773
Cost per Read										
Meter Readings										
<i>Meter Readers</i>	640,000	972,480	985,128	997,932	1,010,904	1,024,044	1,037,352	1,050,840	1,064,496	1,078,332
<i>Field Service</i>	9,360	9,482	9,605	9,730	9,856	9,984	10,114	10,246	10,379	10,514
Operating Cost/Read (Meter Readers + Field Service + Customer Service)										
<i>Touch Read</i>	\$ 3.06	\$ 2.43	\$ 2.49	\$ 2.54	\$ 2.60	\$ 2.73	\$ 2.79	\$ 2.86	\$ 2.92	\$ 2.98
<i>Mobile Drive-by</i>	\$ 3.02	\$ 1.68	\$ 1.57	\$ 1.61	\$ 1.64	\$ 1.68	\$ 1.72	\$ 1.75	\$ 1.79	\$ 1.83
Op.+Cap. Cost/Read										
<i>Touch Read</i>	\$ 3.49	\$ 2.57	\$ 2.49	\$ 2.54	\$ 2.60	\$ 2.80	\$ 2.81	\$ 3.15	\$ 3.06	\$ 2.98
<i>Mobile Drive-by</i>	\$ 9.57	\$ 5.93	\$ 1.68	\$ 1.72	\$ 1.76	\$ 1.82	\$ 1.90	\$ 1.96	\$ 1.92	\$ 1.97

Northern Kentucky Water District
 Meter Reading Feasibility Study
 10-Year Planning Horizon Cost Model
 Summary of Results
 Monthly Meter Readings with Three Year Deployment
 (Updated: February 21, 2008)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>
Monthly Read Frequency										
<i>Touch Read</i>	33.0%	66.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<i>Mobile Drive-by</i>	33.0%	66.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Operating Budget										
<i>Touch Read</i>	\$ 1,920,378	\$ 2,189,556	\$ 2,475,683	\$ 2,563,588	\$ 2,654,632	\$ 2,826,142	\$ 2,926,601	\$ 3,030,653	\$ 3,138,426	\$ 3,250,056
<i>Mobile Drive-by</i>	\$ 1,973,191	\$ 1,647,122	\$ 1,635,526	\$ 1,620,951	\$ 1,677,899	\$ 1,736,852	\$ 1,797,880	\$ 1,861,057	\$ 1,926,458	\$ 1,994,162
Capital Budget										
<i>Touch Read</i>	\$ 252,400	\$ 81,032	\$ 83,753	\$ -	\$ -	\$ 62,809	\$ 12,989	\$ 297,286	\$ 88,490	\$ 91,587
<i>Mobile Drive-by</i>	\$ 3,145,831	\$ 3,041,622	\$ 3,141,729	\$ 120,034	\$ 129,917	\$ 151,277	\$ 207,519	\$ 232,211	\$ 153,401	\$ 159,956
Total Operating + Capital Budget										
<i>Touch Read</i>	\$ 2,172,778	\$ 2,270,588	\$ 2,559,436	\$ 2,563,588	\$ 2,654,632	\$ 2,888,951	\$ 2,939,590	\$ 3,327,939	\$ 3,226,916	\$ 3,341,643
<i>Mobile Drive-by</i>	\$ 5,119,022	\$ 4,688,745	\$ 4,777,256	\$ 1,740,985	\$ 1,807,817	\$ 1,888,129	\$ 2,005,400	\$ 2,093,268	\$ 2,079,859	\$ 2,154,118
Results and Inputs	<u>Total NPV</u>	<u>Capital NPV</u>	<u>Operating NPV</u>		<u>Rank</u>	<u>Yrs to Impl.</u>	<u>Reads/Day</u>	<u>Visits/Day</u>	<u>\$/Pad. MIU</u>	<u>Startup-Infra.</u>
<i>Touch Read</i>	\$ 20,089,399	\$ 723,508	\$ 19,365,891		1	3	400	25	\$ -	
<i>Mobile Drive-by</i>	\$ 22,155,254	\$ 9,075,279	\$ 13,079,975		2	3	10,000	90	\$ 64.53	\$ 86,766
Cost per Read										
Meter Readings										
<i>Meter Readers</i>	531,200	752,051	985,128	997,932	1,010,904	1,024,044	1,037,352	1,050,840	1,064,496	1,078,332
<i>Field Service</i>	9,360	9,482	9,605	9,730	9,856	9,984	10,114	10,246	10,379	10,514
Operating Cost/Read (Meter Readers + Field Service + Customer Service)										
<i>Touch Read</i>	\$ 3.55	\$ 2.88	\$ 2.49	\$ 2.54	\$ 2.60	\$ 2.73	\$ 2.79	\$ 2.86	\$ 2.92	\$ 2.98
<i>Mobile Drive-by</i>	\$ 3.65	\$ 2.16	\$ 1.64	\$ 1.61	\$ 1.64	\$ 1.68	\$ 1.72	\$ 1.75	\$ 1.79	\$ 1.83
Op.+Cap. Cost/Read										
<i>Touch Read</i>	\$ 4.02	\$ 2.98	\$ 2.57	\$ 2.54	\$ 2.60	\$ 2.79	\$ 2.81	\$ 3.14	\$ 3.00	\$ 3.07
<i>Mobile Drive-by</i>	\$ 9.47	\$ 6.16	\$ 4.80	\$ 1.73	\$ 1.77	\$ 1.83	\$ 1.91	\$ 1.97	\$ 1.93	\$ 1.98

Northern Kentucky Water District
 Meter Reading Feasibility Study
 10-Year Planning Horizon Cost Model
 Summary of Results
 Quarterly Meter Readings with One Year Deployment
 (Updated: February 21, 2008)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>
Monthly Read Frequency										
<i>Touch Read</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Mobile Drive-by</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Budget										
<i>Touch Read</i>	\$ 889,393	\$ 926,649	\$ 965,509	\$ 1,006,038	\$ 1,048,312	\$ 1,092,409	\$ 1,138,407	\$ 1,186,395	\$ 1,236,455	\$ 1,288,682
<i>Mobile Drive-by</i>	\$ 838,259	\$ 652,107	\$ 681,031	\$ 711,260	\$ 742,858	\$ 775,888	\$ 810,414	\$ 846,511	\$ 884,242	\$ 923,689
Capital Budget										
<i>Touch Read</i>	\$ 176,800	\$ -	\$ -	\$ -	\$ -	\$ 23,533	\$ -	\$ 198,476	\$ -	\$ -
<i>Mobile Drive-by</i>	\$ 7,283,555	\$ 91,063	\$ 99,296	\$ 103,383	\$ 107,725	\$ 126,872	\$ 174,915	\$ 206,865	\$ 126,923	\$ 132,275
Total Operating + Capital Budget										
<i>Touch Read</i>	\$ 1,066,193	\$ 926,649	\$ 965,509	\$ 1,006,038	\$ 1,048,312	\$ 1,115,942	\$ 1,138,407	\$ 1,384,871	\$ 1,236,455	\$ 1,288,682
<i>Mobile Drive-by</i>	\$ 8,121,814	\$ 743,169	\$ 780,327	\$ 814,643	\$ 850,583	\$ 902,761	\$ 985,329	\$ 1,053,376	\$ 1,011,165	\$ 1,055,964
Results and Inputs	<u>Total NPV</u>	<u>Capital NPV</u>	<u>Operating NPV</u>		<u>Rank</u>	<u>Yrs to Impl.</u>	<u>Reads/Day</u>	<u>Visits/Day</u>	<u>\$/Pad, MIU</u>	<u>Startup-Infra.</u>
<i>Touch Read</i>	\$ 8,085,587	\$307,909	\$7,777,679		1	1	400	25	\$ -	
<i>Mobile Drive-by</i>	\$ 13,400,327	\$7,682,627	\$5,717,699		2	1	10,000	90	\$ 58.50	\$ 76,695
Cost per Read										
Meter Readings										
<i>Meter Readers</i>	320,000	324,160	328,376	332,644	336,968	341,348	345,784	350,280	354,832	359,444
<i>Field Service</i>	9,360	9,482	9,605	9,730	9,856	9,984	10,114	10,246	10,379	10,514
Operating Cost/Read (Meter Readers + Field Service + Customer Service)										
<i>Touch Read</i>	\$ 2.70	\$ 2.78	\$ 2.86	\$ 2.94	\$ 3.02	\$ 3.11	\$ 3.20	\$ 3.29	\$ 3.39	\$ 3.48
<i>Mobile Drive-by</i>	\$ 2.55	\$ 1.95	\$ 2.01	\$ 2.08	\$ 2.14	\$ 2.21	\$ 2.28	\$ 2.35	\$ 2.42	\$ 2.50
Op.+Cap. Cost/Read										
<i>Touch Read</i>	\$ 3.24	\$ 2.78	\$ 2.86	\$ 2.94	\$ 3.02	\$ 3.18	\$ 3.20	\$ 3.84	\$ 3.39	\$ 3.48
<i>Mobile Drive-by</i>	\$ 24.66	\$ 2.23	\$ 2.31	\$ 2.38	\$ 2.45	\$ 2.57	\$ 2.77	\$ 2.92	\$ 2.77	\$ 2.85

Northern Kentucky Water District
 Meter Reading Feasibility Study
 10-Year Planning Horizon Cost Model
 Summary of Results
 Quarterly Meter Readings with Two Year Deployment
 (Updated: February 21, 2008)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>
Monthly Read Frequency										
<i>Touch Read</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Mobile Drive-by</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Budget										
<i>Touch Read</i>	\$ 889,393	\$ 926,649	\$ 965,509	\$ 1,006,038	\$ 1,048,312	\$ 1,092,409	\$ 1,138,407	\$ 1,186,395	\$ 1,236,455	\$ 1,288,682
<i>Mobile Drive-by</i>	\$ 995,012	\$ 652,107	\$ 681,031	\$ 711,260	\$ 742,858	\$ 775,888	\$ 810,414	\$ 846,511	\$ 884,242	\$ 923,689
Capital Budget										
<i>Touch Read</i>	\$ 176,800	\$ -	\$ -	\$ -	\$ -	\$ 23,533	\$ -	\$ 198,476	\$ -	\$ -
<i>Mobile Drive-by</i>	\$ 4,193,573	\$ 4,180,627	\$ 110,810	\$ 115,411	\$ 120,298	\$ 140,665	\$ 192,772	\$ 221,232	\$ 141,934	\$ 147,970
Total Operating + Capital Budget										
<i>Touch Read</i>	\$ 1,066,193	\$ 926,649	\$ 965,509	\$ 1,006,038	\$ 1,048,312	\$ 1,115,942	\$ 1,138,407	\$ 1,384,871	\$ 1,236,455	\$ 1,288,682
<i>Mobile Drive-by</i>	\$ 5,188,585	\$ 4,832,734	\$ 791,841	\$ 826,670	\$ 863,157	\$ 916,553	\$ 1,003,187	\$ 1,067,743	\$ 1,026,176	\$ 1,071,659
Results and Inputs	<u>Total NPV</u>	<u>Capital NPV</u>	<u>Operating NPV</u>		<u>Rank</u>	<u>Yrs to Impl.</u>	<u>Reads/Day</u>	<u>Visits/Day</u>	<u>\$/Pad. MIU</u>	<u>Startup-Infra.</u>
<i>Touch Read</i>	\$ 8,085,587	\$307,909	\$7,777,679		1	2	400	25	\$ -	
<i>Mobile Drive-by</i>	\$ 14,349,679	\$8,484,100	\$5,865,579		2	2	10,000	90	\$ 61.75	\$ 81,773
Cost per Read										
Meter Readings										
<i>Meter Readers</i>	320,000	324,160	328,376	332,644	336,968	341,348	345,784	350,280	354,832	359,444
<i>Field Service</i>	9,360	9,482	9,605	9,730	9,856	9,984	10,114	10,246	10,379	10,514
Operating Cost/Read (Meter Readers + Field Service + Customer Service)										
<i>Touch Read</i>	\$ 2.70	\$ 2.78	\$ 2.86	\$ 2.94	\$ 3.02	\$ 3.11	\$ 3.20	\$ 3.29	\$ 3.39	\$ 3.48
<i>Mobile Drive-by</i>	\$ 3.02	\$ 1.95	\$ 2.01	\$ 2.08	\$ 2.14	\$ 2.21	\$ 2.28	\$ 2.35	\$ 2.42	\$ 2.50
Op.+Cap. Cost/Read										
<i>Touch Read</i>	\$ 3.24	\$ 2.78	\$ 2.86	\$ 2.94	\$ 3.02	\$ 3.18	\$ 3.20	\$ 3.84	\$ 3.39	\$ 3.48
<i>Mobile Drive-by</i>	\$ 15.75	\$ 14.48	\$ 2.34	\$ 2.41	\$ 2.49	\$ 2.61	\$ 2.82	\$ 2.96	\$ 2.81	\$ 2.90

Northern Kentucky Water District
 Meter Reading Feasibility Study
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 Summary of Results
 Quarterly Meter Readings with Three Year Deployment
 (Updated: February 21, 2008)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>	<u>Year 7</u>	<u>Year 8</u>	<u>Year 9</u>	<u>Year 10</u>
Monthly Read Frequency										
<i>Touch Read</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Mobile Drive-by</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Operating Budget										
<i>Touch Read</i>	\$ 889,393	\$ 926,649	\$ 965,509	\$ 1,006,038	\$ 1,048,312	\$ 1,092,409	\$ 1,138,407	\$ 1,186,395	\$ 1,236,455	\$ 1,288,682
<i>Mobile Drive-by</i>	\$ 1,006,068	\$ 719,269	\$ 681,031	\$ 711,260	\$ 742,858	\$ 775,888	\$ 810,414	\$ 846,511	\$ 884,242	\$ 923,689
Capital Budget										
<i>Touch Read</i>	\$ 176,800	\$ -	\$ -	\$ -	\$ -	\$ 23,533	\$ -	\$ 198,476	\$ -	\$ -
<i>Mobile Drive-by</i>	\$ 3,083,766	\$ 3,046,901	\$ 3,141,729	\$ 124,615	\$ 129,917	\$ 151,277	\$ 207,519	\$ 232,211	\$ 153,401	\$ 159,956
Total Operating + Capital Budget										
<i>Touch Read</i>	\$ 1,066,193	\$ 926,649	\$ 965,509	\$ 1,006,038	\$ 1,048,312	\$ 1,115,942	\$ 1,138,407	\$ 1,384,871	\$ 1,236,455	\$ 1,288,682
<i>Mobile Drive-by</i>	\$ 4,089,834	\$ 3,766,170	\$ 3,822,760	\$ 835,874	\$ 872,775	\$ 927,165	\$ 1,017,933	\$ 1,078,722	\$ 1,037,643	\$ 1,083,645
Results and Inputs	<u>Total NPV</u>	<u>Capital NPV</u>	<u>Operating NPV</u>		<u>Rank</u>	<u>Yrs to Impl.</u>	<u>Reads/Day</u>	<u>Visits/Day</u>	<u>\$/Pad, MIU</u>	<u>Startup-Infra.</u>
<i>Touch Read</i>	\$ 8,085,587	\$307,909	\$7,777,679		1	3	400	25	\$ -	
<i>Mobile Drive-by</i>	\$ 14,960,837	\$9,025,053	\$5,935,783		2	3	10,000	90	\$ 64.53	\$ 86,766
Cost per Read										
Meter Readings										
<i>Meter Readers</i>	320,000	324,160	328,376	332,644	336,968	341,348	345,784	350,280	354,832	359,444
<i>Field Service</i>	9,360	9,482	9,605	9,730	9,856	9,984	10,114	10,246	10,379	10,514
Operating Cost/Read (Meter Readers + Field Service + Customer Service)										
<i>Touch Read</i>	\$ 2.70	\$ 2.78	\$ 2.86	\$ 2.94	\$ 3.02	\$ 3.11	\$ 3.20	\$ 3.29	\$ 3.39	\$ 3.48
<i>Mobile Drive-by</i>	\$ 3.05	\$ 2.16	\$ 2.01	\$ 2.08	\$ 2.14	\$ 2.21	\$ 2.28	\$ 2.35	\$ 2.42	\$ 2.50
Op.+Cap. Cost/Read										
<i>Touch Read</i>	\$ 3.24	\$ 2.78	\$ 2.86	\$ 2.94	\$ 3.02	\$ 3.18	\$ 3.20	\$ 3.84	\$ 3.39	\$ 3.48
<i>Mobile Drive-by</i>	\$ 12.42	\$ 11.29	\$ 11.31	\$ 2.44	\$ 2.52	\$ 2.64	\$ 2.86	\$ 2.99	\$ 2.84	\$ 2.93



**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC COMMISSION**

NORTHERN KENTUCKY WATER DISTRICT'S RESPONSE TO THE
COMMISSION STAFF'S INFORMATION REQUEST

- Q5. Has NKWD performed a cost justification analysis of the proposed AMR system?
- a. If yes, provide the results of the analysis and all assumptions used.
 - b. If no, explain why not.

A5a. Witness: Bragg.

Yes. HDR performed a feasibility study that was updated recently and the District used these same numbers in its analysis. Both analysis are attached and located in Tab 4.

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC COMMISSION**

NORTHERN KENTUCKY WATER DISTRICT'S RESPONSE TO THE
COMMISSION STAFF'S INFORMATION REQUEST

- Q6. A- Explain whether NKWD expects the AMR meter replacement program to cause and increase in rates sooner than would be required if the AMR program were not implemented.
B- If the need for a rate increase will be escalated by the AMR meter replacement program, describe how the program will cause the escalation of need.

A6a. Witness: Bragg.

Yes. HDR performed a feasibility study that was updated recently and the District used these same numbers in its analysis. Both analysis are attached and located in Tab 4.

A6b. Witness: Bragg.

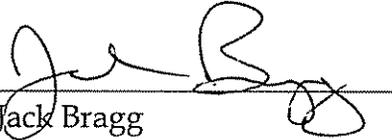
The estimated debt service to complete the AMR project would cause rates to rise in order to provide for the increased debt payment and the corresponding increase in depreciation expense.

AFFIDAVIT

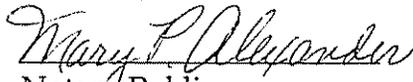
COMMONWEALTH OF KENTUCKY

COUNTY OF KENTON

Affiant, Jack Bragg, appearing personally before me a notary public for and of the Commonwealth of Kentucky and after being first sworn, deposes, states, acknowledges, affirms and declares that he is Vice President - Finance, that he is authorized to submit this Response on behalf of Northern Kentucky Water District, and that the information contained in the Response is true and accurate to the best of his knowledge, information and belief, after a reasonable inquiry, and as to those matters that are based on information provided to him, he believes to be true and correct.


Jack Bragg

This instrument was produced, signed, acknowledged and declared by Jack Bragg to be his act and deed the 7th day of May, 2008.


Notary Public

My Commission expires: March 29, 2010