PUBLIC SERVICE COMMISSION
Case No. 2007-00134

KENTUCKY-AMERICAN WATER COMPANY

Responses to Citizens For Alternative Water Solution's First Supplemental Data Requests

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 1 of 19

Witness: Linda C. Bridwell

1. In Response to CAWS Data Request 1, KAWC indicated that the "next increment of water supply would be construction on the Kentucky River but a raw water line to the Ohio River could be an option." Where on the Kentucky River would KAWC proposed to obtain the next increment of water, and how much does KAWC believe is available?

Response:

The current plant is designed to be easily expandable to 30 mgd. KAW would anticipate expanding the plant in the future, as necessary, if water is available at that location.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 2 of 19

Witness: Michael Miller

2. a. What is the current debt of KAWC and how is it structured?

b. How much debt will be incurred for design and construction of the new plant?

c. How much debt will be incurred on the pipeline?

d. How will the debt be structured and how will it affect the typical ratepayer?

e. How much additional cost does KAWC project it would seek to add to the monthly bill of the ratepayer?

f. What other projects does KAWC intend to construct in the next 15 years and how much are they expected to cost?

Response:

a. The debt of KAWC at May 2007:

Long-term Debt:		
Series 6.87% - matures 3/29/11	12,400,000	
Series 6.96% - matures 12/01/23	7,000,000	
Series 7.15% - matures 2/01/27	7,500,000	
Series 6.99% - matures 6/01/28	9,000,000	
Series 5.65% - matures 6/12/07	24,000,000	
Series 4.75% - matures 3/01/14	14,000,000	will be called in 2007
Total Long-term Debt	73,900,000	
Short-term Debt	16,696,196	

b. Approximately 60% of $64,433,886 or $38,660,331

c. Approximately 60% of $73,234,135 or $43,940,481

d. Please see the response to CAWS DR1, question 13, for the estimated rate impact to KAWC's customers from construction of the Kentucky River solution to the source of supply deficit. KAWC will utilize short-term debt to meet the cash requirements for the construction costs and will replace the short-term debt at regular intervals during construction of the Project with long-term debt issues at

the market rates obtained by AWCC on behalf of KAWC (or tax-exempt debt to the extent it is available and the all-in-cost is beneficial to our customers) and additional equity infusions as required to maintain the proper leverage in the overall capital structure.

e. Please see the response to CAWS DR1, question 13, for the estimated impact to the rates of KAWC. The Kentucky River solution to the KAWC source of supply deficit would raise the current average residential bill of KAWC by approximately $10.14 per month.

f. Please refer to the attached 2007-2011 capital plan. Specific projects are not currently identified beyond the five-year plan.

STRATEGIC CAPITAL EXPENDITURE PLAN
PROGRAM

Business U	Kentucky
Revision D	March 16, 2007
Descriptio	Q 1 RF

Business Unit	Business Unit No.	Project Title	U.S. $ Overall Total	U.S. $ 5-Year Total	U.S. $ Prior	2007 Period 1	2	3	4	5	6	7	8	9	10	11	12	U.S. $ Total 2007
		RECURRING PROJECTS																
Kentucky	xxxxxx80	Developer / Governmental Contributions	39,097,176	33,097,176		-3,860	642,283	567,434	634,951	634,000	700,000	650,000	488,000	522,645	467,358	470,896	246,296	6,000,000
Kentucky	xxxxxx81	Network - Replacement / Renewal	12,932,608	9,802,260		-361,564	166,212	54,730	320,000	320,000	345,376	327,803	406,044	486,044	406,044	337,921	321,738	3,130,348
Kentucky	xxxxxx82	Network - Extension	6,285,876	5,535,876		-149,072	9,545	71,000	116,000	197,000	93,000	15,000	15,000	151,000	127,000	75,000	29,527	750,000
Kentucky	xxxxxx83	Hydrants - Replacement	890,000	850,000		-35,104	2,761	2,000	2,800	3,600	3,600	3,600	5,600	6,000	1,200	19,350	24,593	40,000
Kentucky	xxxxxx84	Hydrants - New	3,501,807	2,981,808		-10,471	46,695	20,000	46,095	41,095	61,095	61,095	51,095	51,095	50,000	50,000	52,203	519,999
Kentucky	xxxxxx85	Services - Replacement	7,342,318	6,741,808		78,237	66,604	30,000	42,000	54,000	54,000	54,000	84,000	40,000	18,000	52,802	28,867	600,510
Kentucky	xxxxxx86	Services - New	8,384,580	7,083,616		40,100	110,888	76,484	102,078	102,672	102,672	152,672	177,656	154,453	100,891	103,659	76,343	1,300,964
Kentucky	xxxxxx87	Meters - Replacement	6,273,640	5,123,166		5,137	100,631	64,873	69,154	69,120	67,370	67,830	152,044	152,190	100,438	101,898	199,790	1,150,474
Kentucky	xxxxxx88	Meters - New	7,088,451	5,938,214		55,571	421,947	91,180	94,330	94,600	88,010	50,000	50,000	51,000	51,000	51,000	51,599	1,150,237
Kentucky	xxxxxx89	ITS Equipment and Systems	777,678	642,678		-9,637	5,027	7,920	10,505	15,455	18,645	6,215	4,895	9,295	10,945	11,715	44,020	135,000
Kentucky	xxxxxx90	Offices and Operations Centers	560,452	480,452		-5,485	13,154					31,000	20,000	21,331				80,000
Kentucky	xxxxxx91	Vehicles	2,270,755	1,764,887		-39,768	5,794		19,852	117,556	368,460	33,974						505,868
Kentucky	xxxxxx92	Tools and Equipment	1,000,552	845,452		-69,887	71,013	9,112	2,912	14,675	41,787	4,738	47,987	13,212	4,620	14,832	99	155,100
Kentucky	xxxxxx93	Process Plant - Replacements	4,303,760	3,552,260		79,626	352,336	19,000	50,000	50,000	82,880	19,000	30,000	20,000	33,000	2,000	13,658	751,500
Kentucky	xxxxxx94	Process Plant - Additions	600,000	600,000														
Kentucky	xxxxxx95	Treatment Media Replacement and Process Reha	360,000	360,000														
Kentucky	xxxxxx96	Tank Rehabilitation / Painting (capitalized)																
Kentucky	xxxxxx97	Comprehensive Planning Studies	430,226	380,226		-5,527	2,161	1,000	5,000	15,000	25,000		3,366	4,000				50,000
		Total Recurring Projects	**102,099,879**	**85,779,879**		**-431,704**	**2,017,049**	**1,014,733**	**1,515,677**	**1,728,773**	**2,051,895**	**1,476,927**	**1,515,887**	**1,682,265**	**1,370,493**	**1,291,273**	**1,086,733**	**16,320,000**
		Total Acquisitions																
		CENTRALLY SPONSORED PROJECTS																
Kentucky		Enterprise Wide System Enhancement 2007	177,707															177,707
Kentucky		Enterprise Wide System Enhancement 2008	117,344	117,344														
Kentucky		Enterprise Wide System Enhancement 2009	150,000	150,000														
Kentucky		Enterprise Wide System Enhancement 2010	417,175	417,175														
Kentucky		Enterprise Wide System Enhancement 2011	2,078,229	2,078,229														
Kentucky		Enterprise Wide System Enhancement Post 2011	2,128,861	2,128,861														
		Total Centrally Sponsored Projects	**5,069,316**	**4,891,609**														**177,707**
		INVESTMENT PROJECTS																
Kentucky	12320507	Owenton Acquisition Water 2006	117,995			-65,991	137,863	46,123										117,995
Kentucky	12320507	Owenton Acquisition Water 2007	50,000											25,000	10,000	10,000	5,000	50,000
Kentucky	12320507	Owenton Acquisition Water 2008	824,836	824,836														
Kentucky	12320507	Owenton Acquisition Water 2009	99,500	99,500														
Kentucky	12320507	Owenton Acquisition Water 2010	79,500	79,500														
Kentucky		Owenton Acquisition sewer																
Kentucky	12300403	Owen County Main Extensions (343)	1,544,000		716,000	137,160	375,412	100,000	100,000	113,310							2,118	828,000
Kentucky	12020404	STEP project	955,250		955,528	-278												-278
Kentucky		UV Installation - KRS/RRS (332)	150,000	150,000														
Kentucky	12020607	New WTP on Pool 3 of KY River	135,197,000	131,280,000		-478,122	181,510	868,700	614,000	713,300	700,600	700,900	101,100	101,000	101,700	101,900	210,412	3,917,000
Kentucky	12020204	Source of Supply Development Project (343)	1,606,059		491,492	-75,439	769,804	50,000	50,000	50,000	50,000	50,000	50,000	50,000	5,000	50,000	15,402	1,114,587
Kentucky	12020402	Major Highway Relocations (343) 2006	1,574,613		1,485,072	26,772	62,769											89,541
Kentucky		Major Highway Relocations (343) 2007	5,053,479					266,000	525,000	525,000	650,000	670,000	884,550	497,519	350,000	325,000	360,410	5,053,479
Kentucky		Major Highway Relocations (343) 2008	1,300,000	1,300,000														
Kentucky		Major Highway Relocations (343) 2009	1,000,000	1,000,000														
Kentucky		Major Highway Relocations (343) 2010	1,000,000	1,000,000														
Kentucky		Major Highway Relocations (343) 2011	500,000	500,000														
Kentucky	12020505	Replace Trac-Vac System at RRS (332)	604,730		341	20,668	10,508	111,000	111,000	90,000	89,000	172,213						604,389
Kentucky	12020506	Sludge Handling Improvements - RRS (332)	1,448,634		12,041	-25,319	57,603	25,000	55,000	155,000	225,000	292,000	198,000	200,000	225,000	23,759	5,550	1,436,593
Kentucky	12020502	Russell Cave Road Main - 34,000' of 12" (343)	411,457		391,457	-11,054	5,905	25,149										20,000
Kentucky	12330604	SCADA - Owen County	122,477					76,869							20,000	20,000	5,608	122,477
Kentucky	12020606	Replace Parkers Mill Pump and Diesel	717,600			-1,095	6,073	250,000	200,000	130,000	88,695	43,927						717,600
Kentucky	12020605	Mallard Point Pressure Improvments	25,306			-205,811	2,389	210,000	18,727								1	25,306
Kentucky	12020501	Ground Storage Tank - 3.0 MG (342)	1,725,000	1,725,000														
Kentucky		Incline Car Replacement @KRS (311)	1,150,000	900,000				5,500	15,500	25,500	35,000	56,000	76,000	10,000	10,000	10,000	6,500	250,000
Kentucky		KRS Clearwell Improvements (332)	150,000	150,000														
Kentucky		North Broadway Main Replacement (343)	2,900,000	2,850,000									10,000	10,000	10,000	10,000	10,000	50,000
Kentucky		North Upper Street Main Replacement Project (34	1,050,000	1,050,000														
Kentucky		Install 22,700';12" in Todds and Cleveland Rd	2,450,000	2,450,000														
Kentucky	12020601	Valve House Upgrades at KRS (332)	60,735			46,271	1,350	13,114										60,735
Kentucky	12020201	Leestown Road Main Improvements (343)	127,544		125,867	836	841											1,677
Kentucky	12020105	Russell Cave Road Tank - 1.0 MG (342)	1,507,109		1,506,802	128	179											307
Kentucky	12020301	Elevated Storage Tank - 2.0 MG (342)	3,513,126		3,513,126													
Kentucky	12020303	Electrical Reliability upgrades /System Reliability	989,486		989,486													
Kentucky		KRS Filter Media Replacement - Hyd 3 & 4 (332)																
Kentucky	12020602	Yamalton Road Main (343)				-4,460	1,826		2,634									
Kentucky		Mechanical Upgrades - KRS Valve Houses																
Kentucky	12500503	Rockwell Village Wastewater Pipeline	400,000	350,000				5,000	5,000	5,000	5,000	5,000	5,000	10,000	10,000			50,000
Kentucky	12020504	KRS Valve Mechanical Improvement	199,892		199,892													

STRATEGIC CAPITAL EXPENDITURE PLAN
PROGRAM

Business U	Kentucky
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Business Unit	Business Unit No.	Project Title	U.S. $ Overall Total	U.S. $ 5-Year Total	U.S. $ Prior	2007 Period 1	2	3	4	5	6	7	8	9	10	11	12	U.S. $ Total 2007
Kentucky	12020508	Reliability Improvements Phase 1	4,601,479		944,837	-1,899	25,887	450,000	450,000	455,000	570,000	320,000	560,000	545,000	150,000	132,654		3,656,642
Kentucky	12020508	Reliability Improvements Phase 2	1,000,000	1,000,000														
Kentucky		KY NRW	100,000							5,000	15,000	25,000	35,000	20,000				100,000
Kentucky		Energy Efficiency																
Kentucky		Security																
Kentucky	12010703	SCADA	40,000						4,000	4,000	4,000	4,000	5,000	5,000	6,000	6,000	2,000	40,000
Kentucky	12020613	Highway Relocation - Clays Mill	850,000	750,000		-48		5,000	15,000	10,000	20,000	20,000	10,000	10,000	10,000	48		100,000
Kentucky		Install 19,000'-12" along I-75	1,660,000	1,660,000														
Kentucky		Owenton WTP Improvements	3,440,000	3,440,000														
Kentucky		Install 16,000'-12 Russel Cave Rd	1,820,000	1,820,000														
Kentucky		Install 14,700'-12" & 3,800'-8" Greenwich Rd	1,660,000	1,660,000														
Kentucky		Install 43,000'-30	6,000,000	6,000,000														
Kentucky		Install Emergency Power	2,300,000	2,300,000														
Kentucky		Non Budgeted Ips	-617,307			4,058,058	-5,028,354		[illegible]352,989									-617,307
Kentucky		Adjustment	-4,087			-673	-3,414											-4,087
Kentucky																		
Kentucky																		
Kentucky																		
Kentucky																		
		Total Investment Projects	**193,455,412**	**164,338,636**	**11,331,941**	**3,419,704**	**-3,392,049**	**2,507,455**	**2,518,850**	**2,281,110**	**2,452,295**	**2,359,040**	**1,934,650**	**1,483,519**	**907,700**	**689,361**	**623,001**	**17,784,636**
		Total Investment and Centrally Sponsored Pro	**198,524,728**	**169,230,445**	**11,331,941**	**3,419,704**	**-3,392,049**	**2,507,455**	**2,518,850**	**2,281,110**	**2,452,295**	**2,359,040**	**1,934,650**	**1,483,519**	**907,700**	**689,361**	**623,001**	**17,962,343**
		Contributions	18,650,000	13,325,000		100,000	102,000	50,000	100,000	25,000	80,000	200,000	155,000	910,000	3,075,000	400,000	128,000	5,325,000
		Advances	38,900,000	32,700,000		304,000	600,000	500,000	600,000	240,000	240,000	365,000	600,000	700,000	900,000	805,000	348,000	6,200,000
		Total Refunds	15,000,000	13,000,000		100,000	100,000	100,000	100,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	2,000,000
		IAS AFUDC	4,098,000	3,415,000		-98,758	188,286	48,918	48,918	59,070	52,609	54,455	57,224	59,070	63,685	71,992	77,530	683,000
		Removal Costs (not included in IP projects)																

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			U.S. $	U.S. $	U.S. $	U.S. $	U.S. $	U.S. $		
Business Unit	**Business Unit No.**	**Project Title**	**Total 2008**	**Total 2009**	**Total 2010**	**Total 2011**	**Total 2012**	**Post 2013**	**In-Service Date**	**Project Manager**
		RECURRING PROJECTS								
Kentucky	xxxxxx80	Developer / Governmental Contributions	6,097,176	6,500,000	6,500,000	7,000,000	7,000,000			
Kentucky	xxxxxx81	Network - Replacement / Renewal	802,260	2,250,000	2,250,000	2,250,000	2,250,000			
Kentucky	xxxxxx82	Network - Extension	2,085,876	800,000	850,000	900,000	900,000			
Kentucky	xxxxxx83	Hydrants - Replacement	125,000	150,000	175,000	200,000	200,000			
Kentucky	xxxxxx84	Hydrants - New	641,808	560,000	580,000	600,000	600,000			
Kentucky	xxxxxx85	Services - Replacement	641,808	1,400,000	1,500,000	1,600,000	1,600,000			
Kentucky	xxxxxx86	Services - New	1,283,616	1,400,000	1,400,000	1,500,000	1,500,000			
Kentucky	xxxxxx87	Meters - Replacement	1,123,166	1,000,000	1,000,000	1,000,000	1,000,000			
Kentucky	xxxxxx88	Meters - New	1,123,166	1,215,048	1,200,000	1,200,000	1,200,000			
Kentucky	xxxxxx89	ITS Equipment and Systems	240,678	102,000	100,000	100,000	100,000			
Kentucky	xxxxxx90	Offices and Operations Centers	160,452	80,000	80,000	80,000	80,000			
Kentucky	xxxxxx91	Vehicles	481,356	327,932	316,630	316,469	316,500			
Kentucky	xxxxxx92	Tools and Equipment	160,452	165,000	170,000	175,000	175,000			
Kentucky	xxxxxx93	Process Plant - Replacements	802,260	650,000	700,000	700,000	700,000			
Kentucky	xxxxxx94	Process Plant - Additions		150,000	150,000	150,000	150,000			
Kentucky	xxxxxx95	Treatment Media Replacement and Process Reh				180,000	180,000			
Kentucky	xxxxxx96	Tank Rehabilitation / Painting (capitalized)								
Kentucky	xxxxxx97	Comprehensive Planning Studies	80,226	50,000	50,000	100,000	100,000			
		Total Recurring Projects	**15,849,300**	**16,799,980**	**17,023,630**	**18,053,469**	**18,053,500**			
		Total Acquisitions								
		CENTRALLY SPONSORED PROJECTS								
Kentucky		Enterprise Wide System Enhancement 2007							12/31/2007	
Kentucky		Enterprise Wide System Enhancement 2008	117,344						12/31/2008	
Kentucky		Enterprise Wide System Enhancement 2009		150,000					12/31/2009	
Kentucky		Enterprise Wide System Enhancement 2010			417,175				12/31/2010	
Kentucky		Enterprise Wide System Enhancement 2011				2,078,229				
Kentucky		Enterprise Wide System Enhancement Post 2011					2,128,861			
		Total Centrally Sponsored Projects	**117,344**	**150,000**	**417,175**	**2,078,229**	**2,128,861**			
		INVESTMENT PROJECTS								
Kentucky	12320507	Owenton Acquisition Water 2006							12/30/2006	Galavotti, Michael
Kentucky	12320507	Owenton Acquisition Water 2007							12/31/2007	Hurt, Jason
Kentucky	12320507	Owenton Acquisition Water 2008	824,836						12/31/2008	Hurt, Jason
Kentucky	12320507	Owenton Acquisition Water 2009		99,500					12/31/2009	Hurt, Jason
Kentucky	12320507	Owenton Acquisition Water 2010			79,500				12/31/2010	Hurt, Jason
Kentucky		Owenton Acquisition sewer								
Kentucky	12300403	Owen County Main Extensions (343)							11/30/2007	Hurt, Jason
Kentucky	12020404	STEP project							12/31/2005	
Kentucky		UV Installation - KRS/RRS (332)					150,000			
Kentucky	12020607	New WTP on Pool 3 of KY River	38,273,666	52,615,666	40,390,668				6/30/2010	Galavotti, Michael
Kentucky	12020204	Source of Supply Development Project (343)							6/30/2010	Bridwell, Linda
Kentucky	12020402	Major Highway Relocations (343) 2006							12/31/2006	Hurt, Jason
Kentucky		Major Highway Relocations (343) 2007							11/30/2007	Hurt, Jason
Kentucky		Major Highway Relocations (343) 2008	1,300,000						12/31/2008	Hurt, Jason
Kentucky		Major Highway Relocations (343) 2009		1,000,000					12/31/2009	Hurt, Jason
Kentucky		Major Highway Relocations (343) 2010			1,000,000				12/31/2010	Hurt, Jason
Kentucky		Major Highway Relocations (343) 2011				500,000			12/31/2011	Hurt, Jason
Kentucky	12020505	Replace Trac-Vac System at RRS (332)							11/30/2007	Hurt, Jason
Kentucky	12020506	Sludge Handling Improvements - RRS (332)							11/30/2007	Hurt, Jason
Kentucky	12020502	Russell Cave Road Main - 34,000' of 12" (343)							12/30/2006	Walker, Shannon
Kentucky	12330604	SCADA - Owen County							12/30/2006	Galavotti, Michael
Kentucky	12020606	Replace Parkers Mill Pump and Diesel							7/31/2007	Hurt, Jason
Kentucky	12020605	Mallard Point Pressure Improvments							3/31/2007	Walker, Shannon
Kentucky	12020501	Ground Storage Tank - 3.0 MG (342)		575,000	1,150,000				12/20/2010	Bridwell, Linda
Kentucky		Incline Car Replacement @KRS (311)	900,000						11/30/2007	den, Virginia-Bibb
Kentucky		KRS Clearwell Improvements (332)					150,000			Galavotti, Michael
Kentucky		North Broadway Main Replacement (343)	2,350,000	500,000					4/1/2009	Hurt, Jason
Kentucky		North Upper Street Main Replacement Project (34					1,050,000			
Kentucky		Install 22,700',12" in Todds and Cleveland Rd			50,000	1,200,000	1,200,000			
Kentucky	12020601	Valve House Upgrades at KRS (332)							12/30/2006	Galavotti, Michael
Kentucky	12020201	Leestown Road Main Improvements (343)								Hurt, Jason
Kentucky	12020105	Russell Cave Road Tank - 1.0 MG (342)							12/31/2005	Walker, Shannyn
Kentucky	12020301	Elevated Storage Tank - 2.0 MG (342)							12/31/2005	
Kentucky	12020303	Electrical Reliability upgrades /System Reliability							3/31/2006	
Kentucky		KRS Filter Media Replacement - Hyd 3 & 4 (332)								
Kentucky	12020602	Yamalton Road Main (343)							12/31/2005	Hurt, Jason
Kentucky		Mechanical Upgrades - KRS Valve Houses								
Kentucky	12500503	Rockwell Village Wastewater Pipeline	350,000						12/31/2007	
Kentucky	12020504	KRS Valve Mechanical Improvement							6/30/2005	Williams, Thomas

STRATEGIC CAPITAL EXPENDITURE PLAN
PROGRAM

Business U	Kentucky
Revision D	March 16, 2007
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			U.S. $	U.S. $	U.S. $	U.S. $	U.S. $	U.S. $		
Business Unit	Business Unit No.	Project Title	Total 2008	Total 2009	Total 2010	Total 2011	Total 2012	Post 2013	In-Service Date	Project Manager
Kentucky	12020508	Reliability Improvements Phase 1							10/31/2007	Galavotti, Michael
Kentucky	12020508	Reliability Improvements Phase 2	1,000,000						4/30/2008	Galavotti, Michael
Kentucky		KY NRW							12/31/2007	
Kentucky		Energy Efficiency								
Kentucky		Security								
Kentucky	12010703	SCADA								
Kentucky	12020613	Highway Relocation - Clays Mill	750,000							Hurt, Jason
Kentucky		Install 19,000'-12" along I-75			30,000	800,000	830,000			
Kentucky		Owenton WTP Improvements				120,000	3,320,000			
Kentucky		Install 16,000'-12 Russel Cave Rd			60,000	850,000	910,000			
Kentucky		Install 14,700'-12" & 3,800'-8" Greenwich Rd			50,000	780,000	830,000			
Kentucky		Install 43,000'-30					6,000,000			
Kentucky		Install Emergency Power					2,300,000			
Kentucky		Non Budgeted Ips								
Kentucky		Adjustment								
Kentucky										
Kentucky										
Kentucky										
Kentucky										
		Total Investment Projects	45,748,502	54,790,166	42,810,166	4,250,000	16,740,000			
		Total Investment and Centrally Sponsored Pro	45,865,848	54,940,166	43,227,343	6,328,229	18,868,861			
		Contributions	5,325,000	2,000,000	2,000,000	2,000,000	2,000,000			
		Advances	6,200,000	6,500,000	6,400,000	6,800,000	6,800,000			
		Total Refunds	2,000,000	2,000,000	2,000,000	3,500,000	3,500,000			
		IAS AFUDC	683,000	683,000	683,000	683,000	683,000			
		Removal Costs (not included in IP projects)								

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 3 of 19

Witness: Linda C. Bridwell

3. At the May, 2007 Bluegrass Water Supply Commission (BWSC) monthly meeting at which KAWC had a representative, Vernon Azevedo, the General Manager of the Winchester Municipal Utilities, made a presentation in which he stated that BWSC planned to eventually build a line to connect with Louisville Water Company (LWC).

   a. What discussions, if any, has KAW had with BWSC about BWSC's announced plan to build a line to connect to LWC? Please provide a copy of any documents reflecting such discussions, including any correspondence between KAWC and BWSC members.

   b. Does KAWC agree or disagree that the Public Service Commission has the authority to order the KAWC to accept an interconnection and to require KAWC to "wheel" (allow transmission of water from one utility source through the KAWC system) to another utility. If KAWC disagrees, please explain the basis for your assertion that KAWC has no obligation to do so. If KAWC agrees, please describe any conditions or costs that KAWC places on the transmission of water originating outside the KAWC system through the KAWC system to other utilities.

   c. Would KAWC allow BWSC to connect such a line to the KAW system and allow water from Louisville to be transported to the BWSC member communities?

   d. Has KAWC conditioned the allowance of water transfers through the KAWC system to other utilities on the participation of the BWSC in the Pool 3 Treatment Plant?

   e. Has KAWC indicated to BWSC that BWSC's participation as an equity interest holder in the KAW project for Pool 3 would enable BWSC to have "free" use of the KAW distribution system (or grid)?

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 3 of 19

Witness: **Linda C. Bridwell**

Response:

a. KAW has spoken with representatives of the Bluegrass Water Supply Commission since the May 21, 2007 meeting and understands BWSC's plan to build the pipeline to connect to Louisville is a possible option as part of the supply alternatives for their Phase II. Please refer to the attached.

b. The PSC has the jurisdiction over KAW's rates and services. Any cost of water transfers would need to be determined through a cost of service study and applied as appropriate.

c. The hypothetical connection would be considered as long as there is not detriment to KAW's existing and future customers.

d. Water transfers from other sources have not been discussed.

e. Negotiations on the terms of participation are ongoing.

Bluegrass Water Supply Commission

Leadership Briefing

May 21, 2007

The Problem ...

- **Water Supply of Central Kentucky**
  - Unreliable during droughts
  - Subject to catastrophic events
  - Necessary for economic vitality

The Answer ...

- Regional Solution

Regional Solution: Joint Ownership

- Bluegrass Water Supply Commission
- Kentucky American Water Company

Bluegrass Water Supply Commission Members

- Berea
- Cynthiana
- Frankfort
- Georgetown
- Lancaster
- Lexington-Fayette
- Mt. Sterling
- Nicholasville
- Paris
- Winchester

~ Regional Solution ~

Two Independent Supplies:

- Kentucky River - Pool No. 3
- Ohio River via Louisville Water Co.

~ Regional Solution ~

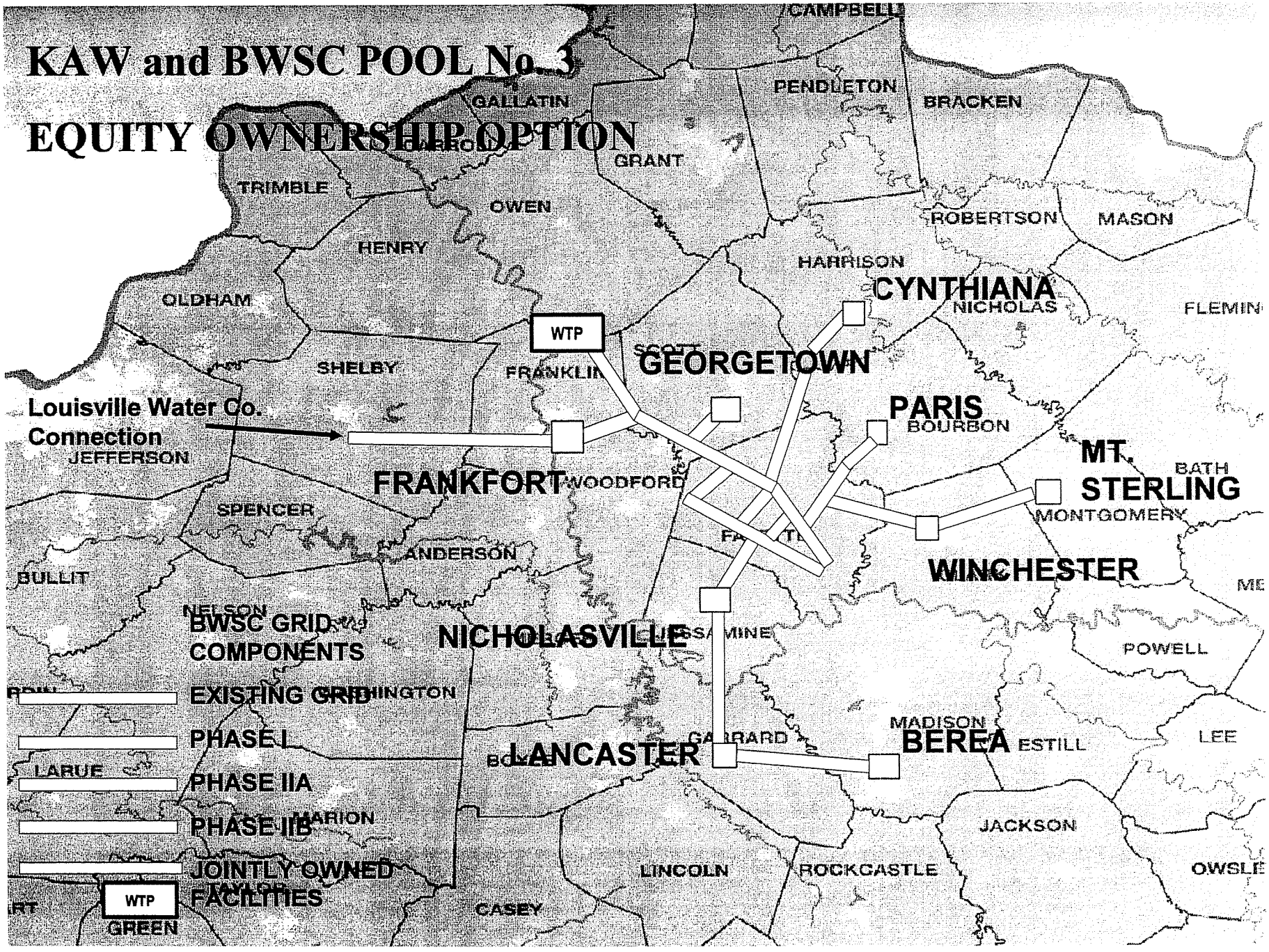
Major Components:

Pool No. 3 Jointly Owned Facilities:

- 25 MGD Water Treatment Plant
- 42-inch Transmission Main

BWSC Owned Facilities:

- Regional Grid:
  - Can be built in Phases


KAW and BWSC POOL No. 3
EQUITY OWNERSHIP OPTION
CAMPBELL
PENDLETON
BRACKEN
GALLATIN
GRANT
TRIMBLE
OWEN
ROBERTSON
MASON
HENRY
HARRISON
CYNTHIANA
OLDHAM
NICHOLAS
FLEMIN
WTP
SCOTT
GEORGETOWN
SHELBY
FRANKLIN
PARIS
BOURBON
Louisville Water Co.
Connection
JEFFERSON
MT.
STERLING
BATH
FRANKFORT
WOODFORD
SPENCER
MONTGOMERY
ANDERSON
WINCHESTER
BULLIT
NELSON
BWSC GRID
COMPONENTS
NICHOLASVILLE
POWELL
EXISTING GRID
PHASE I
MADISON
BEREA
ESTILL
LEE
LANCASTER
LARUE
PHASE IIA
MARION
PHASE IIB
JACKSON
JOINTLY OWNED
FACILITIES
LINCOLN
ROCKCASTLE
WTP
CASEY
GREEN

Total Project Cost

Water Treatment Plant	**$ 86 million**
Transmission Main	**$ 85 million**
Regional Grid	**$ 66 million**
Total Cost	**$ 237 million**

BWSC Cost - Phase I

Water Treatment Plant	**$ 21 million**
Transmission Main	**$ 20 million**
Regional Grid (Inner)	**$ 20 million**
Total Cost	**$ 61 million**

BWSC Costs - All Phases

Phase 1 (Pool No. 3 + Inner Grid)	**$ 61 million**
Phase IIA (Outer Grid)	**$ 21 million**
Phase IIB (LWC Connection)	**$ 25 million**
Total BWSC Cost	**$107 million**

The Need...
Financial Assistance

- State -- $25 million
- Federal -- $35 million

BWSC Rate Impact: Phase I

- Without Assistance - Not Affordable
- With Assistance - Affordable

Advantages

- Adequate
- Reliable
- Redundant

Issues

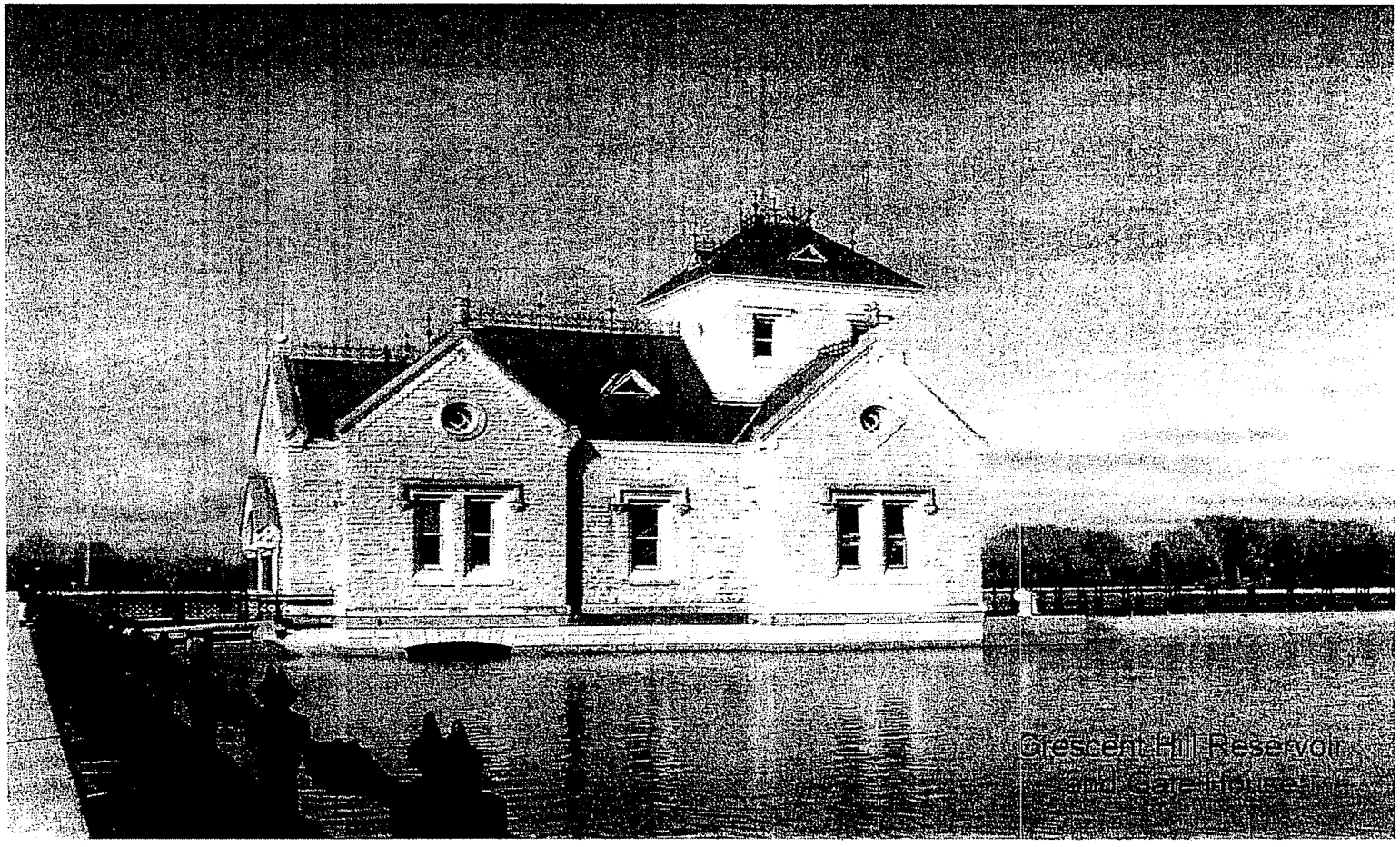
- Financial Commitment
- Timeframe

Action Plan

Summary

- Cost-Effective Solution
- Uniform Rate
- Economic Vitality for the Region

Louisville Water Company



Louisville Water Company

Presentation
to
Frankfort Plant Board

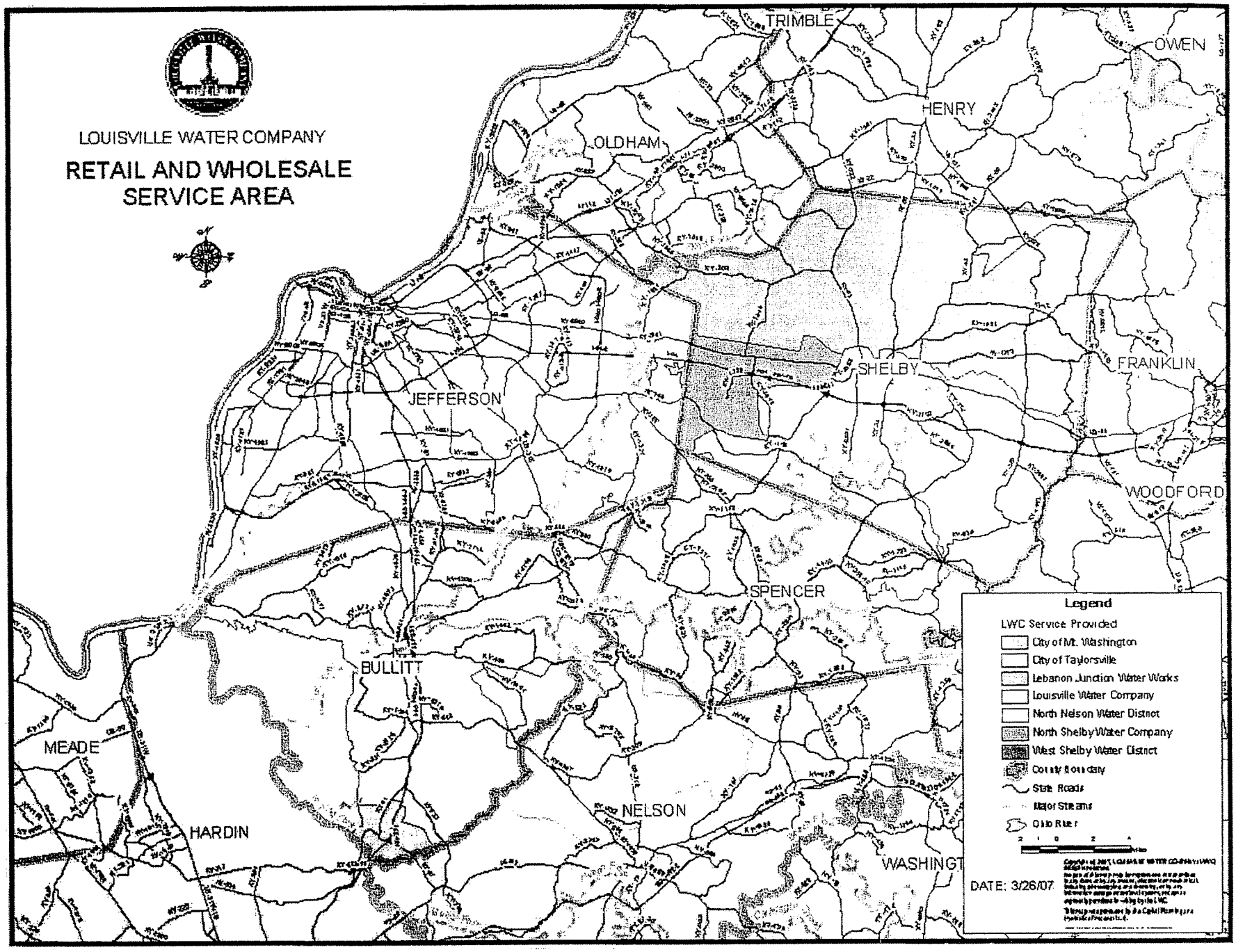
May 15, 2007

Introduction

- Securing a safe, reliable water supply is an important issue for Central Kentucky.
- Determining the source of this water supply needs to be resolved by the water supply professionals, community and elected leaders of Central Kentucky.
- Louisville Water Company has an unlimited source of supply in the Ohio River and enough reserve capacity to supply the Bluegrass Region.
- LWC is a low-cost, twin rivers solution for reliability and drought protection for the Bluegrass Region.

Background

- Louisville Water Company (LWC) was chartered in 1854 as a municipal corporation.
- LWC is a nationally recognized utility with demonstrated technical, managerial and financial capacity in all areas of water utility operations.
- LWC water quality exceeds all US EPA and Ky Division of Water regulatory requirements, as well as the high standards of the EPA Partnership for Safe Drinking Water.
- LWC provides retail and wholesale water service to 850,000 people in Metro Louisville and the following counties:
  - Bullitt County
  - Jefferson County
  - Nelson County
  - Oldham County
  - Shelby County
  - Spencer County


LOUISVILLE WATER COMPANY
RETAIL AND WHOLESALE SERVICE AREA
TRIMBLE
OWEN
HENRY
OLDHAM
SHELBY
FRANKLIN
JEFFERSON
WOODFORD
SPENCER
BULLITT
MEADE
HARDIN
NELSON
WASHINGT
Legend
LWC Service Provided
City of Mt. Washington
City of Taylorsville
Lebanon Junction Water Works
Louisville Water Company
North Nelson Water District
North Shelby Water Company
West Shelby Water District
County Boundary
State Roads
Major Streams
Ohio River
DATE: 3/26/07

LWC Supply Capacity

- LWC's raw water source is the Ohio River, an abundant, reliable source that will meet all water supply requirements beyond the 21st century.

- The Ohio River is virtually an unlimited source of water for Kentucky, with an average flow of nearly 90 billion gallons of water a day. During the 1999 drought, LWC used less than 0.5% of the available capacity of the Ohio River.

- LWC delivers an average of 130 million gallons of water a day (MGD), through nearly 3,900 miles of water main.

- LWC has two treatment plants with a current capacity of 240 MGD and can be easily expanded to 300 MGD. Currently, average day production is 130 MGD and maximum day production is 205 MGD (summer 2005).

Water Rates

- LWC establishes water rates on cost-of-service principles established by the American Water Works Association (AWWA).
- LWC maintains competitive water rates compared to suppliers in the region, with the typical residential customer paying an average monthly water bill of $18.40 for 6,000 gallons of consumption.
- LWC standard 2007 wholesale rate is $1.71 per thousand gallons.
- LWC will provide alternative wholesale rates based upon minimum purchase considering duration of contract, capacity reserved, and contributed capital.

Production and Technical Capacity

- LWC has enough reserve capacity to meet the water supply needs of the Bluegrass Region. Reserve Capacity of 35 MGD (240 MGD total) can easily be increased to 95 MGD (300 MGD total).
- LWC is an industry leader in water quality and treatment research, drinking water quality, infrastructure renewal and customer satisfaction.
- Staff of Class IV Treatment Plant and Distribution System Operators, and professional engineers.
- 24/7 operation and local emergency response capability.

Financial Capacity

- Standard and Poor's Bond Rating of AA+, and Moody's Bond Rating of Aa1.
- 2006 debt service coverage of 2.74.
- Ability to finance capital improvements and pursue partnering opportunities.
- In house expertise for rate-making, cost of service and feasibility studies, capital budgeting and planning.

Regional Philosophy

- LWC will enter into business partnerships with other water utilities if it benefits the customers and stakeholders of both utilities.
- LWC will consider partnership opportunities within 75 miles of current retail service area.
- Partnership options include:
  - wholesale water service
  - mutual aid agreements
  - operating agreements

Shelby County - Frankfort Pipeline Solution

- LWC will build and fund a pipeline along Interstate 64 from Snyder Freeway (I-265) to KY Hwy 53 in Shelby County, estimated at $18.5 million.
- Pipeline flow of 2 MGD to assure water quality, and financial feasibility of project.
- Provide water at current LWC wholesale rate of $1.71 per 1,000 gallons.
- 24 inch pipeline provides 10 MGD capacity.

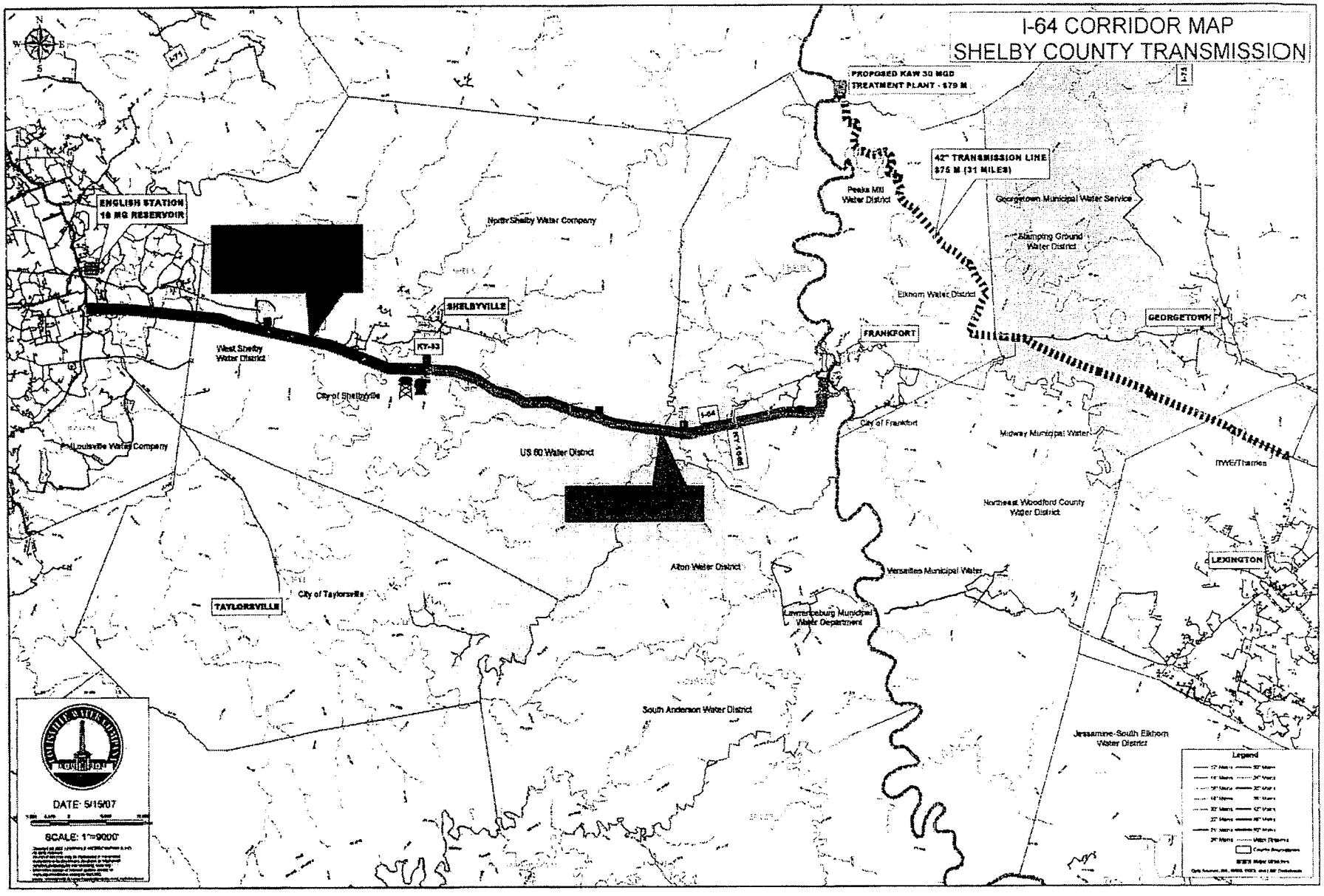
Shelby County - Frankfort Pipeline Solution

- Reserve Capacity of 35 MGD (240 MGD total), which can easily be increased to 95 MGD (300 MGD total).

- Pipeline sizes available:
  - 16 inch pipeline provides 5 MGD capacity
  - 20 inch pipeline provides 7 MGD capacity
  - 24 inch pipeline provides 10 MGD capacity
  - 30 inch pipeline provides 16 MGD capacity
  - 36 inch pipeline provides 23 MGD capacity
  - 42 inch pipeline provides 31 MGD capacity

- Pipeline can be built by 2010.

- I-64 pipeline is a regional water solution with potential partners including North Shelby Water Company, West Shelby Water District, US 60 Water District, and the cities of Shelbyville, Frankfort and Georgetown.


I-64 CORRIDOR MAP
SHELBY COUNTY TRANSMISSION
PROPOSED KAW 30 MGD
TREATMENT PLANT - $79 M
42" TRANSMISSION LINE
$75 M (31 MILES)
ENGLISH STATION
10 MG RESERVOIR
SHELBYVILLE
FRANKFORT
GEORGETOWN
LEXINGTON
TAYLORSVILLE
North Shelby Water Company
West Shelby Water District
City of Shelbyville
Louisville Water Company
US 60 Water District
Peaks Mill Water District
Georgetown Municipal Water Service
Stamping Ground Water District
Elkhorn Water District
City of Frankfort
Midway Municipal Water
Northeast Woodford County Water District
Alton Water District
Versailles Municipal Water
Lawrenceburg Municipal Water Department
City of Taylorsville
South Anderson Water District
Jessamine-South Elkhorn Water District
DATE: 5/19/07
SCALE: 1"=9000'
Legend

13

Benefits of a Twin-River Solution

- Provides an unlimited source of supply from the Ohio River.
- Provides a cost effective and timely regional solution.
- Is attractive for state and federal grants.
- Provides long term drought protection, and availability of an emergency supply.
- Provides connectivity for regional water providers.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 4 of 19

Witness: Linda C. Bridwell

4. Please provide any documents or correspondence explaining the legal, economic and/or other reasons why KAWC decided to cease planning to build a pipeline connection to the Louisville Water Company, and instead began to plan to build a facility of its own on Pool 3 of the Kentucky River.

Response:

Please refer to KAW's March 19, 2001 report and November 8, 2004 report filed in Case No. 2001-00117. Additional information is supplied in the responses to data requests in Case No. 2001-00117 and this case.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 5 of 19

Witness: **Linda C. Bridwell**

5. Please provide the documentation supporting the necessity of an expedited procedural schedule.

   a. To the extent that a special event is in whole or in part the basis for a claimed necessity for expediting the procedural schedule in this case, provide the documentation indicating anticipated demand and available treated water capacity for the event(s).

   b. Please provide any reports or documents discussing the timing of this case relative to the proposed offering for sale of the utility.

   c. Is it the position of KAWC that absent the new treatment plant and additional 20 mgd of available supply, that KAWC will not have sufficient treated water to meet the needs of the Alltech FEI World Games visitors?

Response:

   a. KAW is currently in both a water supply and treatment capacity deficit which is becoming increasingly difficult to manage and needs the new facilities on line as soon as possible to meet ongoing customer demands. Any single special event does not change the deficit but could make the situation worse. At this time, KAW has not received any information specifically on water demands for a special event.

   b. There are none.

   c. Yes, if there is moderately hot or dry weather while the games are ongoing. KAW has been told by representatives of the Horse Park that the games will likely draw approximately 50,000 people per day to the event. However, no information has been provided beyond that for KAW to begin to reasonably calculate an estimate of increased water demands related specifically to the games. However, as KAW currently has both a water supply and treatment capacity deficit that is expected to grow by 2010, if there is moderately hot or dry weather, KAW will be unable to meet the demands of its customers and any increase in demands to meet the needs of the World Games visitors.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 6 of 19

Witness:

6. Please provide the preliminary bid schedule and any planning documents that have been produced for the building of the Pool 3 facility and related lines.

Response:

The preliminary bid schedules for the projects are included in the bid forms which were presented as Exhibit A-Specifications, Exhibit B-Specifications, and Exhibit C-Specifications of the Application. Refer to Commission Staff's first set of interrogatories Item 6 of 34. The Capital Investment Management Project Approval form is attached. The planning project schedule is attached.

American Water

CAPITAL INVESTMENT MANAGEMENT PROJECT APPROVAL

Approved Stage:	PNI	***Date:***	04/24/2006
In Progress Stage:		***Date:***	
In Progress Status:	Approved: Approved by CIRC		

REGION:	Southeast
COMPANY:	Kentucky American Water
JDE BUSINESS UNIT:	Lexington
PROJECT TITLE:	New WTP on Pool 3 of Kentucky River
BUSINESS UNIT NO:	12020607

1. Accountability

PNI

Document Prepared By	Richard C Svindland
Project Manager	Richard C Svindland
Asset Owner or Project Sponsor	Nick Rowe

2. Prior Documentation

PNI

The prior documentation for this project is volumes and contains several reports, several Public Service Commission hearings and two Least Cost / Comprehensive Planning Studies (CPS). The 1992 CPS, perhaps serves as the best overall document that describes the source of supply and the treatment plant capacity deficit as well as the complex relationship between the Kentucky River Authority (KRA), the region and Kentucky American Water (KAW).

In addition to the 1992 CPS, O'Brien & Gere (OB&G) was commissioned by the Bluegrass Water Supply Commission (BWSC) to take another look at the regional issue. BWSC was an entity created with a mission to solve the region's water supply deficit. OB&G finalized this effort in a report titled "Water System Regionalization Feasibility Study". Attached is a copy of the Executive Summary of the Regional report.

IP Memo 02-04 is attached and provides information relating to KAW's source of supply deficit and provides additional information regarding past expenditures, rate case treatment and current source of supply project status.

Updated detailed engineering analysis to support this project's scope, schedule and cost are being finalized and will be attached upon completion.


OBG Final Report for BWSC - Ex Summary.pdf


Water Supply Project IP IP.doc

3. Need for the Project

PNI

The current source of supply deficit based on updated 2005 demands is projected at 24 MGD in 2010 and 28 MGD in 2020. The current treatment plant capacity deficit based on 2005 demands is projected at 4.3 MGD in 2010 and 15.7 MGD in 2020.

Under Kentucky Administrative Regulation, KAW must provide a sufficient quantity of water to "...adequately, dependably and safely..." supply the "...total reasonable requirements of its customers under maximum consumption." (807 KAR 5:066 Section 10 (4)). On August 21, 1997, the Kentucky Public Service Commission (PSC) ordered through case no. 93-434 that KAW "shall take the necessary and appropriate measures to obtain sources of supply so that the quantity and quality of water delivered to its distribution system shall be sufficient to

adequately, dependably, and safely supply the total reasonable requirements of its customers under maximum consumption through the year 2020."

Over the last 5 years KAW has made several cost effective plant improvements to insure that water is available to its customers and has been actively working with the Bluegrass Water Supply Commission (BWSC) to solve the Company's and the Region's supply and treatment issues. It has become apparent that no permanent solution to the issue will be delivered until at least 2010 and BWSC's phase I project (5 MGD short term supply from Frankfort by summer 2007) has stalled.

4. Recommended Solution

PNI Construct a new conventional water treatment plant, with associated intake, raw water main and raw water pump station at Pool 3 of the Kentucky River. Construct approximately 30 miles of 42-inch high service main, along with associated booster pumps and storage from the new water treatment plant to KAW's Lexington service area. Plant construction will be in 5 MGD modules to allow for anticipated regionalization. KAW plans to initiate the design with a reliable 20 MGD facility and will plan layout for expansion, but will not design for the expanded plant until regional partners enter into an agreement with KAW.

Does this project require the acquisition of land and/or buildings via either purchase or lease?	Yes
Does this project require the acquisition of easements or right-of-ways?	Yes
Does this project include any additional funding which is specifically for the purpose of providing an environmental benefit outside the scope of the project itself (i.e. related to Corporate Social Responsibility)?	No

5. Outputs and Benefits

PNI Address the existing source of supply and treatment plant capacity deficit through 2020.

6. Options

PNI Several studies have been completed and many solutions evaluated. Options that were analyzed in detail were: expansion of existing treatment facilities from Pool 9 supply, new WTP on Pool 6, pipeline to Louisville, conservation and the installation of crest gates as needed on Ky River dams. The recommended solution is consistent with the recently completed Regional studies and is the preferred option.

7. Schedule

PNI

ACTIVITY	DATE
Project Start	May 1, 2006
Project Implementation Proposal Submission	November 8, 2007
Substantial Project Completion (in-service)	October 8, 2010
Final Project Completion	December 10, 2010
Post Project Review	December 13, 2010

The above schedule in Section 7 is based on obtaining PIP approval after the receipt of the initial bids. Actual construction is not likely to start until March 2008, after Final bids and the PSC ruling on the certificate case.

8. Project Cost and Cash Flow

PNI

U.S. Dollars

COMPONENT	TOTAL	PRIOR YRS	2006	2007	2008	2009	2010	2011
Preliminary Cost (PNI)	$9,817,000		$5,766,000	$3,917,000	$44,666	$44,666	$44,668	
Implementation Cost (PIP)	$131,146,000				$38,229,000	$52,571,000	$40,346,000	
Total Project Cost	$140,963,000	$0	$5,766,000	$3,917,000	$38,273,666	$52,615,666	$40,390,668	$0
Current SCEP Approved Cost	$140,180,000		$180,000	$10,000,000	$30,000,000	$50,000,000	$50,000,000	
Difference	**$783,000**	**$0**	**$5,586,000**	**$-6,083,000**	**$8,273,666**	**$2,615,666**	**$-9,609,332**	**$0**
Advances or Contributions	$0							
Total Company Funded	$140,963,000	$0	$5,766,000	$3,917,000	$38,273,666	$52,615,666	$40,390,668	$0
Cost of Removals	$0							

Pool 3 WTP & Mains-econ analysis.XLS
See IP Memo 02-04 for discussion and prior year activity on this source of supply and treatment plant capacity project.

9. Budget Discussion

PNI At this time, all project cost numbers are based on budget numbers provided by an outside consultant to solely meet the needs of KAW's customers. The numbers for the PNI activity should be adequate for the level of work involved as long as land acquisition costs are obtained at the budgeted value of less than $7,000 / acre.

10. Rate Impact

PNI 44.6% using 2005 actual revenues.

11. Risks

PNI The major risks for this project are opposition from external stakeholders that could result in slowing the project and thus affecting projected capital cash flow and that the regional participants will either not participate or wait until late in the project to participate. Please note that as mentioned in Section 4, KAW is initiating this project as a stand-alone project and is assuming no regional partners will sign up. KAW will continue to seek regional support and possible partnerships as this helps reduce rate impact for current KAW customers.

Another risk for this project is meeting the commitment to the KY PSC to have a Certificate of Convenience and Necessity filed by March 2007. That date is achievable if two major items are obtained. Item 1) options are obtained for the purchase of property for the intake, Raw pump station and WTP prior to start of design and item 2) the Section 404 permit needed to construct in the Kentucky River is obtained prior to March 2007. Other risks for the project are the number of easements needed long length of transmission mains.

12. Project Delivery Method

PNI Other

In the past and on almost all PSC Certificate cases, actual construction bids were used as the basis for the project cost. The bids were held for 60 - 90 days after bid opening to allow the PSC to rule on the case. Upon a ruling work would begin on the project. This project is expected to have a long drawn out certificate case because it is expected that past opponents to the Louisville Pipeline, the City of Lexington and the Bluegrass Water Supply Commission will intervene. Because of this lengthy certificate case a modified delivery approach may be needed to deliver this project. The evaluation of the various delivery methods will be included as part of the PNI and the best overall method will be selected.

13. Resource Needs

PNI This project is large and complex both in terms of the engineering effort but equally so from a public relations standpoint. For the technical side of the project, engineering consultants will be used to perform preliminary and final design activities under the management of the SER Engineering Group with input from Engineering COE in DelRan, NJ. Assistance will be needed from the Property group as well as from Finance and Legal. Certain legal and finance items will be given to consultants to avoid over allocation of resources. An outside Public Relations firm will be retained to provide needed PR support.

14. Deliverables

PNI Under this PNI the deliverables are: completion of plans and specifications for the new WTP, remote booster pump station and tank and associated raw and high service mains; options for the purchasing of property; receipt of bids for all work, KY DOW approval, the filing of a PSC certificate of convenience and necessity and the securing of all permits needed to proceed with the project.

15. Drivers

PNI

ASSET TYPE	PURPOSE	CODE	%
Drinking Water - Source of Supply	Water - Central Capacity Improvement for present need or 0 - 3 year growth	WSGCCA01	100
		TOTAL	100

16. Priority Ranking

PNI Project No: 1 Date of Ranking:
Out of: 19

17. Project Manager Routing

Stage of Project: PNI
Status of Project: Approved: Approved by CIRC
Approval Requested at Meetings of: April, 2006

FOR ADMINISTRATIVE USE ONLY

A. Pre-CIMC Review

PNI Reviewed By: Bruce E Juergens

Comments:
Action:

B. CIMC Review and Approval

PNI Reviewed By: Bruce E Juergens
Approved By:

Title	Primary Approver or	Delegated Authority
President	Daniel W Warnock	Nick Rowe
VP - Service Delivery	Nick Rowe	
Director, Engineering	David R Kaufman	
Director, Finance	Christopher C Buls	Bonnie L Carmack

Comments:
Action: Approve and forward to CIRC

C. CIRC Review and Approval

PNI Reviewed By:
Approved By:

Title	Primary Approver or	Delegated Authority
VP - Operations Services	Stephen P Schmitt	
Director of Capital Program Management and Asset & Planning Strategy	Gary A Naumick	
Director of Planning & Reporting	Matthew J Harris	
Capital Program Manager	David M Reves	

Comments:
Action: Approve

D. Modification History

04/05/2006 Richard C Svindland PNI (Saved as draft)
04/06/2006 Lisa M Bohenick PNI (Saved as draft)
04/11/2006 Richard C Svindland PNI (Saved as draft)
04/11/2006 Bruce E Juergens PNI (Submitted to Pre-CIMC: Awaiting Pre-CIMC review)
04/17/2006 Lisa M Bohenick PNI (Approved and forwarded to CIRC: Awaiting CIRC approval)
04/19/2006 Richard C Svindland PNI (Approved and forwarded to CIRC: Awaiting CIRC approval)
04/24/2006 David M Reves PNI (Approved: Approved by CIRC)
04/25/2006 Lisa M Bohenick PNI (Approved: Approved by CIRC)

E. Deletion Request

RWE GROUP

March 11, 2002
IP 02-04
Project No. 10212

KENTUCKY-AMERICAN WATER COMPANY
PROPOSED INVESTMENT PLAN PROJECT 02-04
WATER SUPPLY PROJECT DEVELOPMENT

Reference: Strategic Business Plans for 2002, Investment Project 92-12

SUBJECT:

Kentucky-American's current treatment capacity deficit and source of supply deficit.

RECOMMENDATION:

It is recommended that an investment project be established to facilitate water supply project plan development including the current Kentucky Public Service Commission proceeding and the Bluegrass Water Supply Consortium regional study efforts.

ESTIMATED COST:

Total Estimated Cost	$ 600,000
Prior Expenditures	$ 157,000
Proposed 2002 Expenditure	$ 243,000
Proposed 2003 Expenditure	$ 200,000

ADEQUACY:

The proposed investment project funds are estimated to be adequate for professional services toward obtaining regulatory and stakeholder concurrence of the project plan.

INVESTMENT PROJECT REVIEW

DEPARTMENT	BY	DATE
ENGINEERING	_____	_____
WATER QUALITY	_____	_____
INFO. SYSTEMS	_____	_____
OTHERS	_____	_____
RECOMMENDED FOR APPROVAL:		
_____ PRESIDENT		_____

DISCUSSION

Kentucky-American has been working to resolve its long-term water supply deficit situation. This includes a source of supply deficit and a treatment capacity deficit. Upgrades have been made to maximize the treatment plant capabilities in the short term, and there have been efforts to optimize the use of the Kentucky River including valve installation on upstream dams for releases and permit modifications. Potential long-term solutions have created local controversy, which has delayed ultimate resolution of either problem individually.

In 1992, Kentucky-American proceeded with design and construction of a pipeline that would supply finished water that was to be purchased from the Louisville Water Company. Kentucky-American included design costs in its forward-looking rate case that year. In 1993, the Kentucky Public Service Commission established a separate proceeding to investigate the source of supply and treated water deficits. Kentucky-American agreed to halt work on the project until the conclusion of that case. Case No. 93-434 was finally resolved in August 1997 with an Order that the Kentucky River alternative solutions were insufficient and that Kentucky-American had the responsibility to solve the problem for its customers. Thus Kentucky-American initiated detailed design work on the pipeline. In 1999, with the pipeline design about 60% complete, the Lexington-Fayette Urban County Government Council established a technical forum to review the issue. The LFUCG Council, which represents over 80% of Kentucky-American's customers, passed a resolution in December 1999 that indicated a preference for a Kentucky River solution, provided a number of items could be concluded within specific timeframes. Accordingly, Kentucky-American terminated work on the design of the pipeline. The resolution also encouraged Kentucky-American to pursue a regional solution.

In 2000, Kentucky-American filed a rate case and among other issues sought relief of the $6.2 million that had been expended on pursuing the pipeline solution up to that point. In May 2001, the PSC provided a final order in that case that granted Kentucky-American relief for the majority of expenditures to date. The nature of the various expenditures determined the different rate treatment of the expenditures.

In February 2001, the PSC requested a status update from Kentucky-American on the 1997 Order in Case No. 93-434. Kentucky-American filed a 20-page response, that detailed the situation, status of work since 1997, and issues that had to be resolved in order for a solution to be implemented, either on the Kentucky River or from another source. Kentucky-American indicated that it could not unilaterally implement a project to increase the supply of the Kentucky River, although the LFUCG had indicated a preference for a river solution and Kentucky-American acquiesced to that preference in its decision to stop work on the pipeline. The PSC established Case No 2001-117 to investigate the feasibility and advisability of the Kentucky-American proposed solution to its source of supply deficit.

Additionally, Kentucky-American has been working with a group of other water utilities that have established themselves as the Bluegrass Water Supply Consortium. This group has received a grant from Congress and matched by the Kentucky Infrastructure Authority, to complete a regional water supply study. This study should provide an objective, detailed recommendation for a regional water supply including regional interconnections, source of supply, and treatment capacity.

The continued involvement in both of these efforts is critical to implementing a water supply solution in the near future. The continued effort to develop the project with stakeholders and parties responsible for implementation is part of the PSC proceeding and the work with the Consortium. The estimated expenditures are specifically for Company labor involved in the issue and professional service including legal services involved in the PSC investigation. These estimates are based on previous Commission proceedings. It is anticipated that the water supply project plan will be fully developed as a result of the Commission proceeding in conjunction with the Consortium efforts.

While the nature of these expenditures alone would normally not constitute an investment project, Kentucky-American believes that it is appropriate given the nature of this ongoing issue.

Linda C. Bridwell, PE
Director of Engineering

Nick O. Rowe
Vice President – Operations

NOR/rcs

Primary project purpose	I	
Water or Sewer project?	Water	
System name (not district or administrative area)	Lexington	
IP number	Pending	
Project Name	New WTP on Pool 3 of	
Expected project completion year	2010	
Project start year	2006	
Month/Year IP Written	April	2006
Number of Construction Phases	1	Phase 1
Expected in service month		November
Expected in service year		2010
What % contingency to apply to construction costs by phase?		25
Spread non-construction & land costs to phases pro-rata?	yes	
Does initial approval request include funding for entire project	yes	
If no, then what is the last year to include in initial funding request?		2007
Spread non-construction costs to plant accts pro-rata?	yes	
Spread land & structure costs to plant categories pro-rata?	yes	
Annual revenues generated from new customers	$0	
Does the project result in a change in O&M costs?	increase	
Annual net cost increase or decrease resulting from project	$1,140,122	
Is there any special (e.g. PennVest) or tax-exempt financing?	no	
Are we acquiring any existing assets?	no	
If yes, what composite depreciation rate to apply?	N/A	
And how much land/structures (in $) subject to PURTA tax	N/A	

Ky River

Phase 2	Phase 3	Phase 4
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Do you want to revise this IP?	
Revised project completion year	
Last year to include in revised funding authorization	2007
Month/Year Prior IP Written	
Month/Year Current IP Revision Written	

Edit the following as needed o

Current Number of Construction Phases	1	Phase 1	Phase 2
Expected in service month		November	N/A
Expected in service year		2010	N/A
What % contingency to apply to construction costs by phase?		25	N/A

r leave existing entries unchanged

Phase 3	Phase 4
N/A	N/A
N/A	N/A
N/A	N/A

KENTUCKY-AMERICAN WATER COMPANY
Lexington
New WTP on Pool 3 of Ky River
IP Pending

Detailed Cost Estimate

JDE Code	Description of Activity		Estimate
TRE	Transferred Expenditures		
PRE	Preliminary Engineering		$150,000
DES	Detailed Design, Bidding & Contract Award		$6,000,000
PER	Permits & Approvals		$200,000
CPR	Community/Public Relations Efforts		$200,000
UCA	Utility Commission Approvals		$500,000
CME	Construction Management		$1,750,000
LND	Land, Land Rights & Asset Acquistion		$2,000,000
ACQ	Utility Asset Acquisition		
Acct #	**UTILITY PLANT CONSTRUCTION**		
313	Lake, River, & Other Intakes		$2,000,000
321	Pumping Structures & Improvements		$4,600,000
316	Supply Mains		$6,600,000
341	T&D Structures & Improvement		$45,000,000
331	WT Structures & Improvements		$17,000,000
332	Water Treatment Equipment		$11,500,000
325	Electric Pumping Equipment		$6,500,000
398	Misc. Equipment		$500,000
	#N/A		
	#N/A		
	#N/A		
	#N/A		
	#N/A		
	#N/A		
	#N/A		
	#N/A		
	#N/A		
25%	Contingency (on construction costs only)		$23,425,000
3.0%	Capitalized Clearing (based on rate stated to left)		$3,837,750
	Total Activity Cost		$131,762,750
4.88%	AFUDC (based on annualized rate stated to left)		$9,200,683
	Total Project Cost to be Authorized		**$140,963,433**
	Cost of Removals		

	Preliminary Costs		
Priors			
2006			5,679,714
2007			3,509,357
2008			44,143
2009			44,143
2010			44,143
2011			
SUB-TOTAL			$9,321,500
	Prorated AFUDC		$651,000
TOTAL			**$9,972,500**
	Implementation Costs		
Priors			
2006			
2007			
2008			$37,091,480
2009			$49,339,934
2010			$36,009,836
2011			
SUB-TOTAL			$122,441,250
	Prorated AFUDC		$8,549,683
TOTAL			**$130,990,933**
Total Project Cost			**$140,963,433**

KENTUCKY-AMERICAN WATER COMPANY
Lexington
New WTP on Pool 3 of Ky River
IPPending

2006

DESCRIPTION OF ACTIVITY	ENTITY RESP.	MONTHS 1	2	3	4	5	6	7	8	9	10	11	12
Transferred Expenditures													
Preliminary Engineering													
Detailed Design, Bidding & Contract Award													
Permits & Approvals													
Community/Public Relations Efforts													
Utility Commission Approvals													
Construction Management													
Land, Land Rights & Asset Acquistion													
Utility Asset Acquisition													
Lake, River, & Other Intakes													
Pumping Structures & Improvements													
Supply Mains													
T&D Structures & Improvement													
WT Structures & Improvements													
Water Treatment Equipment													
Electric Pumping Equipment													
Misc. Equipment													
PROJECT COSTS				**$25,802**	**$35,736**	**$555,613**	**$557,885**	**$560,118**	**$820,393**	**$797,889**	**$801,083**	**$804,277**	**$807,470**

KENTUCKY-AMERICAN WATER COMPANY
Lexington
New WTP on Pool 3 of Ky River
IPPending

2007

DESCRIPTION OF ACTIVITY	ENTITY RESP.	MONTHS 1	2	3	4	5	6	7	8	9	10	11	12
Transferred Expenditures													
Preliminary Engineering													
Detailed Design, Bidding & Contract Award													
Permits & Approvals													
Community/Public Relations Efforts													
Utility Commission Approvals													
Construction Management													
Land, Land Rights & Asset Acquistion													
Utility Asset Acquisition													
Lake, River, & Other Intakes													
Pumping Structures & Improvements													
Supply Mains													
T&D Structures & Improvement													
WT Structures & Improvements													
Water Treatment Equipment													
Electric Pumping Equipment													
Misc. Equipment													
PROJECT COSTS		$810,664	$813,858	$888,656	$814,036	$100,347	$100,611	$100,875	$101,139	$101,403	$101,667	$101,931	$102,195

KENTUCKY-AMERICAN WATER COMPANY
Lexington
New WTP on Pool 3 of Ky River
IPPending

2008

DESCRIPTION OF ACTIVITY	ENTITY RESP.	MONTHS 1	2	3	4	5	6	7	8	9	10	11	12
Transferred Expenditures													
Preliminary Engineering													
Detailed Design, Bidding & Contract Award													
Permits & Approvals													
Community/Public Relations Efforts													
Utility Commission Approvals													
Construction Management													
Land, Land Rights & Asset Acquistion													
Utility Asset Acquisition													
Lake, River, & Other Intakes													
Pumping Structures & Improvements													
Supply Mains													
T&D Structures & Improvement													
WT Structures & Improvements													
Water Treatment Equipment													
Electric Pumping Equipment													
Misc. Equipment													
PROJECT COSTS		$41,025	$41,040	$3,712,355	$3,726,120	$3,739,885	$3,753,651	$3,767,416	$3,781,181	$3,794,947	$3,808,712	$3,822,477	$4,284,318

KENTUCKY-AMERICAN WATER COMPANY
Lexington
New WTP on Pool 3 of Ky River
IPPending

2009

DESCRIPTION OF ACTIVITY	ENTITY RESP.	MONTHS 1	2	3	4	5	6	7	8	9	10	11	12
Transferred Expenditures													
Preliminary Engineering													
Detailed Design, Bidding & Contract Award													
Permits & Approvals													
Community/Public Relations Efforts													
Utility Commission Approvals													
Construction Management													
Land, Land Rights & Asset Acquistion													
Utility Asset Acquisition													
Lake, River, & Other Intakes													
Pumping Structures & Improvements													
Supply Mains													
T&D Structures & Improvement													
WT Structures & Improvements													
Water Treatment Equipment													
Electric Pumping Equipment													
Misc. Equipment													
PROJECT COSTS		$4,299,759	$4,315,201	$4,330,642	$4,346,084	$4,361,525	$4,376,967	$4,392,408	$4,407,850	$4,423,291	$4,438,733	$4,454,174	$4,469,616

KENTUCKY-AMERICAN WATER COMPANY
Lexington
New WTP on Pool 3 of Ky River
IPPending

2010

DESCRIPTION OF ACTIVITY	ENTITY RESP.	MONTHS 1	2	3	4	5	6	7	8	9	10	11	12
Transferred Expenditures													
Preliminary Engineering													
Detailed Design, Bidding & Contract Award													
Permits & Approvals													
Community/Public Relations Efforts													
Utility Commission Approvals													
Construction Management													
Land, Land Rights & Asset Acquistion													
Utility Asset Acquisition													
Lake, River, & Other Intakes													
Pumping Structures & Improvements													
Supply Mains													
T&D Structures & Improvement													
WT Structures & Improvements													
Water Treatment Equipment													
Electric Pumping Equipment													
Misc. Equipment													
PROJECT COSTS		$4,485,057	$4,500,499	$4,515,940	$4,531,382	$4,546,823	$4,562,265	$2,719,941	$2,728,433	$2,736,925	$2,745,417	$2,261,049	$56,693

KENTUCKY-AMERICAN WATER COMPANY
Lexington
New WTP on Pool 3 of Ky River
IPPending

2011

DESCRIPTION OF ACTIVITY	ENTITY RESP.	MONTHS 1	2	3	4	5	6	7	8	9	10	11	12
Transferred Expenditures													
Preliminary Engineering													
Detailed Design, Bidding & Contract Award													
Permits & Approvals													
Community/Public Relations Efforts													
Utility Commission Approvals													
Construction Management													
Land, Land Rights & Asset Acquistion													
Utility Asset Acquisition													
Lake, River, & Other Intakes													
Pumping Structures & Improvements													
Supply Mains													
T&D Structures & Improvement													
WT Structures & Improvements													
Water Treatment Equipment													
Electric Pumping Equipment													
Misc. Equipment													
PROJECT COSTS													

KY- AMERICAN WATER COMPANY
ECONOMIC ANALYSIS
New WTP on Pool 3 of Ky River
IP Pending

Type	(000's) Amount	Capital Structure	Cost Rate	Weighted Average Cost Rate	Revenue Multiplier	Revenue Requirement
Debt	$81,944	53.4%	6.33%	3.38%		3.38%
Preferred	$6,029	3.9%	7.72%	0.30%	1.67680	0.51%
Equity	$65,594	42.7%	10.00%	4.27%	1.67680	7.16%
Total Financing Rate						11.05%

Capital structure and debt, preferred stock & equity cost rates are based on latest rate case

Total Revenue Requirement	**Amount**	**Rate**
Total Estimated Cost of Project	$140,963,433	
Financing (based on above cost of capital)	$15,573,827	11.05%
Depreciation (based on existing rates applied to cost estimates by acct)	5,630,155	4.05%
Property Tax (applies to land & structures accounts only)	28,400	1.42%
Revenue From New Customers	0	
Change in Operating & Maintenance Expense	1,140,122	
Total Additional New Revenue Required to Support Project	$22,372,504	
Actual 2005 Revenues	$50,120,000	
Required Price Increase	44.638%	

Revenue Multiplier Calculated as follows:

* Calculation:	
	100.00%
State Tax Rate	8.25%
Taxable Remainder	91.75%
Federal Tax Rate	35.00%
Effective Federal Tax Rate	32.11%
State Portion	8.25%
Federal Portion	32.11%
Effective Tax Rate	40.36%
Tax Expansion Factor (100% - 41.49%)	59.64%
Revenue Multiplier: (100% / 58.51%)	1.67680

Task		Duration	Start	Finish	
Design			12-Feb-07	31-May-07	
WTP Permit Set		17	12-Feb-07	1-Mar-07	*
WTP 100% Review		0	30-Apr-07	30-Apr-07	
WTP Final Design		30	1-May-07	31-May-07	
BPS Permit Set		17	12-Feb-07	1-Mar-07	*
BPS 100% Review		0	7-May-07	7-May-07	
BPS Final Design		13	18-May-07	31-May-07	
Mains Permit Set		14	12-Feb-07	26-Feb-07	*
Mains 100% Review		0	7-May-07	7-May-07	
Mains Final Design		6	25-May-07	31-May-07	
Permits			12-Feb-07	30-Oct-07	
DOW Preliminary Engineering Report Approval				24-Jan-07	*
File DOW Construction Permit WTP		7	2-Mar-07	9-Mar-07	*
DOW Approval WTP		45	9-Mar-07	23-Apr-07	*****
File DOW Construction Permit BPS		3	2-Mar-07	5-Mar-07	*
DOW Approval BPS		45	5-Mar-07	19-Apr-07	*****
File DOW Construction Permit Mains		21	12-Feb-07	5-Mar-07	*
DOW Approval Mains		2	5-Mar-07	7-Mar-07	*
PSC Project Presentation		0	15-Feb-07	15-Feb-07	*
PSC Draft Certificate		31	12-Feb-07	15-Mar-07	*
PSC Submit Certificate		13	16-Mar-07	29-Mar-07	*
PSC Supplemental Cost Submission		0	15-Aug-07	15-Aug-07	
PSC Certificate Case		0	9-Oct-07	9-Oct-07	
KDOT Encroachment Permits		88	6-Mar-07	1-Jun-07	
	Dist 5	88	6-Mar-07	1-Jun-07	
	Dist 6	37	6-Mar-07	12-Apr-07	*
	Dist 7	88	6-Mar-07	1-Jun-07	
KDOT Encroachment Permit WTP Access		60	12-Apr-07	11-Jun-07	
Franklin County Planning & Zoning		4	1-Jun-07	5-Jun-07	
404 Permit submission		32	12-Feb-07	16-Mar-07	*
404 Permit Approval		180	16-Mar-07	12-Sep-07	***
401 Permit submission		49	12-Feb-07	2-Apr-07	*
401 Permit Approval		180	2-Apr-07	29-Sep-07	***
NPDES Permit		42	12-Feb-07	26-Mar-07	*
NPDES Permit		90	26-Mar-07	24-Jun-07	***
File Beneficial Reuse Permit		30	20-Apr-07	20-May-07	
Beneficial Reuse Permit approval		60	20-May-07	19-Jul-07	
Land					
Renew Option Intake & RWPS		10	21-Jun-07	1-Jul-07	**
2nd renewal Option on Intake & RWPS		10	21-Dec-07	31-Dec-07	
Final renewal Option on Intake & RWPS		8	23-Jun-08	1-Jul-08	
Renew Option WTP		8	23-Jun-08	1-Jul-08	**
Final renewal option on WTP		8	23-Dec-08	31-Dec-08	
Renew Option BPS		10	21-Dec-07	31-Dec-07	**
2nd renewal Option BPS		8	23-Jun-08	1-Jul-08	
Final Renewal Option BPS		8	23-Dec-08	31-Dec-08	
Prepare Easement Plats and Descriptions		74	16-Feb-07	1-May-07	**
Easement Acquisition on Mains		180	2-May-07	29-Oct-07	
Revise Mains based on Easements		13	18-Jul-07	31-Jul-07	
Bidding					
Contractor Pre Qualification		60	1-Apr-07	31-May-07	**

*	Complete
**	Critical
***	Anticipated
****	Rescheduled
*****	Overdue

Bid Period	60	3-Aug-07	2-Oct-07	****
Furnish Estimate to PSC	1	8-Oct-07	9-Oct-07	****
PSC Hearing	2	9-Oct-07	11-Oct-07	****
PSC Decision	30	16-Nov-07	16-Dec-07	****
Bid Hold 90 Days	90	2-Oct-07	31-Dec-07	****
Bid Hold 120 Days	120	2-Oct-07	30-Jan-08	****
Notice of Awards - 90 Day Hold	0	31-Dec-07	31-Dec-07	****
Notice to Proceed - 90 Day Hold	14	31-Dec-07	14-Jan-08	****
Finance				
Final Engineers Cost Estimates	6	2-Mar-07	8-Mar-07	*
O&M Costs	11	12-Feb-07	23-Feb-07	*
Final Finance Report	18	12-Feb-07	2-Mar-07	*****
Reports & Progress Reports				
RCS Finalize GF Report	1	12-Feb-07	13-Feb-07	*
GF Report to LB, GN & DRK	6	14-Feb-07	20-Feb-07	*
LB & DRK Final Comments	14	20-Apr-07	4-May-07	
Final Report by GF	14	4-May-07	18-May-07	
RWE White Paper	21	20-Apr-07	11-May-07	
1Q2007 Report Water Allocation Permit	1	29-Mar-07	30-Mar-07	*
2Q2007 Report Water Allocation Permit	1	28-Jun-07	29-Jun-07	**
3Q2007 Report Water Allocation Permit	1	27-Sep-07	28-Sep-07	
4Q2007 Report Water Allocation Permit	3	28-Dec-07	31-Dec-07	
1Q2008 Report Water Allocation Permit	3	28-Mar-08	31-Mar-08	
2Q2008 Report Water Allocation Permit	3	27-Jun-08	30-Jun-08	
3Q2008 Report Water Allocation Permit	1	29-Sep-08	30-Sep-08	
4Q2008 Report Water Allocation Permit	1	30-Dec-08	31-Dec-08	
1Q2009 Report Water Allocation Permit	1	30-Mar-09	31-Mar-09	
2Q2009 Report Water Allocation Permit	1	29-Jun-09	30-Jun-09	
3Q2009 Report Water Allocation Permit	1	29-Sep-09	30-Sep-09	
4Q2009 Report Water Allocation Permit	1	30-Dec-09	31-Dec-09	
1Q2010 Report Water Allocation Permit	1	30-Mar-10	31-Mar-10	
2Q2010 Report Water Allocation Permit	1	29-Jun-10	30-Jun-10	
Electrical Service Provider				
KU report to MDG	37	3-Apr-07	10-May-07	****
OCE report to MDG	37	3-Apr-07	10-May-07	****
Economic Analysis of Options	7	10-May-07	17-May-07	****
Correspondence to Electrical Service Providers	7	17-May-07	24-May-07	****
Construction				
WTP Substantial Completion	720	14-Jan-08	3-Jan-10	****
WTP Final Completion	180	3-Jan-10	2-Jul-10	**
BPS Substantial Completion	540	14-Jan-08	7-Jul-09	****
BPS Final Completion	180	7-Jul-09	3-Jan-10	****
Mains Critical Section Complete	443	14-Jan-08	1-Apr-09	****
Mains Substantial Completion	780	14-Jan-08	4-Mar-10	****
Mains Final Completion	180	4-Mar-10	31-Aug-10	****

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 7 of 19

Witness: Linda C. Bridwell

7. Please provide any correspondence or documentation regarding KAWC involvement in efforts to obtain funding from governmental entities, (federal, state or local) to assist or make possible the purchase by BWSC of an interest in the KAWC facilities proposed in this case to be constructed in association with the production of delivery of water from Pool 3 of the Kentucky River.

Response:

KAW has a representative planning to attend the Greater Lexington Chamber of Commerce Fly-in to Washington, D.C. and will be talking to members of the Kentucky congressional delegation about the joint project and BWSC's funding needs. A joint white paper/letter is being developed and is currently in draft form. It will be supplied when it is final. No other correspondence or documentation exists.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 8 of 19

Witness: Linda C. Bridwell / Richard C. Svindland

8. Please provide the approximate time, and the basis for the assumption, when KAWC projects that it will need more raw water than is available from existing sources and the proposed Pool 3 facility.

   a. What plans does KAWC have to meet the needs of customers once the existing Kentucky River and Pool 3 supplies are exhausted?

   b. Does KAWC have plans or intend to construct a water transmission line to the Ohio River? If so, please generally describe the route it is expected to follow. If KAW extends a line to the Ohio River, is it expected to be a raw water transmission line or a finished or treated water transmission line? If it is the former, where will the raw water be treated? If the latter, from where will the treated water be purchased?

Response:

Because the facilities are sufficient through 2030 and considering KAW's planning horizon, KAW does not have information about the time when it would need more raw water than is available from existing sources and the proposed Pool 3 facility.

a. KAW routinely assesses its source of supply and treatment plant capacities. Well before the Pool 3 supplies are exhausted, KAW will have studied and assessed its source of supply and treatment plant capacity situation and will move forward with the best project at that time.

b. If the Ohio River supplemental line is the best project upon exhaustion of the Pool 3 supply, the likely route would follow the Kentucky River corridor and existing roadways to the extent possible. It is currently believed that, if constructed, the main would transport raw water which would be piped into the proposed Pool 3 water treatment plant for further treatment; however, given that the Pool 3 supplies should last until at least 2030, a final decision on that issue would be made at a later date.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 9 of 19

Witness: Nick O. Rowe/Linda C. Bridwell

9. Referencing Nick Rowe's Response 3 to Commission Staff's First Set of Interrogatories,

   a. Was the 1999 LFUCG Resolution the only reason that KAWC decided not to continue the Louisville Water Company plan?

   b. Were there technical, engineering or legal impediments to the Louisville Water Company option and if so, what were they?

   c. Did KAWC explore the possibility of routing the pipeline connection with LWC to the north of I-64 rather than across Woodford County? Please provide any documentation of alternative pipeline routes considered in the late 1990's and the reason(s) for selection of the route that was proposed and for rejection of alternative routes.

Response:

   a. No.

   b. No.

   c. Yes, briefly. There were three primary routes developed in the 1990s. The first route was laid out in the Draft Design Concept for the RFP in November 1997. KAW identified the pipeline to begin at the Jefferson/Shelby County line approximately ½ mile south of I-64. It then generally paralleled an existing gas transmission main up to Route 60 where it paralleled an existing overhead power line until reaching Route 1681 where it connected with the KAW distribution system at New Circle Road. Although KAW was pursuing the use of at least partial I-64 right-of-way, the proposed route remained unchanged. However, prior to the RFP being sent out, KAW changed the route to continue north to Leestown Road into the Mercer Road Tank. KAW made this change for hydraulic considerations which would allow the water to flow directly into a tank prior to entering KAW's distribution system, thereby providing greater control for water quality and pressure considerations.

By mid-1998, KAW was looking at alternative alignments that would improve the crossing at the Kentucky River, avoid subdivisions and a landfill, and reduce cross-country installation across so many properties. Intense opposition from property owners for the cross-country route continued.

In November 1998, KAW began pursuing a route that paralleled I-64 just outside the right-of-way from KY 151 to Midway and then would cross to Leestown Road with an alternative to follow I-64 almost to New Circle Road at Greendale Road. This was the route being designed when the decision to stop work was made in July 1999. Please see attached correspondence, including documents that discuss minor routing changes. Please note that most maps referred to in the correspondence were not retained in KAW's files. Also, previous correspondence requested with regard to use of the I-64 right-of-way that KAW was not able to locate in response to Item 12 of the Citizens for Alternative Water Solutions' First Data Request has been found and is included in this attachment.

File-N
BWP-
Design

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

August 6, 1999
IP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A monthly review meeting for the referenced project was held in Lexington on July 19. In attendance were Linda Bridwell representing Kentucky-American Water Company (KAWC); Jeff Raffensperger from Gannett Fleming, Inc. (GF); Ray Ihlenburg from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). A second meeting was held with the Division of Water on July 20 and was attended by Linda, Jeff, and Dave. The following will summarize the main points of discussion from these meetings.

1. Outstanding issues associated with the routing just east of the Kentucky River to avoid the Braun's Rock Cress flower were discussed as follows:

   a. One option is to lay the pipe in the I-64 right of way, however; construction may be difficult. Ray will investigate the potential for doing this.
   b. Linda will talk to local contractors about the potential for boring under the flower.
   c. The south side of I-64 along Hanley Lane is not an option at this time due to the concerns of property owners in this area.
   d. Resolution of this issue is necessary to avoid a formal consultation process which is part of the Nationwide permit process.

2. There are five wetland areas which the pipeline crosses. The pipeline can easily be rerouted around four of the areas, but will need to need to pass through the fifth wetland area.

3. The pipeline will cut through the FCI property just before reaching Leestown Road rather than following the FCI road. The mapping in this area is still pending.

4. The proposed routing at Twilight Trail/Bentwood was reviewed and agreed to. KAWC is continuing to investigate the use of the utility easement behind the Bentwood subdivision.

5. The pipeline routing in the historical area just east of US 60 (Scotland farm) has avoided the necessary areas and is acceptable.

6. The pipeline routing at the Benson Valley Landfill was reviewed and agreed to.

7. The first phase of the DIPRA survey has been completed. Rock was found to be very shallow west of the Kentucky River. We may want to pursue open road cuts vs. borings in these areas. A number of corrosive areas were also found. Ray will distribute maps which show these locations. DIPRA is scheduled to come back during the week of August 10 for additional survey along I-64 within the right of way. Approval from the State to do this is still pending.

8. KAWC can't find the sample easement ~~exhibits~~ they had previously received from PDR. Ray will forward new ones to Linda.

9. The issue of temporary fencing at paddock areas was discussed. It will be necessary for the contractors to install temporary fencing, remove the permanent fencing, install the pipeline, then come back at a later date and remove the temporary fencing and reinstall the permanent fencing.

10. The tap at New Circle Road should be designed as a cut-in 36" tee with 20" reducers. This will significantly reduce the head losses. A shutoff valve is also needed at this location in order to isolate the pipeline from the existing KAWC distribution system. A pig launcher will also be needed at this location.

11. The preliminary surge analysis was reviewed. We are in general agreement with the use of a two way tank which will prevent vacuum conditions at the high points. GF will also run the analysis with air valves only and no tank, although this scenario is not preferred due to the need to properly maintain the air valves, and the inherent problems associated with admitting air into a finished water pipeline.

12. The booster station layouts and site plans were reviewed with the following comments:

    a. The doors on the chlorine scrubber room should be moved.
    b. Vision panels are needed in the ammonia feed room.
    c. The location of the chlorine and ammonia rooms should be switched to minimize the length of chemical piping.
    d. There should be no fence or gate at Booster No. 2. Fencing and gates are required at Booster No. 1. The architecture at Booster No. 2 just needs to generally fit in with the surrounding buildings.

13. Design of the retention basin is still pending. Additional information is still needed from KAWC.

14. The operating pressure data is still needed from KAWC in order to finalize the steady state

hydraulics and surge analysis.

15. The nationwide permit submittal is anticipated for mid-August.

16. Task Order No. 1 has been executed and was distributed at the meeting.

17. The Cultural Resources (CR) request for additional compensation, which ultimately will become part of Task Order No. 2, was briefly discussed. In Item 3, it was not felt that it was appropriate for CR to request additional compensation for preparing proposals for additional work. This should be covered in their overhead. In Item 2c, a request is made for additional site mobilizations, however; Task Order No. 1 included compensation for an assumed 6 mobilizations. Item 5 will be deleted from the CR request as it is an item for which PDR is responsible.

18. The preliminary cost estimate was reviewed and discussed. Linda will advise as to the need for further review. The estimate will not be distributed at this time.

19. The project schedule was reviewed and updated. The most current version, dated July 19, 1999 can be found in the project discussion database.

20. The following items were presented to and reviewed with the Division of Water on July 20.

    a. Design Concept
    b. Alignment (superimposed on USGS maps)
    c. Steady State Hydraulics (hydraulic spreadsheets)
    d. Design Memorandum
        i. booster layouts
        ii. pump study
        iii. surge analysis
        vi. power study
        v. chemical feed systems

    The only significant comment the DOW had at the meeting was the potential need to only have exterior doors in the chlorine and ammonia feed rooms. It was pointed out to the DOW that the chemical feed systems are designed with vacuum operated equipment, thus no pressurized gas enters the feed rooms. They will advise if exterior doors will be required.

21. Subsequent to the meeting, Linda advised that work on the project will be stopped until such time that issues regarding local opposition to the project are resolved. Work stoppage plans were reviewed on July 26, and some work that had been in progress will proceed to completion. A meeting to review all outstanding work is scheduled for Monday, August 23. It is expected that the work stoppage will extend at least until the end of the year.

Action Items Resulting From This Meeting (also posted in the Project Discussion database)

No.	Item	Responsibility	Due By
1	Investigate the potential for installing the pipeline in the I-64 right of way to avoid the Braun's Rock Cress flower.	Ray Ihlenburg	Aug. 23
2	Discuss with local contractors the potential for boring the pipeline under the Rock Cress flower.	Linda Bridwell	Aug. 23
3	Forward sample easement ~~exhibits~~ to Linda.	Ray Ihlenburg	Aug. 23

c: Linda Bridwell - KAWC
Nick Rowe - KAWC
Jeff Raffensperger - Gannett Fleming, Camp Hill
Ray Ihlenburg - PDR, Louisville

American Water Works Service Company, Inc.

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June 24, 1999
IP 92-12

MEMORANDUM

To: File

From: Dave Reves DR

Re: Kentucky-American Water Company
Bluegrass Water Project

A monthly review meeting for the referenced project was held in Lexington on June 14. In attendance were Linda Bridwell representing Kentucky-American Water Company (KAWC); Jeff Raffensperger from Gannett Fleming, Inc. (GF); Ray Ihlenburg and Rick Wolfe from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). The following will summarize the main points of discussion from the meeting.

1. The preliminary review of the pipeline alignment along I64 to Leestown Road was completed at the meeting with the following comments. This review also included previously reviewed sections of the pipeline which still had outstanding routing issues.

    a. At the Federal Correctional Institute, the shorter and more direct route should be followed rather than paralleling the road all the way to Leestown Road.
    b. At South Elkhorn Creek the shorter route behind the barn should be followed.
    c. The location and depth of the existing KAWC pipeline at the tie in point on New Circle Road needs to be confirmed. Linda will have the pipeline excavated at this location.
    d. Boring under the Braun's Rock Cress flower at the Harrod property will be necessary to avoid a lengthy permitting delay. GF was requested to extend the endangered species survey to the south side of I64 to determine if the flower can be avoided by crossing the interstate at this location. The ideal location to cross the interstate is further east.
    e. Routing issues along Twilight Trail were discussed and resolved at the meeting.
    f. The pipeline will need to turn north on the west side of the South Benson Valley Landfill to avoid their encroachment zone.
    g. There are still historical concerns at the southeast corner of US 60 and I-64 that will need to be addressed. Mapping was not yet available for this area.

2. All archeological work is basically done except for some stream crossings. KAWC may need to obtain a court order to get access to the Cobb property at the Kentucky River. The State Historic Preservation Office has indicated that their permit review should only take two weeks to complete. Two of the streams where work needs done are on the LWC side (Bullskin Creek and Floyd's Fork). Linda needs to talk to LWC to expedite access to these locations The other location where archeological work needs performed is at Elkhorn Creek which is on the KAWC side.

3. The legal issues associated with using subdivision utility easements have not yet been resolved. We are assuming for the time being that the pipeline will be routed through these easements.

4. The revisions to the booster station layouts are not yet complete. Jeff will distribute them for comment once they are done and prior to the next meeting. Subsequent to the meeting, Dave requested that GF change the manufacturer of the scrubbers from Purafil to Circul-Aire. The primary advantage to doing this is that Circul-Aire also makes a dry ammonia scrubber (Purafil only makes a dry chlorine scrubber, EST was to provide a wet ammonia scrubber) which is preferred over a wet scrubber to simplify operations and maintenance. Additionally, the Circul-Aire budgetary capital costs are also less than Purafil, and the dry ammonia scrubber should require less floor space which will help to simplify the layout of the chemical room for Booster Station No. 1.

5. Linda has two potential parties that are interested in fiber optic. However, the instrumentation design should proceed with radio to expedite its completion. If fiber optic is ultimately pursued, it will be done so just prior to construction.

6. The Kentucky River preliminary crossing design will be complete within approximately one week. Jeff will distribute it for comments at that time and prior to the next meeting.

7. Jeff will contact Mechanical Solutions, Inc. to try to resolve the liability insurance issue with them.

8. The control logic and surge control for the booster stations was discussed as follows:

   a. In the high flow scenario, the words "unrestricted flow' are misleading since the flow always needs to be restricted at each booster to prevent over pressurization of the main if the pumps are operating back on their curves.
   b. Booster No. 1 should always shut down upon power failure at Booster No. 2, or when high or low pressure is sensed.
   c. The pressure relief system should be located at the retention basin and not at the Kentucky River.
   d. The low flow scenario control description should be the same as the high flow, but with reference to VFDs instead of control valves.

9. The preliminary permit submittal to the DOW was discussed as follows:

a. Ray will superimpose the alignment on USGS maps as opposed to giving the DOW the full set of over 100 drawings. All of the drawings will submitted with the actual final submittal.
b. Ray will provide the profile mapping to both Dave and Jeff for their use in generating the preliminary steady state hydraulic information (Dave) and the preliminary surge information (Jeff).
c. Dave will update his hydraulic spreadsheets once the profile information is received. Operational data for the tie in point at New Circle Road is needed to finalize this.
d. Jeff will complete the preliminary surge analysis for inclusion in the submittal to the DOW.
e. The updated Design Memo, which includes booster station layouts and control strategies, needs to be included in the package to the DOW.
f. The preliminary submittal to the DOW should be assembled by July 5, and reviewed and submitted by July 12. Linda will contact the DOW to schedule a meeting with them, preferably on either July 19-20-21. Both Dave and Jeff will plan to attend this meeting.

10. Linda advised PDR that it was acceptable to extend the completion date for the LWC design by 45 days.

11. Linda requested a revised total estimate from GF for the environmental time and materials work.

12. The 401 Water Quality Certification permit is not needed if an ACOE Nationwide permit is submitted.

13. GF is currently working on the project cost estimate. It is expected to be complete by the end of June..

14. Task Order No. 1 was distributed to GF at the meeting.

15. Jim Long will replace Kirk Corliss as the GF Project Officer on this project once Kirk Corliss retires on July 2.

16. The project schedule was reviewed and updated. The project is still currently on schedule.

17. The next project meeting will be scheduled to coincide with the DOW meeting which is tentatively anticipated for July 19, 20, or 21.

Action Items Resulting From This Meeting (also posted in the Project Discussion database)

See following page.

No.	Item	Responsibility	Due By
1	Excavate the existing KAWC pipeline at New Circle Road to confirm the location and elevation..	Linda Bridwell	Jul. 16
2	Extend the endangered species survey at the Harrod property to the south side of I64 to determine if the Rock Cress flower can be avoided by crossing the interstate at this location.	Jeff Raffensperger	Jun. 30
3	Contact LWC to expedite access for the archeological surveys at Bullskin Creek and Floyd's Fork.	Linda Bridwell	Jun. 30
4	Distribute revised booster station layouts (chemical room) for comment.	Jeff Raffensperger	Jun. 30
5	Distribute Kentucky River preliminary crossing design for comment.	Jeff Raffensperger	Jun. 30
6	Provide operating data to help define the gradient at the tie in point. This action item currently exists in the Project Discussion database, but is being reiterated here since it is needed for the preliminary submittal to the DOW.	Linda Bridwell	Jun. 30
7	Provide revised total estimate for the environmental time and materials work.	Jeff Raffensperger	Jun. 30
8	Schedule a meeting with the DOW for either July 19, 20, or 21, if possible.	Linda Bridwell	Jun. 30

c: Linda Bridwell - KAWC
Nick Rowe - KAWC
Jeff Raffensperger - Gannett Fleming, Camp Hill
Ray Ihlenburg - PDR, Louisville

File - N SFS. Design

Project Discussions

Water Company: Kentucky-American Water Company
Service Area: N/A
BP Number: 92-12
Region: American Water Works Company Inc.
Project Title: Bluegrass Water Project

From: David M Reves
State: ○ Draft ● Final
Date Initiated: 06/10/99
Need to Resolve By: 06/14/99

Main Topic: June 14 Meeting Agenda

Discussion/Action Item:
Here's the items I believe we will be ready to discuss. Please reply here in the database if you wish to add other items to the agenda.

✓1. Preliminary review of pipeline alignment along I64 to Leestown Road. This should complete the preliminary review for the entire pipeline unless there are locations that still need attention (which should be discussed and finalized at this meeting).
2. Review revised booster station layouts. – not today
✓3. Review Kentucky River crossing design.
✓4. Discuss vibration analysis for the boosters.
✓5. Discuss control logic and surge control for the booster stations.
✓6. Discuss DOW preliminary permit submittal requirements.
✓7. Discuss any other permitting issues as necessary.
✓8. Discuss requirements and schedule for developing the project cost estimate. – end of June
✓9. Discuss status of task order(s) for changes in the scope of work.
10. Review past due and open items in the project discussion database.
11. Review and update project schedule. In addition to simply entering the status of the current tasks, we should be prepared to update estimated durations for future tasks to see how it impacts the schedule.
12. Select and date for the next meeting and identify potential agenda items.

Attachments:

Other routing issues
Twilight Trail
Wside of Bensen Valley Landfill
US60 & I-64 (S.E. corner)

For Use by AWW Project Manager Only
Responsible Person: David M Reves
Final Resolution:

Status: ● Open ○ Closed ○ Past Due

Date completed:

File-N
S&S
Design

American Water Works Service Company, Inc.

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May 28, 1999
IP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A monthly review meeting for the referenced project was held in Lexington on May 24. In attendance were Linda Bridwell representing Kentucky-American Water Company (KAWC); Jeff Raffensperger from Gannett Fleming, Inc. (GF); Ray Ihlenburg and Rick Wolfe from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). The following will summarize the main points of discussion from the meeting. The minutes also include items discussed via conference call on May 18.

Preliminary Design Memorandum Review

Page 1

1. The description of the pipeline route is outdated and needs to reflect the current route along I-64.

Page 2

1. The text should definitively state that the capacity of the system to meet the 2010 production and source of supply deficits is 19 mgd. However, the design will be based on the 2020 deficit of 23 mgd since an analysis has shown that it is cost effect to proceed with this capacity at this time.
2. The text states that the surge tanks will be in the station; however, we won't know this until the surge analysis is complete.
3. No instrumentation will be provided to allow LWC to monitor anything from the KAWC booster stations.

Page 3

1. All piping will be sized for 23 mgd. The only equipment that will not be sized for 23 mgd will be the chemical feeders. This will ensure that the feeders are not oversized.

Page 4

1. The text should state the actual total length of the pipeline as well as the individual sections (English Station to LWC Booster, LWC booster to KAWC Booster 1, KAWC Booster 1 to KAWC Booster 2, and KAWC Booster 2 to New Circle Road.
2. A fire hydrant should also be provided on the discharge of Booster 2 to allow for fire protection generated from the existing KAWC system.

Page 5

1. A pig launcher is not required at Booster 2. Launchers are needed at the discharge of Booster 1 and near the pipeline connection at New Circle Road. A bypass is also needed to allow a pig to bypass Booster 2.

Page 7

1. The text should clearly state that the boosters are KAWC boosters and not LWC boosters.
2. Flow control of the large pumps will most likely be via ball valves and not butterfly valves.
3. The "minimum flow" should instead be referred to as "estimated minimum water quality flow".
4. The term "turndown" should be defined. Is this motor turndown or pump turndown?

Page 8

1. We are basing the pump selection at Booster 2 on a gradient at the KAWC system of 1130 (low flow) and 1170 (high flow). Linda will provide operational data regarding typical pressures in the area of the tie in to confirm the gradient assumptions.
2. A 1.15 sf is preferred on the pumps motors.
3. Rather than defining a "minimum throttling flow" of 6 mgd for the large pumps, the minimum flow of the pump should be specified based on the acceptable turndown quoted by the pump manufacturer.
4. The best efficiency of the large pumps should be close to their maximum capacity when operating alone.

Page 9-11

1. Same comments as for the other pumps.

Page 12

1. The ammonia dosage will not be compound loop controlled but will instead be based on an operator selectable ratio to the chlorine dosage.

Page 13-16

1. This section should be deleted and replaced with Appendix A plus the addition of the chemical properties.

Page 17

1. Concrete paving is not necessary in the chemical unloading areas if it is not necessary for the delivery trucks to back and turn.
2. The exterior architecture for Booster No. 2 will need to blend in with the surrounding

office buildings. Linda will take pictures of the surrounding buildings and forward them to Dave and Jeff.

Page 24

1. Air conditioning is not needed in the booster stations unless it is necessary to condition the electrical rooms.
2. There should be no sprinkler systems in any of the chemical storage rooms.
3. The gas chemical feed and storage system designs needs to comply with the latest version of AWS Engineering Standard T-9. Dave will forward this to Jeff.

Page 25

1. This page can be deleted.

Appendix A

1. A 200 ppd rotameter should be installed for the larger chlorinators.
2. The average flow / max dosage calculation is missing.

Appendix B, Page 13

1. The waste tank level for the ammonia scrubber doesn't need to be monitored.
2. The gas scrubbers need to have a remote manual means of operation in addition the local automatic mode of operation.

Page I-1

1. Cretex should be added to the list of acceptable RCP pipe manufacturers.
2. The second list of butterfly valve manufacturers should say "without" electric operators.

Page I-2

1. Fairbanks Morse should be deleted from the list of acceptable pump manufacturers.

Page I-3

1. The ammonia scrubber design should be based on the equipment with the smallest footprint (most likely EST).

Page I-5

1. Integrity Engineering should be added to the list of acceptable system integrators.

Pump Study

1. The introduction section of this study should be deleted.
2. The conclusion of the report (vertical can turbines) agrees with the assumption in the design concept, and the design should proceed as such.

Energy Study

1. Additional guidance was requested form GF in terms of negotiating costs from the electric

utilities.

2. The power company at Booster Station No. 1 is now Louisville Gas and Electric (LG&E).
3. KAWC does not desire to own and maintain the substations.
4. The study should be reworded to clarify that the electrical analysis is the worst case scenario and will probably be better after negotiations with the electric utilities.
5. The design should proceed based on the use of electric motors for all pumping units.

Booster Layouts

1. The office area should be combined with the instrument room to form one big room called the instrument room.
2. GF should attempt to locate the ammonia scrubber equipment closer together and move the ammonia feed room in front of it such that vision directly into the ammonia storage room is possible.
3. A section of the corrosion inhibitor room can be used to house the ammonia softening equipment (in a separate room or as part of the ammonia feed room).
5. The LWC tank site plan (Option A) is acceptable.
6. Both booster station site plans are acceptable, and the design should proceed as such.

Miscellaneous

1. A 10-day letter has been sent to Mr. Cobb (property owner at the Kentucky River crossing). However, access to the site is still pending.
2. Linda is meeting with Mr. Harrod on May 26 regarding the site for the retention basin.
3. The property survey at Booster 2 is complete.
4. GF/PDR will send maps and a video to DIPRA with points of easy access to the pipeline identified. After the initial corrosion survey, DIPRA will determine if it is necessary to take additional soil samples.
5. The evaluation of GF's request for additional compensation was hand delivered to Linda at the meeting. A task order will be prepared once concurrence from KAWC is received.
6. The ACOE permit application will be filed without having obtained access to all of the properties. However, the permit application will be qualified as such.
7. The environmental studies are proceeding well. Wetlands has only been found along the river banks (as expected). One endangered plant was found as part of the endangered species survey. Resolution of this issue is underway. For general information, zebra mussels were found in the Kentucky River; however, this will not effect this project.
8. Ray will give Linda a Kentucky River crossing profile to allow her to obtain a cost estimate from a contractor for directional drilling. Dave will develop the cost estimate to lay the pipe in the river.
10. The general legal issues associated with the 10-day letters is resolved. KAWC may have to post a bond before entering each property.
11. The pipeline route near the landfill at Route 151 will need to deviate to avoid the landfill's buffer zone. The pipeline will turn northeast before reaching the landfill and tie into I-64 at this location.
12. The proposed pipeline route along Twilight Trail is too congested with other utilities. The

pipeline will instead turn south and follow the Old Harrodsburg Road right of way and an existing utility easement. Linda is continuing to research whether KAWC has legal rights to utilize these easements even though the pipeline will not provide water service to the subdivision.

13. The pipeline through the Brentwood subdivision is also proposed to be located in an existing utility easement.
14. The pipeline stationing on the drawings will be added at the end of the design since changes will occur after the initial routing. The pipeline will be divided into 7 sections to facilitate changes and allow 7 people to concurrently work on the drawings.
15. All items in the Project Discussion database were reviewed and updated.
16. The schedule was reviewed, updated, and posted in the database. The date for the certificate filing has moved approximately 3 weeks to the end of December. However, subsequent to the meeting, it was determined that once the preliminary review of the pipeline alignment between 151 and New Circle Road is completed on June 14, the certificate filing date will revert back to its originally scheduled date in early December.
17. The next project meeting has been scheduled for June 14.

Action Items Resulting From This Meeting (also posted in the Project Discussion database)

No.	Item	Responsibility	Due By
1	Take pictures of typical architecture in the area of Booster Station No. 2 and forward to Dave and Jeff.	Linda Bridwell	Jun. 14
2	Provide additional guidance to KAWC regarding negotiations for electric service at the boosters.	Jeff Raffensperger	Jul. 30
3	Obtain cost estimate from a contractor to directional drill under the Kentucky River.	Linda Bridwell	Jun. 30
4	Research the legal rights of KAWC to utilize a subdivision's utility easement even though service will not be provided to that subdivision.	Linda Bridwell	Jun. 14

c: Linda Bridwell - KAWC
Nick Rowe - KAWC
Jeff Raffensperger - Gannett Fleming, Camp Hill
Ray Ihlenburg - PDR, Louisville

Linda Bridwell 05/17/99 10:07 AM

To: lhlenburgr@aol.com, David M Reves/SYSENG/CORP/AWWSC@AWW, jraffensperger@gfnet.com
cc:

Subject: Conference Call

I received Ray's e-mail and fax, and agree with the approach. We cannot get bogged down in minor alterations of the route in plan development. Water line plans are generally not that technical, and I hate to see unnecessary delays for minor details.
Our server is not working well, so I saw a couple of references to a potential conference call today, but was unsure of a time. I will be unavailable until early afternoon, and have not reviewed updates to the database since Thursday. Please let me know topic and time.
Thanks.
Linda

File - N
SofS
Design

Gannett Fleming

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May 6, 1999

David M. Reves
Senior Design Engineer
American Water Works Service Company, Inc.
1025 Laurel Oak Road
P. O. Box 1770
Voorhees, NJ 08043

RE: Kentucky-American Water Company
Bluegrass Water Project
Task Order Request - Video of Pipeline Route

Dear Dave:

Based upon Kentucky-American Water Company's acceptance and approval of completing a production video for the Bluegrass Water Project Pipeline Route along the I-64 corridor, we have completed and submitted a complete video from Kentucky Route (KR) 55 to New Circle Road. The route includes paralleling the gas main from KR 55 to KR 151, paralleling I-64 from KR 151 to the Blackburn Correctional Facilities, crossing the Blackburn Correctional Facilities, and Leestown Road to New Circle Road.

We are requesting a Task Order be issued for the cost of the video at $3,753 which includes Team 1 production costs, including producer / camera work, digital camera, and related camera editing equipment with miscellaneous graphics for location identification and narrative dubbing at $1,716; J.R. Aviation utilizing a Robson 444 Place helicopter charter for 2-1/2 flight hours at $450.00 per flight hour at a cost of $1,125; and PDR time to fly and direct the photography and pilot along the route, special setup at interchanges and special crossings at 8 hours at $114 per hour or $912.

Should you have any questions concerning this request, please contact me at this office.

Very truly yours,

GANNETT FLEMING, INC.
Water Resources and Geotechnical Division

Jeffrey L. Raffensperger

JEFFREY L. RAFFENSPERGER
Section Manager, Water System Design Section

cc: E. C. Bridwell, KAWC
R. W. Ihlenberg, PDR, Engineers
File

received
5/10/99

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Engineering Excellence Since 1915

Kentucky-American Water Company

Bridwell, P.E.
of Engineering

2300 Richmond Road • Lexington, Kentucky 40502 • (606) 269-2386 • Fax (606) 268-6327

Ed-N
Sof S.
Design

Memorandum

COPY

To: Dave Reves

From: Linda C. Bridwell

Date: May 4, 1999

Re: ***Bluegrass Water Project; April, 1999 Minutes***

I have reviewed the minutes from your April 26 memo and have a few comments:

1. Item 3(d) – The environmental subconsultants need to begin work on all of the properties currently available. On April 23, the easement consultants provided Ray with a listing of the status of all of the property owners to date, by individual PVA maps. Ray was going to combine this with the 8.5 x 11 PVA maps so that the subs could begin work. Any additional updates (10-day letters or final property owner permission) will be updated weekly as they become available. Since the 10-day letters will require coordination for all consultants, we will take them one at a time. I will copy each of the subs on all of the letters as they go out.

   As I E-mailed everyone last week, our in-house counsel has determined that we need to be cautious as we head into the 10-day letter notification. Any misstep on the process could unnecessarily set us back, so this first one (Cobb property) will take longer than I expected. I appreciate everyone's patience.

2. Item 4(a) – I would like to parallel the I-64 right-of-way as much as possible. I believe a deviation may be logistically as difficult, unless there is simply no room to lay the pipe.

3. Item 4(c) – I was not aware of any question about Brentwood Subdivision. Yes, it is served water, sewer and electric by the City of Frankfort. Again, I would like to parallel the interstate right-of-way.

I apologize if some of the communications during the meeting were not clear.

I would like to target our next meeting for May 17-18 or May 24-25.

Please let me know if there are any questions or concerns.

LCB/dm

c: Nick Rowe
Ray Ihlenburg
Jeff Raffensperger

File - N
SofS
Design

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

April 26, 1999
IP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

Two meetings for the referenced project were held during the month of April. A regular monthly meeting was first held on April 5, and a second meeting to primarily review the preliminary pipeline alignment between Routes 55 and 151 was held on April 22-23 Both meetings were held at Kentucky-American Water Company's main office in Lexington, and were attended by Linda Bridwell representing Kentucky-American Water Company (KAWC); Jeff Raffensperger from Gannett Fleming, Inc. (GF); Ray Ihlenburg and Bryan Lovan from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). Dave Marks of GF also attended the meeting on April 22. The following will summarize the main points of discussion from both meetings.

April 5 Meeting

1. It was agreed that the regularly scheduled meetings at the beginning of each month should now be scheduled to coincide with specific tasks in the project schedule. Accordingly, the next meeting has been scheduled for April 22-23 to review the preliminary pipeline route between Routes 55 and 151 (Task No. 15 in the current project schedule)..

2. Linda has requested that the monthly permitting reports be posted in the Project Discussion database in MS Word format.

3. GF/PDR was requested to provide additional cost breakdown associated with their request for additional compensation on the work for Route 2 in Woodford County. The evaluation of GF's request for additional compensation will be completed and forwarded to KAWC once this information is received.

4. The instrumentation design of the booster stations should assume radio telemetry. Since the construction of the project will not occur immediately after design is completed,

negotiations with potential partners for a fiber optic line can occur during the certificate phase.

5. The tentative pipeline routing just west of the Kentucky River along Johnson Road was discussed. There may be a better and shorter route along Ninevah Road, and there also may be an existing 30' utility easement paralleling Ninevah Road. However, there is a concern at this location regarding the crossing of a stream. The topographic maps in this area will be ready in 7-10 days, and PDR will prepare a cross section at the stream for review at the next meeting.

6. It was agreed that the storm water permits will be the responsibility of the contractor. PDR will include information in the project technical specifications regarding the means and methods to address storm water runoff by the contractor during construction.

7. PDR suggested that a video of the route from a helicopter would be helpful when reviewing the pipeline alignment maps, and also for use by KAWC in negotiating easements. GF/PDR was requested to forward pricing to Dave.

8. The project schedule was reviewed and updated at the meeting. Dave will check the logic associated with the preliminary review of the I-64 Route which appears to be in error.

9. Open and Past Due items in the Project Discussion database were reviewed. Everyone was reminded to utilize the database whenever possible.

April 22-23 Meeting

1. The originally identified sites along Democratic Drive for Booster No. 2 are not for sale. However, lots 40.04 through 40.11 are all available. It was agreed to pursue lot 40.05 which is the largest one and is furthest east of all the available lots except one. Linda will make contact with the property owner such that GF can begin work immediately. Ray will call the planning and zoning boards to determine setbacks.

2. PDR provided a site plan at Booster Station No. 1 which also showed the Louisville Water Company (LWC) tank. The following concerns were noted:

   a. The LWC tank(s) needs to preferably be two tank heights in distance from the future property line between the KAWC property and the LWC property (KAWC will eventually sell part of the property to LWC). If this is not possible, it should be as far away as possible, and no less than one tank height from the property line.

   b. A single inlet/outlet on the LWC tank with no altitude valve is acceptable. If LWC desires to install an altitude valve, separate tank inlets and outlets will be required.

   c. The KAWC and LWC sites should be treated as two separate facilities with no linking roadways.

d. Linda will forward a letter to LWC regarding our concerns with the setback of the tank from the KAWC booster property line.

3. The pipeline alignment between Routes 55 and 151 was reviewed at the meeting. Requests for realignment in specific areas were marked directly on PDR's maps. The following other general comments resulted from the review:

a. The gas line needs to be shown on the entire map. Only part of the route currently shows the gas line. GF/PDR will then need to reevaluate the alignment to determine if there are any other conflicts.

b. A number of properties which are crossed are missing on the contact list from the easement consultant. Ray will obtain the PVA information and forward this to Linda for the easement consultant's use. This needs to be expedited such that the environmental subconsultants can begin work as scheduled.

c. The water main should maintain a minimum distance of 100' from any structure. GF/PDR should discuss this with Dave if there are areas where this is not physically possible without going to extraordinary means.

d. In order for the environmental subconsultants to begin work as scheduled, the 10 day notification letters need to be sent to all property owners who have not given permission to enter their property.

f. All of the environmental subconsultants need to receive maps of the alignment, the property owner contact list, and copies of all 10 day letters.

4. A review of the topographic maps between Route 127 and just east of the Kentucky River were briefly reviewed with the following comments:

a. The land adjacent to the highway right of way just east of Route 127 looks congested. It appears that there is a power line that abuts the right of way which abuts a road which abuts commercial developments. An option to consider would be to route the pipeline south of the commercial areas. Utilities first need to be located in this area.

b. GF will determine the voltage of the overhead power in this area, then check with DIPRA regarding recommended distance to avoid safety concerns with stray current.

c. The pipeline may need to run through the Bentwood development on the east side of Route 127. It is possible that water service to this development is provided by the City of Frankfort. Linda will check into this further.

d. The property owner in the area of the retention basin has been contacted and is

agreeable to allow pipeline survey work to begin. However, the issue of the retention basin was not discussed. Additionally, the highway right of way along his property extends a significant distance down I64 and is very irregular. It would be desirable to run the pipeline through his property diagonally rather than attempt to follow the property line. GF/PDR will prepare a map showing the proposed retention basin and pipeline location, and forward this to Linda for use by the easement consultant in discussing the issue with the property owner.

5. The date for the next meeting has not yet been set. Per the schedule, the following should be completed in May and ready for review at the next meeting:

   a. Pump study update
   b. Power study update
   c. Kentucky River preliminary alignment
   d. Route 60 to New Circle Road preliminary alignment
   e. Booster station and chemical building layout updates
   f. Retention basin layout

   Dave will discuss the status of the above with Jeff at the beginning of May, and schedule a meeting accordingly at that time. It is expected that this meeting would occur approximately in mid-May.

6. The project schedule was reviewed at the meeting, and the updated schedule is posted in the database. The problem which was previously thought to be incorrect logic regarding the I64 preliminary alignment review was not a logic problem and was resolved by modifying available options in the software. The schedule is still showing a certificate filing date in early December with the assumption that individual ACOE permits will not be needed.

Action Items Resulting From These Meetings (also posted in the Project Discussion database)

No.	Item	Responsibility	Due By
1	Contact property owner for Booster No. 2 site to request permission to begin survey work on lot 40.05. This action item is already in the database for the previous sites, and will be updated to reflect lot 40.05	Linda Bridwell	Apr. 26
2	Determine setbacks at Booster No. 2 site (lot 40.05).	Ray Ihlenburg	Apr. 26
3	Forward letter to LWC regarding location of tank on Booster No. 1 site.	Linda Bridwell	May 14
4	Obtain PVA information for properties which are crossed but are not on the property owner contact list.	Ray Ihlenburg	Apr. 26
5	Determine if the Bentwood development is serviced by the City of Frankfort.	Linda Bridwell	Apr. 30
6	Prepare map with retention basin, property lines, and pipeline route and forward to Linda. This is shown in the database as a response to Item No. 7 below.	Ray Ihlenburg	Apr. 27
7	Discuss retention basin location and pipeline routing with respective property owner. This action item is already in the database, and will be updated to reflect the current due date.	Linda Bridwell	Apr. 30

Note: All action items from the April 5th meeting have already been completed and are not listed above.

c: Linda Bridwell - KAWC
Nick Rowe - KAWC
Jeff Raffensperger - Gannett Fleming, Camp Hill
Ray Ihlenburg - PDR, Louisville
Bryan Lovan - PDR, Lexington

File - N
3 of 5
Design

Kentucky-American Water Company

2300 Richmond Road • Lexington, Kentucky 40502
268-6300 (8:00-4:30, Mon-Fri)
269-2395 (after hours emergency)
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COMPANY: _____

HAND TO: Ray Ahlenius

FROM: Linda Bridwell

Number of pages, including cover: 2

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Phone: 268-6393 Ask for: Debbie

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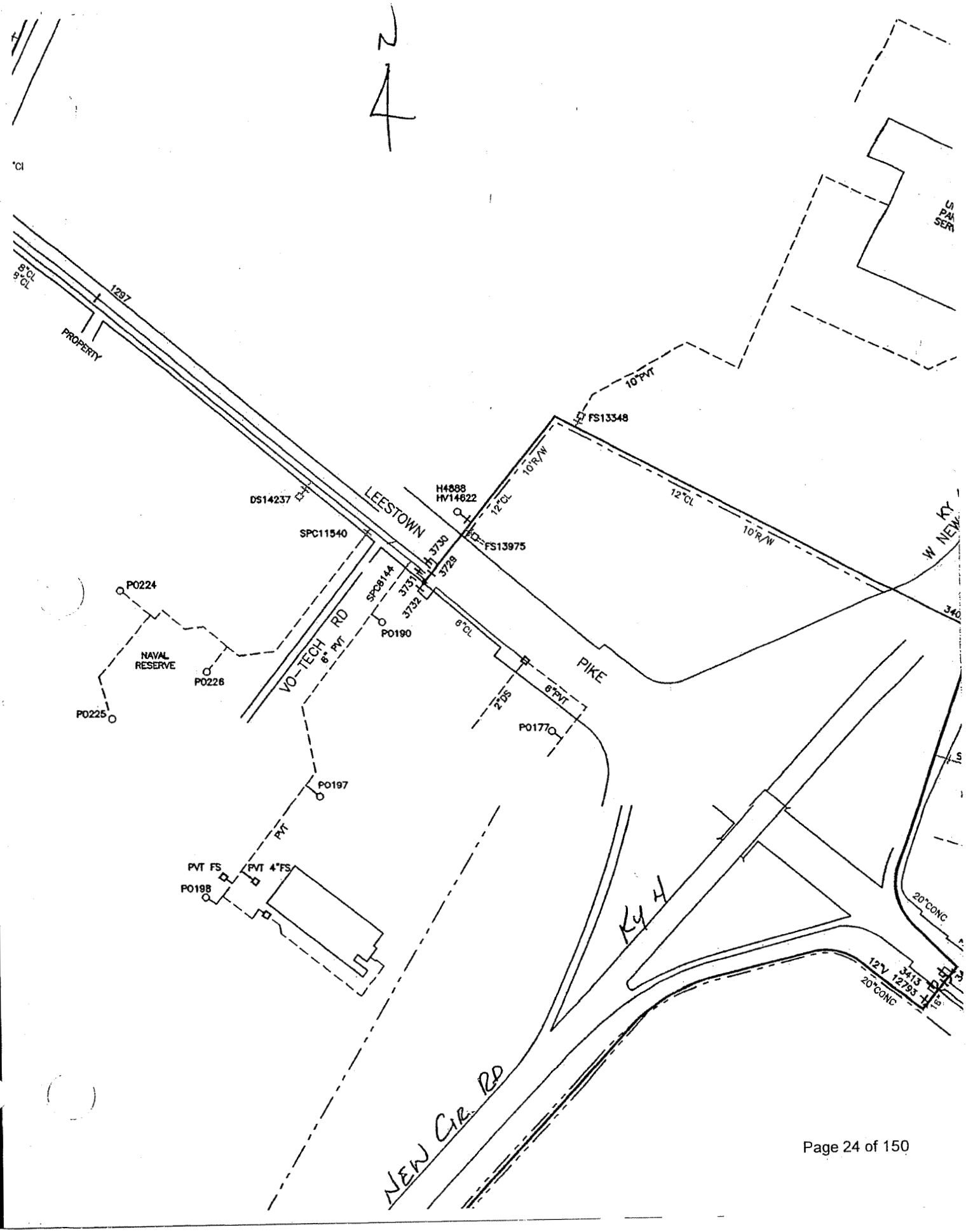
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MEETING MINUTES

Subconsultant Meeting for the Bluegrass Water Project
to Discuss Wetlands, Archaeological, Endangered Species
and Geotechnical Subsurface Investigation Field Work

April 6, 1999

There was a meeting in PDR Engineers, Inc. offices in Lexington, KY on the subject date. The meeting held between 9:00 and 11:00 involved Gannett Fleming represented by Jeff Raffensperger; PDR Engineers represented by Ray Ihlenburg; Cultural Resources represented by Steve Creasman; Law Engineering represented by Jim Gries; Scott R. Smith Environmental Management Consultants represented by Billy Webb; and FMSM Engineers represented by Hugo Aparacio. We were joined during the second part of the meeting by Linda Bridwell representing Kentucky-American Water Co., Bob Helmandollar representing Presnell Associates, Inc. and Don Brent representing PEH, both the latter gentlemen being the easement acquisition consultants.

At the beginning of the meeting we discussed the schedule to initiate field work for wetlands, archaeological, endangered species, and subsurface investigation work. Various pipeline segments, status of field work and comments are developed in the attached Table A. In general, it was concluded that a majority of the route will be available for environmental activities starting the middle of April, while the remaining third of the route will be available for environmental activities beginning sometime around the first of May. All subconsultants indicated that they could begin environmental work in a timely fashion and probably complete their work by the end of May. Bill Webb indicated this will affect the submission of the nation-wide permit (which was indicated to be tied to the environmental field work) and probably would be shifted by schedule until the end of June. This data will be input into schedule components, probably on Thursday, April 8, to see the impact of the nation-wide permit schedule.

It was discussed that for the wetlands, field identification work, and confirmation of that work by the Corps of Engineers needs to be worked into the schedule as the Corps review will take two weeks.

PDR Engineers will submit digital copies of the 2-foot contour mapping with the projected pipeline route to all subconsultants. The route from 60 to New Circle Road includes approximately 14 properties which are not going to cooperate with the field survey requests. Each of these properties will be sent a letter indicating that properties will be occupied on a set date. It was requested that the letter allow approximately a weeks period of time for the field work to occur to provide flexibility in the schedule. It is anticipated that the letters to the property owners will be sent out in the next 10 days. Each letter will identify a set sequence in the schedule attempting to assist the field work people in properly sequencing their work on certain segments of the pipeline route.

Harrod Concrete has been contacted and has given permission to survey. It was discussed that PDR will obtain the mining maps for this site for determination on the potential for settlement and collapse in the mining areas.

Bob Helmandollar (Presnell Associates) provided a spreadsheet of all the contacts to date of property owners west of the Kentucky River. Bob indicated that all the contacts will be completed by April 23. Don Brent (PEH) reported all of his contacts will also be completed by April 23 and also provided a spread sheet of all current data related to contacts made east of the Kentucky River.

KPDES Point Source Discharge Permit was discussed. It was revealed that Scott R. Smith was working with the existing permit of KAWC and would proceed to do so to develop expansion of the existing discharge permit KAWC holds for the retention basin discharge, therefore Scott R. Smith will proceed with their work.

KPDES Stormwater Permit was discussed. It was decided that the approach will be for the Contractors to submit the permit forms as there will be a lag between the bid period and start of construction providing sufficient review time by DOW. Bill Webb will check with DOW on permit approach to assure that other DOW permits will not be affected by this lag in submission of the stormwater permit.

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TABLE A

BLUEGRASS WATER PROJECT
SCHEDULE FOR FIELD WORK

LINE SEGMENT	STATUS	COMMENTS
English Station Tank to Route 55 (Booster Station #1 Site) (±14 mi)	Available for field work	6 staked, possible re-route @ N. Shelby Tank Site
Route 55 to Route 151 (along gas pipeline) (±17 mi)	Available for environmental studies starting 4/29/99	6 staked, adjustments pending Owner contact, design review and easement discussions
Route 151 to Route 127 (along I-64) (±5 mi)	Available for environmental studies starting 4/29/99	PDR to stake interchanges by 4/15
Route 127 to Route 60 (Route diverts from I-64) (±5 mi)	Environmental work starting ± 5/1/99	Contour mapping available 4/19. Field staking of route 4/26 to 4/30
Route 60 to FCI/Blackburn (along I-64) (±17 mi)	Property Contacts Comp. by 4/23. Field work to commence by ±4/25	PDR stake interchange by 5/1; earlier if possible
Leestown Road to New Circle	Available immediately for environmental studies	PDR to stake new Circle Road Crossing
Booster Station #1 site	Available immediately for environmental studies	Approximately 7.5 acres
Kentucky River	Around May 1 for studies	
Booster Station #2 site	Not before May 15	Site around Democratic Drive, negotiate site and obtain option. +/- 2 acres
Retention Basin	Likely not before May 15	Will negotiate Harrod Concrete property. +/- 5 acres

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"Jeff Raffensperger" <jraffensperger@gfnet.com> on 03/29/99 01:54:22 PM

To: Linda Bridwell/KAWC/AWWSC
cc: David M Reves/SYSENG/CORP/AWWSC, Ihlenburgr@aol.com

Subject: Re: BWP

Linda:
Ray is suggesting that we stay in Johnson Road until the pipeline passes Parcel 76 (see Map 63 in the Route I-64 study) which is adjacent to Parcel 6 in order to avoid dealing with multiple property owners. Then turn onto Parcel 6 to the Interstate R/W. This will save the 1000 feet in pipe length I referred to earlier. From the tone of your reply, you suggested that we should avoid Johnson Road anywhere we can. What is your thoughts on the matter.
-----Original Message-----
From: bridwell@kawc.com <bridwell@kawc.com>
To: jraffensperger@gfnet.com <jraffensperger@gfnet.com>
Cc: DReves@kawc.com <DReves@kawc.com>; Ihlenburgr@aol.com <Ihlenburgr@aol.com>
Date: Monday, March 22, 1999 5:01 PM
Subject: BWP

>
>
>In response to Jeff's fax, I agree that we should look to avoid Johnson
>Road. I like the suggestion of your fax. I am still checking on US 127
>subdivision, but my gut feeling is that I would prefer to stay as close to
>the Interstate as possible.
>

Project Discussions

Water Company: Kentucky-American Water Company
Service Area: N/A
BP Number: 92-12
Region: American Water Works Company Inc.
Project Title: Bluegrass Water Project

From: David M Reves
Date: 02/23/99
State: ○ Draft ● Final

Main Topic: Miscellaneous Pipeline Issues

Reply:
Notes from conference call held at 10:30 am on February 23 between Linda, Jeff, Ray, and Dave.

1. Expediting the contacts with property owners along the 55 to 151 corridor to set alignment and therefore to begin final plan and profile production.
   Linda is in the process of sending contract documents to the easement consultant. There may be more than one consultant. Linda will have them present at the meeting on Tuesday, March 2 around 4:00 pm to discuss their role in the project. Ray has indicated that he is done with all field work, including the metes and bounds, and that the pipeline is staked. Contact with the property owners by the easement consultant is desired at this time before proceeding with subconsultant activities (wetlands, etc.) and pipeline design.
2. Setting the site for Booster Station No. 2
   Per Jeff's recent correspondence, Site 1 is the least expensive and Site 3 is the most expensive from a power standpoint. When considering other work that will need to be done at Site 2 (road improvement, additional piping), the costs for Sites 2 and 3 are probably comparable. The original location identified for Site 1 has some historical concerns, and Linda will investigate other properties near U.S. 60 prior to Tuesday's meeting. Jeff will forward Linda a map showing the location of 13.2 kVA power in this area. Locating the booster in an area with 13.2 kVA power will eliminate the need for a substation.
3. Establishing the crossing point of the Kentucky River
   The crossing route proposed in the I64 Route Study was agreed to. There is potentially a concern with blasting in this area, however, since there is already a water main from another utility in the area, its probably not a significant concern. A location for the retention basin will need to be identified after a field investigation at the next meeting.
4. Agreeing to the alignment along the I-64 corridor
   The crossing route proposed in the I64 Route Study was generally agreed to.
5. Agreeing to the alignment from 127 to Route 60
   Linda has indicated that the route will need to cross to the south side of I64, after crossing the Kentucky River, sooner than is currently shown on the drawings to avoid the Frankfort City limits (near the words BM 350 on the USGS map, close to the 90 degree bend in Hanley Lane). It was also suggested that we may want to stay cross county at this point until reaching the US 60 interchange as opposed to paralleling I64. Ray will investigate this further.
6. Contacting property owners along the I-64 corridor to initiate property survey
   See No. 1 above
7. Status of contact with the Federal property people between I-64 to Leestown Road to gain entry for survey
   Linda may have the easement consultant do this, or KAWC may do it themselves. This will happen in approximately 2 weeks.

8. New Circle Road crossing design location
   Linda will forward a KAWC distribution map for this area to Jeff and Ray.

Attachments:

File - N
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"Jeff Raffensperger" <jraffensperger@gfnet.com> on 02/22/99 02:42:44 PM

To: Linda Bridwell/KAWC/AWWSC, "Dave Reves" <DReves@amwater.com>
cc: "Ray Ihlenburg" <rihlenburg@pdreng.com>

Subject: Conference Call Discussion Items

Linda and Dave:

Discussed the progress of PDR's work with Ray this AM. PDR has finished the field work on Route 55 to Route 151. They are looking for areas to continue to move on field survey. Some items I would like to see discussed in tomorrows conference call are:

1.. Expediting the contacts with property owners along the 55 to 151 corridor to set alignment and therefore to begin final plan and profile production.
2.. Setting the site for Booster Station No. 2
3.. Establishing the crossing point of the Kentucky River
4.. Agreeing to the alignment along the I-64 corridor
5.. Agreeing to the alignment from 127 to Route 60
6.. Contacting property owners along the I-64 corridor to initiate property survey
7.. Status of contact with the Federal property people between I-64 to Leestown Road to gain entry for survey
8.. New Circle Road crossing design location

It may be desirable to have Ray connected on this call.

 - att1.htm

 - att2.gif

lhlenburgr@aol.com on 01/28/99 06:02:46 PM

To: Linda Bridwell/KAWC/AWWSC
cc:

Subject: Re:

The monumentation will be confined to public ROW. The owners may see some action so it might not be a bad idea to get a mailing out...The route I-64 study is due 2-19-99 so after that date we will be firm on which sid e of I-64 we'll be..

I need to call you about the mapping for the Shelby County mapping...we were going to use the mapping along the gas main but now the LWC route has moved to I-64. The mapping that Dunaway is doing is to confirm ground features that the aerial mapping doesn't detail.. However Dunaway IS staking the alignment at 50 foot stations and providing profile for the plans. I can send you a sample plan sheet showing the level of detail...An alternative would be to just use the Photo Science photos and adjust with the computer to fit the survey ..I think...This should be accurate enough to show the area along I-64...The line work that we do would be accurate and to scale but the photo background would be a "cartoon". This was our very original approach to your project so we could use the original aerials that GRW prepared. The need for better accuracy lead us in the direction that we eventually took.

The cost to scan the photos so we can have raster images is not a great deal...I'll get a quote from Photo Science.

I'm thinking Salt Lake ...Solitude....

File - M
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American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

January 22, 1999
IP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A monthly meeting for the referenced project was held on January 18-19 at Kentucky-American Water Company's main office in Lexington. In attendance for all or parts of the meeting were Linda Bridwell and Nick Rowe representing Kentucky-American Water Company (KAWC); Jeff Raffensperger from Gannett Fleming, Inc. (GF); Ray Ihlenburg, Bryan Lovan, and Ebb Ray from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). The following will summarize the main points of discussion from the meeting.

General Discussion

1. The majority of the meeting was spent finalizing the project schedule which Jeff had originally developed. The resulting schedule is attached, and any additional comments should be forwarded to Dave, who will be responsible for maintaining the schedule, no later than February 1. It will be necessary to hold a conference call prior to each monthly meeting to receive input on the progress of each task such that the schedule can be reviewed/modified as necessary at each meeting. The schedule is broken down into 12 major areas as follows:

   - General/Common Work Tasks
   - Pipeline Common Tasks
   - Pipeline Route - Route 55 Through Route 151
   - Pipeline Route - I-64 (Route 151 to New Circle Road)
   - Kentucky River Crossing
   - Retention Basin
   - Booster Station Common Tasks
   - Booster Station No. 1
   - Booster Station No. 2

- Louisville Water Company Activities (just those tasks which directly effect the Bluegrass schedule)
- Permits
- Bid Phase

2. The current schedule indicates that the Certificate can be filed by October 27, 1999. This is a best case scenario since a number of the tasks are out of our direct control, and is based on the following assumptions.

   a. Cooperation is received from all property owners along the route.
   b. Cooperation is received from all utilities and municipalities which are effected.
   c. The results of all Environmental and Other Field Activities (wetlands, archeological, endangered species, subsurface investigations, soils corrosion) do not result in the need to go to extreme measures to resolve.
   d. The Army Corps of Engineers Nationwide permit is accepted.
   e. Louisville Water Company (LWC) completes their work as scheduled.

   Per Linda, the filing date for the Certificate also assumes that construction bids do not need to be in hand at the time of filing. However, the bid phase of the project will need to be underway at the time of the filing.

3. Linda has drafted a letter to LWC relaxing the requirements for completion of their design work with the exception of those items which directly effect our schedule. Since the schedule for completion of the KAWC work has been delayed considerably, PDR/GF had requested that this be done since they are also performing the LWC work, and would not be able to complete it in the time frame specified in the LWC/KAWC contract.

4. The issue of the LWC ductile iron pipe (DIP) pressure class was discussed. Previously, LWC had indicated that they would be willing to install DIP only if it was pressure class 350. Our response at that time was that DIP pressure class as low as 150 should be used where applicable. However, after further investigation, AWWSC requirements for national pipe bids do not allow pressure class pipe with a wall thickness less than the wall thickness of DIP thickness class 50. 36-inch DIP thickness class 50 has a wall thickness of 0.43". 36-inch DIP pressure class 200 has a wall thickness of 0.42", and class 250 has a wall thickness of 0.47". Thus, the criteria for selecting the pipe should be to first determine the needed pressure class, then select the greater of either one pressure class higher (for conservativeness), or pressure class 250. It was noted that the original cost estimate for the Bluegrass pipeline assumed that pressure class pipe as low as 150 would be utilized where applicable, thus, the cost estimate is low in this regard.

5. It was clarified that the LWC facilities only need to have a current capacity of 23 MGD. KAWC's contract with LWC states that LWC be capable of providing as much as 35 MGD in the future if needed, however, this does not mean that the design of the current facilities should reflect this capacity in any way.

6. KAWC requested that the pipeline not cross through the Frankfort city limits. Linda will obtain an up to date map showing these limits. This will be a concern near and just downstream of the Kentucky River.

7. The need for GF/Scott Smith to submit a monthly permitting schedule/progress report was reiterated. The report should include a summary of the tasks which were performed in the previous month, along with itemized hours and costs expended on those efforts. It must also include a general description of those tasks that are anticipated for the following month, along with estimated hours, where possible. Linda was also requested to generate minutes from any meetings with regulators that she and Scott attend.

8. Alisha Graham has left PDR, and Ray will be assuming her previous responsibilities with assistance from Bryan as necessary.

Review of Gannett Fleming Proposal

1. GF's proposal was reviewed and discussed on the morning of 1-19-99. We are in general agreement with the costs proposed, and Dave will prepare a proposal evaluation and forward it to Linda. Once KAWC approves the evaluation, a formal Task Order will be prepared.

2. GF indicated that they plan to subcontract with a nonprofit organization to perform the endangered species work. The costs proposed by GF for this effort were not finalized at the time the proposal was submitted, and a conservatively high number ($30,000) was included in the proposal. GF was requested to reevaluate this cost a submit a revised price for just this task.

3. It was noted that any work outside of the fixed lump sum agreed to scope of work requires pre-approval from AWWSC. GF was requested to ensure that their subconsultants are aware of this.

Booster Station Site Visits

1. Three potential sites for Booster Station No. 2 were visited on the afternoon of 1-19-99. From west to east, the first site is located just east of US 60 with good access and good power availability. This was the site that was originally identified once the pipeline route changed to parallel I-64. The second site is located approximately 1.0 mile east of the first site, near a railroad track which crosses I-64, with relatively poor access and poor power availability. The third site is located on Duckers Road, approximately 0.4 miles further east from the second site, with good access and poor power availability. Photographs of these sites are available in the AWWSC Project Photographs database (only accessible to KAWC and AWWSC).

2. Following the meeting, the hydraulics were checked for the first and third sites. The third site, on Duckers Road, is hydraulically optimal as the maximum pressure in each gradient

would be identical. A copy of the hydraulic spreadsheet (for both a 23 MGD capacity and a 1.6 MGD minimum flow rate) is attached. The gray background sections on the spreadsheets reflect the portions of the pipeline which have not yet been surveyed, thus the elevations were taken from USGS maps. GF is proceeding to investigate the power availability at each of these three sites, and expects to have cost information within a week.

Action Items Resulting From This Meeting (also posted in the Project Discussion database)

No.	Item	Responsibility	Due By
1	Provide any additional schedule comments to Dave.	Dave Reves/All	Feb. 1
2	Obtain a current map of the Frankfort city limits.	Linda Bridwell	Feb. 5
3	Prepare GF proposal evaluation and forward to Linda.	Dave Reves	Feb. 1
4	Provide revised pricing to Dave for the endangered species work.	Jeff Raffensperger	Jan. 29
	Note: The next project meeting is scheduled for March 1-2 beginning at 10:30 am on the 1st.		

c: Linda Bridwell - KAWC (w/att)
Nick Rowe - KAWC (w/att)
Jeff Raffensperger - Gannett Fleming, Camp Hill (w/att)
Ray Ihlenburg - PDR, Louisville (w/att)

File - N. Sq S Design

Kentucky-American Water Company

2300 Richmond Road • Lexington, Kentucky 40502 • (606) 269-2386 • Fax (606) 268-6327

Nick O. Rowe
Vice President Operations
(606) 268-6333

TO: Dave Reves
Linda Bridwell

FROM: Nick Rowe

DATE: December 15, 1998

BLUEGRASS WATER PROJECT NOTES

1. Easement Acquisitions

Kentucky-American Water Company is to prepare a request for qualifications to engineering firms immediately so that we may solicit firms to perform our easement acquisition work. This will be a priority item as we are now ready to proceed ahead from Highway 55 to Highway 151 with contact with property owners. Responsible person: Linda Bridwell.

2. We should review the communications process of how we will contact property owners along that route with easement acquisition people as well as our survey crews. At the same time we should also review new communications with those new property owners along the route from Highway 151 paralleling the interstate to Lexington. Nick is to discuss this issue with Barbara Brown for direction. Responsible person: Nick Rowe.

3. We will make contact with the attorney's that are negotiating our contract on our first booster station site on Highway 55. We will enter into an option agreement on that property in order to tie down those 7+ acres immediately. Responsible person: Herb Miller.

4. A master project schedule will be prepared monthly and updated on a periodic basis. Dave Reves will head up those efforts, but will need input on a project schedule from community relations and our final certificate dates from Kentucky-American Water Company. This is probably the most critical project that we need to perform in order to have a detailed outlook of where we are going in the future. Responsible person: Dave Reves, Linda Bridwell.

5. At the end of every month we will provide a summary of the permitting issues to tell us where we are in that process. This should give us a clear view which direction we go to in the future when we are looking at Division of Water permits and miscellaneous corps applications. Responsible person: Gannett Fleming.

6. Must make a final decision on the pipeline route from Midway to Lexington. Nick will discuss this issue with Roy Mundy and make the decision prior to the Christmas holidays. Responsible person: Nick Rowe.

7. We should discuss Louisville Water Company's schedule and finalize any flexibility that we might allow on their schedule due to a delay in our schedule. This decision will be made and discussed after we have received our final schedule. Linda will make contact with Greg Heitzman to discuss the schedule. Responsible person: Linda Bridwell.

8. We should assure that we have a commitment from Louisville Water Company to deliver 12 MG to the point of delivery. This should be a mute issue, but from our consultants conversation with Louisville, it was not clear if Louisville had the same understanding as we did that as part of this contract they should have the capability to deliver 12 MG of additional water to the metering point on Highway 55. Nick and Linda to follow up with Louisville Water Company. Responsible person: Nick Rowe and Linda Bridwell.

9. We are to immediately establish a booster station site along the new route and make contact with those property owners as soon as possible. This contact should be made in order that we may begin expeditiously an environmental assessment of that site. Responsible person: Linda Bridwell.

10. There are some issues that we need to review here at KAWC in order that we may finalize design issues of the booster station route. They are as follows:

A. Scrubbers-At Booster Station #1.

Do we want scrubbers outside versus inside? Outside scrubbers would reduce the cost of the project.

B. Vandalism.

Are there any particular issues that we need to address concerning vandalism of our booster station sites as they will be quite a distance from our plant site here in Lexington.

C. Architectural.

Appearance of the booster station should also be reviewed. At the present time we are calling for brick structure.

D. Surge Tank-at Booster Station's.

Do we want to put a surge tank at the station below ground or inside the building? If we can put it outside or below ground we can save costs on the size of the building.

E. Switchgear Enclosures-at Booster Station.

If we put the switchgear outside the building in some type of enclosure it would reduce the size of the booster station site, but if we insist that it be inside it will in fact be more expensive.

We should review these issues internally with KAWC personnel, mainly the production personnel, as they will be maintaining the structure. Nick will head those efforts and review with Dillard Griffin. Responsible person: Nick Rowe.

11. When reviewing the issue of the interstate route we will have PDR look at both sides of the interstate route as there may be occasion where it would be better for us to be North of the interstate for a ways. We do not think that will be the case but if in fact we run into property issues on the South side we may have not recourse but to cross over to the North side.

12. Just a note of concern, if in fact we take the Blackburn route from Midway to Lexington could add approximately 60 days before we will have the design completed on this project which could run into October of 1999.

13. When reviewing the issue of the Corps Permit, our conversation with Scott Smith lead to the fact that we could submit preliminary info on the nationwide permit as soon as possible. For example, Scott is to get with Gannett Fleming and find out what information is available now and compile a listing of what data he would need in order to submit a preliminary nationwide permit. Responsible person: Gannett Fleming, Scott Smith, Linda Bridwell.

C: Roy Mundy
Herb Miller

File-N
SqS Design

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

December 14, 1998
IP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

Meetings to review the new pipeline alignment and resolve outstanding cost issues on the referenced project were held on December 9-10 at Kentucky-American Water Company's main office in Lexington and at PDR Engineers' offices in Louisville respectively. In attendance for all or parts of the meeting were Linda Bridwell and Nick Rowe representing Kentucky-American Water Company (KAWC); Kirk Corliss and Jeff Raffensperger from Gannett Fleming, Inc. (GF); Alisha Graham, Ray Ihlenburg, Brian Lovan, and Ebb Ray from PDR Engineers, Inc. (PDR); Scott Smith from Scott R. Smith Environmental Management Consultants, Inc. (SRS); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). The following will summarize the main points of discussion from the meeting.

Design Issues

1. Ebb introduced Brian Lovan who is a project manager out of PDR's Lexington office. Because of Ray's recent health problems, Brian attended the meeting and is ready to assume some of Ray's responsibilities if necessary.

2. The need to maintain the established lines of communication was discussed. Jeff Raffensperger and Dave Reves are the primary points of contact. GF and all of their subconsultants (including PDR and Scott Smith) should direct their communication through Jeff. KAWC should direct their communication through Dave.

3. The need to expand the use of the Project Discussion database was discussed. Ray and Scott were requested to register. The site is located at http://www.syseng.amwater.com.

4. Everyone was advised that any phone calls received from anyone outside of the Bluegrass team (such as the media, etc.) should be directed to Linda.

5. Linda will ask Barbera Brown to routinely send copies of all newspaper clippings regarding this project to Jeff and Dave.

6. It was agreed that regular monthly meetings are necessary for this project in lieu of typical design meetings which are only scheduled at specific milestones. The next two project meetings have been scheduled for January 18-19, and March 1-2. The meetings will typically be held near the beginning of each month and will begin at 10:30 am on the first day. If it is necessary to extend the meeting to the second day, it would typically end at noon.

7. It was agreed that a master project schedule, and not just a design schedule, will initially be developed by Jeff but updated monthly by Dave. Jeff and Linda were also requested to purchase licenses of Microsoft Project 98. The schedule should include the following in addition to that which Jeff already has in his design schedule:

a. Six major category headings for:
   - Pipeline Section 1 (everything done to date between Routes 55 and 151)
   - Pipeline Section 2 (new route along I64 between Route 151 and Leestown Road including the retention basin)
   - Pipeline Section 3 (the final section of pipeline from the I64/Leestown intersection to New Circle Road. This route is still pending).
   - Booster Stations
   - Permitting
   - Bidding

b. Individual tasks or milestones for:
   - The Kentucky River Crossing design
   - LWC completion of their route alignment and design at Floyd's Fork
   - Retainment of an easement consultant by KAWC (expected by January 22)
   - Notification to the public regarding Pipeline Section II
   - Resolution of route for Section 3 (this may occur as early as December 11)
   - Preliminary submittal to the DOW
   - Preliminary submittal to the ACOE
   - Resolution of land at each site
   - Resolution of the potential to install fiber optic cable
   - Bidding
   - Certificate filing

c. Resource assignment. The resources should be companies (GF, PDR, KAWC, AWWSC, etc.) and not specific individuals.

Jeff distributed a preliminary summary schedule which showed design completion in the middle of 1999. However, this is the most optimistic scenario, and realistically, the design could extend to the end of 1999.

8. The need to submit an anticipated permitting schedule, including activities as well as costs, was discussed. Jeff will be responsible for this, and it should generally be received by

Dave (via the Project Discussion database), before the last day of each month.

9. PDR is performing the design of LWC's facilities with GF as their subconsultant. PDR is required to have the design complete within 120 days, starting as of November 7, 1998, which is an unrealistic schedule. This schedule was based on the contract agreement between LWC and KAWC which is not reflective of the current project schedule. KAWC will advise LWC that the schedule requirements can now be relaxed. However, since the ACOE permit needs to be filed concurrently with LWC, LWC needs to expedite their pipeline alignment and the design at Floyd's Fork crossing such that they are complete prior to KAWC's pipeline alignment and Kentucky River crossing design. KAWC was also requested to forward a copy of any design related issues from their contract with LWC to Jeff, Ray, and Dave.

10. The KAWC contract with LWC discusses the need for LWC to be able to ultimately supply 35 MGD to KAWC's first booster station. There is apparently some confusion as to the interpretation of this by LWC in terms of number of pumping units and capacity, and pipeline size. KAWC needs to resolve this before PDR proceeds further with the design of the LWC facilities.

11. KAWC confirmed that the pipeline and booster station facilities design should not account for customers along the pipeline, and that the maximum capacity is 23 MGD.

12. Scott Smith discussed ACOE permitting issues, and distributed his "Environmental Permitting Strategic Overview" which is attached.

13. KAWC is in the process of retaining an easement consultant. In addition to the actual easement cost negotiations, this firm will be responsible to contact each property owner, show them the proposed route across their property on a PVA map and/or aerial photograph, and receive concurrence from them prior to PDR beginning field staking on that specific piece of property.

14. There is a Gas Company impressed current bed south of Shelbyville that the pipeline will need to be routed around. There is no cathodic protection along the gas main east of Shelbyville. The Gas Company has also voiced some concern with the water main crossing their gas main at several locations, due to the age of the pipe. These crossings will need to be revisited before finalizing the alignment.

15. The route for the final section of pipeline from the I64/Leestown Road intersection to New Circle Road is still pending. If it does not travel down Leestown Road, the alternate route would be to follow I64 to just before the Route 75 interchange, turn south towards Leestown Road and abut the Blackburn Correctional Institute property, then follow Leestown Road for approximately 2 miles to New Circle Road.

16. GF/PDR was requested to determine if the recent aerial photography encompassed the route near the Blackburn Correctional Institute. If not GF/PDR will have this section

flown immediately to avoid missing the window of opportunity which will not exist much longer.

17. The assumption made at the new Kentucky River crossing location was that the main would cross on the south side of I64, turn north under the I-64 bridge to a location where the terrain was milder, then follow the north side of I64 until reaching a convenient location to get back to the south side. PDR noted that they believe there is already a water main under the I64 bridge, and that there is an AT&T cable on the north side of I64. GF/PDR will investigate these concerns further. It was noted that the Water Company has no preference as to whether the main is on the north or south side of the road. GF/SRS will also determine if there are any concerns from the ACOE at this location.

18. There is an abandoned quarry near the proposed Kentucky River crossing. GF/PDR will investigate the potential to utilize this as a retention basin.

19. KAWC was requested to advise on the need for any unique architecture at either booster station considering their new locations. Additionally, KAWC was also requested to advise on the need to make the booster less vandal proof by locating scrubbers, surge tanks, and switch gear outdoors which would reduce the size of the building significantly.

20. Linda will begin investigating sites for Booster Station No. 2. If the last section of pipeline travels down Leestown Road, the previously identified location is the most ideal hydraulic location. If the last section of pipeline continues to follow I64, the booster station can hydraulically be located as much as two miles further east of the previously identified location.

21. At Route 151, it is acceptable to begin paralleling I64 at any point that would shorten the pipeline (i.e. it does not need to follow the gas main, then travel backward along the landfill property).

Consultant Cost Issues

1. The actual costs to date, as well as all cost over runs to date, were reviewed with GF and PDR. The actual costs expended to date total approximately $156,000 which is reasonable in comparison with the contract amount of $855,000. Of this $156,000 approximately $54,000 is associated with cost over runs which were associated with field work done by PDR or their subconsultant, Photo Science. The cost over runs were all adequately justified at the meeting. GF was requested to submit a formal request for additional compensation from which Dave will prepare an evaluation and forward it to the Water Company. Once approval is received from the Water Company, a Task Order will be forwarded to GF.

2. Dave will prepare a brief Request for Proposal identifying all work from this point forward needing to be performed which differs from the original scope of work. This will be forwarded to GF who will be requested to submit a cost proposal for the additional work.

Action Items Resulting From This Meeting

No.	Item	Responsibility	Due By
1	Ask Barbera Brown to begin sending newspaper clippings to Jeff and Dave.	Linda Bridwell	Dec. 31
2	Update project schedule to include the additional tasks and resources discussed at the 12-09-98 meeting.	Jeff Raffensperger	Dec. 31
3	Forward copies of any design related issues from the LWC contract to Jeff, Ray, and Dave.	Linda Bridwell	Dec. 31
4	Advise LWC that PDR's schedule for completing their work can be relaxed with the exception of the pipeline alignment and Floyd's Fork crossing.	Linda Bridwell	Dec. 11
5	Resolve the confusion associated with the 35 MGD requirement in the design of the LWC facilities.	Linda Bridwell	Dec. 11
6	Finalize the route from the I64/Leestown intersection to New Circle Road.	Linda Bridwell	Dec. 31
7	Determine if the recent aerial photography encompassed the potential route abutting the Blackburn Correctional Institute. If not, it needs to be flown while the window of opportunity to do so exists.	Ray Ihlenburg	Dec. 11
8	Advise if there should be any unique architectural requirements for the booster stations, and if the boosters can now be less vandal proof by location scrubbers, surge tanks, and switch gear outside.	Nick Rowe	Jan. 31
9	Pursue a new site for Booster Station No. 2.	Linda Bridwell	Jan. 31
10	Submit formal letter to Dave with cost over runs.	Jeff Raffensperger	Dec. 18
11	Prepare an RFP for the new work and forward to Jeff.	Dave Reves	Dec. 18
12	Determine if there are any concerns from the ACOE regarding the general location of the new Kentucky River pipeline crossing.	Scott Smith	Dec. 31

c: Linda Bridwell - KAWC (w/att)
Nick Rowe - KAWC (w/att)
Jeff Raffensperger - Gannett Fleming, Camp Hill (w/att)
Ray Ihlenburg - PDR, Louisville (w/att)

Linda Bridwell 11/20/98 04:34

To: Nick Rowe/KAWC/AWWSC@AWW
cc:

Subject: Bluegrass Water Project

Alisha Graham has faxed me a handwritten list of the new property owners. She is preparing a typed list and set of maps which I will receive next week. Do you want the handwritten list first? I understand from Alisha that Ray has had triple bypass surgery and is recuperating. Dave and I, after much discussion, have decided to move the December 1 meeting to December 9-10. Dave has updated the project discussion file with a conversation about the cathodic protection issue from the metering point to KY 151. After discussions with the gas company, it appears that cathodic protection may not be a significant issue, and what little we would save would be lost in actually an increase in length to parallel the interstate. He has asked me to have a final decision on changing the route to parallel the interstate from the metering point to KY 151 as soon as possible. I have told him that it does not appear to be likely, particularly now that there is no cost savings, but I would like yours/Roy's buy-in.

Linda Bridwell 11/17/98 05:16

To: David M Reves/SYSENG/CORP/AWWSC@AWW
cc: Nick Rowe/KAWC/AWWSC@AWW

Subject: BWP

To follow up on our phone conversation--
PDR can go ahead and do aerial photography as previously authorized. They may also go ahead and develop PVA information for route parallelling I-64 from KY 151 to Midway and come in US 421 to previous work. Please confirm that with Jeff.
On December 1, we need to costs to date and GF/PDR need to have an accurate cost breakdown to change the route to above. I am also thinking that we may want to go back to about the Shelby/Franklin County line and turn northeast to I-64/Ky 151. As of this morning, the route from the metering point to KY 151 is still a go and Leestown Road in is still a go. We will discuss further the cathodic issues on Dec 1 for the portion not revised.
This route change is still preliminary and very confidential. We are developing the best approach to communicating this and will let you know as things progress.
I am requesting qualifications for easement acquisition team. We will get them on board quickly to help in the surveying team effort as discussed.
System Engineering charges from January 1998 forward were $31,536.81. Sorry that took so long. I'll fax you revised BP tomorrow and if it all looks OK I'll e-mail to Sue. That way John could get it on Thursday and can send it back to me once he signs. It would be nice if it could go out Friday. Thanks!

November 11, 1998
BP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A meeting to review the pipeline alignment for the referenced project was held on November 5-6 at Kentucky-American Water Company's main office in Lexington. In addition to discussing the alignment for the proposed route, a hydraulic analysis of an alternate route was performed at the meeting, and a site visit was also made to potential alternate locations for both Booster Station No. 2 and the Kentucky River crossing. In attendance for all or parts of the meeting were Linda Bridwell representing Kentucky-American Water Company (KAWC); Dave Marks and Jeff Raffensperger from Gannett Fleming, Inc. (GF); Alisha Graham and Ray Ihlenburg from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). The following will summarize the main points of discussion from the meeting.

Current Pipeline Alignment

1. PDR has completed the preparation of preliminary plan drawings with contours for the current pipeline alignment, and these were reviewed at the meeting. PDR indicated that the Gas Company has requested that the proposed pipeline remain at least 100' away from the existing gas main. Additionally, a number of natural and man made obstacles (subdivisions, etc.) have also resulted in the need for further realignment. As a result of this, the proposed pipeline easement will need to deviate from the original concept of abutting the gas pipeline easement, and a number of areas will need to deviate significantly (including crossing the gas main) due to the obstacles encountered.

   The majority of the rerouting was agreed to at the meeting. However, PDR suggested that the alignment across a number of large horse farms be discussed in person with the individual property owners as opposed to PDR attempting to determine the alignment for which each property owner would most likely be receptive. This may be a non-issue based on the potential to pursue an alternate route (see below). However, if an alternate

route is not pursued, this issue will be addressed again with KAWC.

2. A location just upstream of the Kentucky River at the highest elevation was identified as the best location for the proposed retention basin. KAWC will pursue the potential for acquisition of this land unless an alternate route, which would cross the Kentucky River at an alternate location, is pursued (see below).

3. PDR is nearing the point where significant field work will need to be initiated. This would first include staking of the route, followed by wetlands, archeological, soils, and corrosion investigations. Following the meeting, Ray was directed to complete the mapping between Route 55 and the location where the potential alternate route will continue along I-64, and along Leestown road. Ray will advise when the field work is ready to begin.

4. The contour information which Ray provided at the meeting (everything up to Leestown Road) was input into the original AWWSC hydraulic spreadsheet which had been developed from USGS maps. Following the meeting, Ray provided the remaining contour information along Leestown Road. The actual data was comparable to the USGS data, and the original hydraulic assumptions (number and locations of booster stations, etc.) are still valid.

Potential Alternate Routes

1. Several potential alternate routes were discussed at the meeting. Due to the limited window of opportunity to fly these routes, PDR was requested to initiate this activity immediately. GF will forward either a letter or an e-mail identifying the costs before proceeding with the work.

2. The table below, which was partially developed at the meeting and completed subsequent to the meeting, provides a comparison of the current route to two potential alternate routes. The first alternate route would begin to parallel I-64 at Route 151 then connect back to the current route at the intersection of Leestown Road and I-64. The second alternate route would also begin to parallel I-64 at Route 151, but would continue along I-64 and not follow Leestown Road. The pipeline would eventually turn south along Greendale Road and tie into Leestown Road near New Circle Road. The following should be noted when reviewing the information in the table.

    a. The pipeline lengths for the current route and a majority of the two alternate routes are based on actual field work which reflects all necessary deviations from a straight line route (i.e. going around subdivisions, landfills, farms, etc.). Since portions of the proposed alternate pipeline routes are based on straight line routes taken from USGS maps, actual field alignment may result in routes that are slightly longer.

b. A cost of $2/ft was assumed for additional engineering costs for the new pipeline routes (just the new areas that will need to be resurveyed and remapped). Approximately $150,000 was then added to this number to reflect other miscellaneous engineering activities associated with a new route such as preliminary hydraulic studies, booster station siting, revisions to the preliminary energy and retention basin studies, etc.

c. $120/ft was used to develop the pipeline materials/installation cost savings. This is the same number that was used in the original project cost estimate. This also assumes that the topography and obstacles along the proposed alternate routes are similar to the current route.

d. The cost for the Kentucky River crossing is in addition to the cost that is already assumed for the current route. The pricing is based on an assumption that the pipeline will need to deviate approximately 5,000 feet (at $120/ft) from a straight line route up the bluff on the east side of the Kentucky River at I-64. Based on actual field observations and a review of the USGS maps, it appears that the pipeline could easily approach and cross the river on the south side of I-64. At that point, the pipeline would need to turn north and travel approximately 2,500 feet along the east side of the Kentucky River to a location where the grade is significantly milder. The pipeline would then begin to parallel I-64 on the north side and eventually cross back 2,500 feet to the south side at a convenient location, thus a total pipeline footage increase of 5,000 feet.

e. The assumed location for the alternate routes for Booster Station No. 2 is hydraulically acceptable. However, further investigation is recommended to potentially find a location to slightly better optimize (lower) the maximum pressure.

	Current Route		**I64/Leestown Rd.**		**I64/Greendale Rd.**	
Pipeline Length	*1st Gradient*	*2nd Gradient*	*1st Gradient*	*2nd Gradient*	*1st Gradient*	*2nd Gradient*
Feet	151,800	103,000	144,700	90,700	144,700	104,900
Miles	28.8	19.5	27.4	17.2	27.4	19.9
Total	254,800 feet = 48.3 miles		235,400 feet = 44.6 miles		249,600 feet = 47.3 miles	
Est. Costs vs. Current Route	Net Savings of $0		Net Savings of $1,395,000		**Net Increase of $464,000**	
Additional Engineering	$0		$350,000		$500,000	
Kentucky River Crossing	$0		$600,000		$600,000	
Pipe Materials/Installation	$0		- ($2,345,000)		- ($634,000)	
Pressures at 23.0 MGD	*1st Gradient*	*2nd Gradient*	*1st Gradient*	*2nd Gradient*	*1st Gradient*	*2nd Gradient*
High (psi)	252.6	256.6	246.2	254.9	246.2	266.6
Low (psi)	40.1	97.3	40.2	97.3	40.2	88.6
Booster Station (psi)	215.2	237.6	208.7	222.0	208.7	233.7
Kentucky River (psi)	232.3	n/a	227.0	n/a	227.0	n/a
Pressures at 1.6 MGD	*1st Gradient*	*2nd Gradient*	*1st Gradient*	*2nd Gradient*	*1st Gradient*	*2nd Gradient*
High (psi)	228.5	152.0	231.8	162.9	231.8	163.0
Low (psi)	40.1	77.3	40.4	77.3	40.4	60.7
Booster Station (psi)	99.9	129.5	99.7	126.1	99.7	126.2
Kentucky River (psi)	228.5	n/a	231.8	n/a	231.8	n/a

3. In comparing the above, the following advantages for the I64/Leestown alternate route should be noted in addition to the obvious advantage of less pipeline footage resulting in significantly less cost.

   a. Both alternate routes would parallel less of the gas main, thus the potential need to install a cathodic protection system due to stray current is minimized.

   b. It appeared from site observations that power availability for Booster Station No. 2 for the alternate routes was better than that at the Booster Station No. 2 site for the current route.

   c. Although KAWC does not desire to install the pipeline in the highway right of way, the potential does exist with the alternate routes, and thus easement costs and associated activities could potentially be significantly reduced.

4. A third alternate route was also investigated at the request of KAWC only from a standpoint of footage and not hydraulics. This route would cross the Kentucky River at the location for the current route, then begin to travel north along rural roads until reaching the intersection of I-64 and US 60. The estimated length of this route is 48.2 miles assuming that the pipeline would deviate off I-64 and travel down Leestown Road. Thus, since the footage is comparable to the current route, there would be no anticipated cost savings.

5. The possibility of paralleling I-64 all the way back to Route 55 was also briefly investigated since PDR has indicated that the Louisville Water Company's preference is to install their pipe along I-64. If the pipeline needs to deviate from I-64 at Route 151 to get back to the gas main, the additional footage at this location is approximately 3,000 feet. At a cost of $120/ft, this equates to $360,000 which would roughly offset the cost for redesign. Additionally, following I-64 and avoiding the gas main entirely also avoids all potential concerns associated with stray current.

Action Items Resulting From This Meeting

No.	Item	Responsibility	Due By
1	Initiate aerial survey for all alternate pipeline routes.	Ray Ihlenburg	Nov 20

c: Linda Bridwell - KAWC
Nick Rowe - KAWC
Jeff Raffensperger - Gannett Fleming, Camp Hill
Ray Ihlenburg - PDR, Louisville

David M Reves 11/11/98 09:45 AM

To: Linda Bridwell/KAWC/AWWSC@AWW
cc: Nick Rowe/KAWC/AWWSC@AWW
Subject: LWC Letter

Linda: I never finished reading the letter that Greg Heitzman sent to you when I was in Lexington last week. Could you fax it to me? Also, I should be wrapping up the minutes today from last week's meeting which will include the hydraulics and recommendations for the current route (based on actual contours), the alternate route down I64 branching off to Leestown Road (which we did last week at the meeting, but I am rechecking it) , and the second alternate route which will follow I64 all the way to New Circle Road. If I'm not able to get this in the overnight mail to you tonight, I'll fax it on Thursday. I'll be out of the office Thursday afternoon, and will be in a materials managment meeting all day Friday (here in my office). If you need to discuss the hydraulics with me, either call me Thursday morning, or else ask a secretary to come and get me out the materials management meeting on Friday.....Dave

Linda Bridwell 11/06/98 06:01

To: David M Reves/SYSENG/CORP/AWWSC@AWW, jraffensperger@gfnet.com
cc: lhlenburgr@aol.com

Subject: BWP

I e-mailed Ray, asking him to start work on PVA info on interstate route. I will forward copy to you, since I forgot to copy you.
When I got back to the office, I spoke with Nick and Roy at length. There are still a couple of minor hang-ups but there is a strong feeling around here that we are going to switch the route to parallel the south side of I-64 at least from KY 151 to Midway. This switch will probably be made definite either late next week or early the following week.
Dave, what I need you to do is double check the route and cost estimate, and give me something in writing next week for Roy that details the numbers (footage difference, more expensive crossing, anything you have in there).
I also need you to take a brief look at parallelling the interstate from Midway east to Greendale Road, and turning across to US 421 there. I believe that this will increase the footage, and thus the cost. I can fill in the rest if you agree on the footage issue.
I have also asked Ray if there is any way possible to get the PVA info on the interstate route next week. I know the answer may be no, but I have to ask. Roy is going to try to meet with representatives of some of the opposition during the week of the 16th, and it would be helpful to know if there are any easily foreseeable before then.
I will try and get in touch on Monday. I know this is frustrating for everyone, because I feel the same. Thank you for your patience and hard work!

Linda Bridwell 10/29/98 02:41

To: David M Reves/SYSENG/CORP/AWWSC@AWW
cc:

Subject: BWP

At this point, I need you to verify the hydraulic feasibility of each route, with a priority on the blue route and the pink route. I think the green and orange routes will fall out for political reasons.
Tom tells me has sent the other topo maps. John is purchasing the whole set on CD. After we look at them, if they are fairly adaptable, I will send you a copy.
I'll try to respond to Jeff's questions in the discussion today. Have not looked at them yet. Time for November 5-6?

lhlenburgr@aol.com on 10/29/98 09:00:30 AM

To: Linda Bridwell/KAWC/AWWSC
cc: dreves@amwater.com, jraffensperger@gfnet.com

Subject: UPDATE

---

1. We will have route and profile ready for the meeting 11-5,6-98. The booster stations will be located on the maps.
2. Our surveyors have researched the Montague property and found it to comprise over 180 acres not 56.If KAWC has committed to survey the entire parcel we need to have directions and the cost will go up. We will do enough at the site to enable KAWC to discuss the 'take' with the owner. Mom Montague was not happy when she talked with PDR and says KAWC has NOT contacted them.Linda who did you and i talk with that morning???
3. Please send me the copy of the 1991(?) Route Study done by KAWC.
4. Louisville Water Co. has released PDR to start the LINE contract. They will release us to start the tank and pump station after they get agreement from KAWC that should the project never be built, LWC would be reimbursed for the design of the tank and pump station. They were not repective to placing the tank on the RT 55 booster station No. 1 site. KAWC should approach the owner with the 2 acre 'take' soon based on the layout we have at this time.
5. We will send Benson Valley Landfill a draft map showing the proposed route around the landfill today and get their input.
6. For the purpose of next weeks meeting we are showing the water line where we think it might be best build. Many spots where it won't parallel the gas main.. we'll bring the 1"=825' areal photo (boards) to the meeting that will give us a very good view of the total surrounding areas.
7. WHAT is the final decision on the trenching for the deep archaeological investigations at the KY. River. Also, does KAWC have or can you get from Mr. Watts the names and address of all owners of the land involved with the KY. River crossing so they can be informed when we wish to enter the property and what will
take place while we are on the land.

WHAT TIME DO WE START THE MEETING ON 11-5-98? PLEASE CONFIRM

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SofS
Design

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

October 26, 1998
BP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A meeting to review the draft Design Memorandum, Pump Study, and Energy Study, as well as to discuss other outstanding issues on the referenced project was held on October 13-14 at Kentucky-American Water Company's main office in Lexington. In attendance for all or parts of the meeting were Darrell Ary, Linda Bridwell, Rick Buchanan, John Hill, Nick Rowe, and Julie Simpson representing Kentucky-American Water Company (KAWC); Jeff Raffensperger from Gannett Fleming, Inc. (GF); Alisha Graham, Ray Ihlenburg, and Barry Robinson from PDR Engineers, Inc. (PDR); Scott Smith from Scott R. Smith Environmental Management Consultants (SRS); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). The following will summarize the main points of discussion from the meeting. GF is responsible for ensuring that all comments provided here as well as minor comments provided during the meeting are incorporated throughout all of the documents as necessary.

Pipeline and Permitting Issues

1. The pipeline alignment between the Kentucky River and New Circle Road has been completed. However, there are still a number of route issues west of the Kentucky River that need to be resolved. These issues are physical related and not property owner related. Also, the Gas Company did not have personnel available to locate their gas main, and PDR is attempting to locate the main themselves. They expect to have this resolved by the end of the month.

2. PDR voiced concern that they do not have a current list of the information regarding contacts with property owners that have been made by KAWC. KAWC will provide PDR with a current list.

3. It was indicated that anode beds exist along the entire gas main and not just at select

locations. There is a concern that the entire water main may need to be cathodically protected. Involvement from DIPRA at this time was recommended by AWWSC.

4. PDR requested that their request for additional compensation be processed at this time. However, it was noted that the October 4 letter from Jeff Raffensperger to Dave Reves did not have enough detail, such as man hours, for AWWSC to make a recommendation to KAWC. GF will revise and resubmit this letter and provide the necessary additional information.

5. Since it will be necessary to perform a number of auger probes along the pipeline route for various purposes, it was suggested that these be coordinated into a single effort to minimize the disturbance to property. The required borings are as follows:

   a. For structural purposes such as at river crossings.
   b. For corrosion investigation by DIPRA.
   c. For archeological purposes (see item 6 below).
   d. Possibly for bidding purposes depending on the outcome of discussions with local and national contractors (see on-line project discussion database).

   GF will coordinate the requirements from each party and solicit pricing from their geotechnical subconsultant. Item "d" above will first need to be resolved by KAWC (local contractors) and GF (national contractors).

6. The property owner near the Kentucky River indicated that he believes artifacts exist on his property. The archeological subconsultant has also previously recommended that an excavation be performed at this location, and that auger probes be taken at select locations along the route to avoid a delay in receiving the permit. PDR will confirm the locations where archeological excavations and auger probes are required and provide this information to GF for item "5" above and to KAWC for use in notifying property owners.

7. Scott Smith indicated that he plans to file the Army Corps of Engineers (ACOE) permit application under the nationwide permit, but suggests that we be prepared to file an individual permit at the Kentucky River crossing. Scott will need design drawings showing how the pipeline will cross the river. Additionally, Scott indicated that the ACOE permit application will need to include Louisville Water Company's (LWC) portion of the pipeline, however, the design work for LWC has not yet been initiated. PDR will attempt to concentrate of the areas of the LWC pipeline that need to be included with the ACOE permit application once they are given authorization to proceed.

8. Linda requested that backup information be provided to justify AWWSC's cost estimate for crossing the Kentucky River. Dave will provide this information.

9. KAWC has requested that GF/PDR investigate two alternate pipeline routes in

Woodford County. Linda has forwarded a letter to PDR with this information. Ray will prepare a cost proposal including a more detailed scope of work and submit this to KAWC. When performing cost comparisons, GF/PDR should consult with AWWSC to ensure that the costs coincide with the previously prepared estimates. The design should continue to proceed at this time based on the current route. Completion of the design is the top priority, and evaluation of these alternate pipeline routes most likely will not begin until near the end of the year.

Pump Study

1. Comments on this document were previously provided to GF by AWWSC via telephone, and are incorporated in the current document.

2. KAWC is in agreement with the results of the study which indicated that vertical can turbine pumping units are the best choice for this application. This is the assumption that was made in the Design Concept.

3. The study needs to reflect the operating conditions agreed to during the review of the Design Memorandum (see below).

4. The issue of 19 MGD vs. 23 MGD pumping units still needs to be addressed. The cost to install 19 MGD units now and replace them in the future with 23 MGD units (including motors, switchgear, appurtenances, etc.) vs. the cost to install 23 MGD units at this time needs to be identified in the text of the report.

Energy Study

1. The study needs to reflect the actual expected pipeline operating conditions. It is expected that a small pump at each station will operate 6 months out of the year at 50% capacity (1.6 MGD), and the remaining 6 months at full capacity (3.2 MGD) to maintain water quality. A large pump at each station will need to operate one day per year to meet the max day production deficit. Diesel engines or generators will need to be exercised at full capacity for one hour, every two weeks. Electric motors on the larger pumping units do not need to be regularly exercised.

2. The maintenance requirements for the pumping units and drivers need to reflect the anticipated usage (see above). Darrell Ary provided information to GF during the meeting regarding specific expected maintenance requirements for these pump stations. Regardless of the need for maintenance or inspections, it is also expected that the pump stations will be visited one per week for general inspection as part of KAWC's normal operations. GF will revise the report to reflect this information.

3. KAWC indicated that the power company demand charge is based on monthly usage. Thus, if the large pumping units are equipped with electric motors, and the pumps are not operated in a specific month, the demand charge will not apply. GF will verify this

with the power company and make the necessary changes to the report.

4. Summary Table 21 on page 66 appears to have errors and is also inconsistent. For example, the operating costs for a diesel engine are nearly 4 times that for a diesel generator. It would be expected that they would be comparable. Also, the final rankings do not coincide with the net percentages. GF needs to thoroughly review the table again and revise it as necessary. Since the weighting of each item can have a significant impact on the final result, these weightings will need to be reviewed and discussed carefully. One item of note is the convenience of having remotely operated electric pumping units which should have a relatively high importance.

Design Memorandum

1. All of the background information on the overall project, most of which was taken from the original RFP, should be deleted since some of it has changed and some of it has been misstated.

2. The table on page 2 will need to be revised, and all new information reflected throughout this study as well as the Pump Study and the Energy Study. The Hot, Dry Weather Conditions should be deleted from the table. The Demand Deficit should be referred to as a Max Day Production Deficit. The wording above the Supply Deficit column that says "Peak Single Day Event" should be deleted. Reference should be made that the supply deficit is based on a drought of record over an estimated 183-day period.

3. All references to telephone telemetry should be replaced with radio telemetry. However, the issue of fiber optic cable is still being pursued by KAWC. John Hill indicated that there are now two interested parties, a cable company and Louisville Gas and Electric (LG&E). GF should proceed with the radio survey following which a decision will be made as to whether to proceed with the detailed design of a radio system.

4. Monitoring of LWC facilities by KAWC or vice versa is no longer part of the scope of work now that LWC will construct a tank on the storage side of the first KAWC booster station.

5. The information on page 4 regarding peak day demands and source of supply deficits is incorrect. The Design year is 2010, and the ultimate year is 2020. Refer to the table on page 2 of the Design Memorandum for the correct values.

6. The text at the top of page 5 is incorrect. The pipeline is sized for the ultimate 2020 source of supply deficit, not the peak single day supply deficit. Also, the velocities indicated only need to reflect min and max flow to maintain water quality, and design and ultimate source of supply deficits. Lastly, there is no typical maximum desired pressure.

7. The text at the top of page 6 needs to discuss the proposed LWC booster and storage tank. Also, the sizing of the smaller pumping units needs to be revisited. The desired operating range identified in the Design Concept was 1.6-3.2 MGD, with an assumed turndown of 50%. However, if the pump can turn down lower than 1.6 MGD, the 3.2 MGD capacity should be maintained as opposed to selecting a larger pump that would turn down to only 1.6 MGD. The best efficiency point should be selected at approximately 2.4 MGD provided the min and max operating points still have reasonable efficiencies. However, the best efficiency point for the larger pumping units should be selected at their capacity since this is the point they will run at normally.

8. The horsepower of the motors for the pumping units is too close to the maximum horsepower at any point on the pump curve. The selection of the motors needs to consider that the horsepower requirements are based on the published pump efficiencies which will worsen as the pump wears. As a general rule of thumb, the horsepower of the motor should be approximately 15% greater than the worst point on the curve, with a 1.15 service factor on top of that. GF should list in the memorandum the worst point on the curve, the best efficiency point, and the max and min efficiencies across the operating range.

9. There is no minimum or average flow requirements for the larger pumping units. They should be selected based on the capacity we have specified, and GF should indicate the turndown capability.

10. The ammonia feed point should be downstream of the chlorine feed point. The corrosion inhibitor should be fed after the ammonia feed point.

11. The text on page 10 indicates that the feed equipment for the gaseous chemicals is located in both the storage and feed rooms for each respective chemical. Only the vacuum regulators are located in the storage rooms.

12. The information regarding the chlorine and ammonia feeders should include the capacity of the units and the operating range of each rotameter that will need to be used to meet the feed requirements.

13. The calculations for the corrosion inhibitor need to reflect high and low flow requirements as was done in the chlorine and ammonia calculations. Two sets of metering pumps will most likely be required.

14. Due to the significant distance of the first booster station from Lexington, the corrosion inhibitor day tank should be sized for more than a single day of operation. It is recommended that a 200 gal day tank be provided which would provide in excess of one week of storage under normal operations. This will prevent an operator from having to visit the site more than once a week. The filling of the day tank should remain a local operation only.

15. The pump stations should not have any windows or skylights. The entrance signs should also have a KAWC emergency phone number on them. An interior ladder for roof access should be provided.

16. The exterior architecture of both pump stations should be brick. It was noted that this may change at a later date to accommodate the desires of the property owners and local residents, however, GF was instructed to proceed at this time with the brick exterior.

17. The automatic mode of operation for the pumping units will consist of setting a flow rate and letting the control system start and stop the pumps.

18. The control system should be designed around 32-bit architecture. The existing KAWC system is expected to be upgraded prior to construction of the Bluegrass booster stations.

19. The electrical design should be based on the NFPA 1999 Codes.

20. All areas except the chemical rooms should be designed with high pressure sodium or metal halide lighting with instant restart. The chemical rooms should be designed with fluorescent lighting.

21. The ventilation in the corrosion inhibitor room should allow for routine air changes due to the corrosiveness of the chemical.

22. Booster Station No. 2 should be laid out nearly identical to Booster Station No. 1 with the ability to add chemical facilities in the future if necessary via a building addition.

23. The construction sequence section can be deleted since this is not a renovation project.

24. An updated cost estimate is needed by KAWC prior to the end of the month.

25. The maximum chlorine dosage should be 3.5 mg/L and not 4.5 mg/L. The maximum ammonia dosage should be 1.17 mg/L and not 1.5 mg/L.

26. The operating range (turndown) of each rotameter for chlorine and ammonia should be provided.

27. The chlorine system should be limited to a maximum feed rate of 560 lbs/day. This is the withdrawal capacity from a chlorine ton cylinder at 70 degrees F, and realistically would not be exceeded. This will prevent the need to have manifolded cylinders.

28. Fiberglass conduit should not be specified.

29. The orientation of Booster Station No. 1 should permit the ability for chemical trucks to circle the station without having to back up. Additionally, access from Brunerstown

Road is preferred, and Linda will send Jeff the appraiser's map which shows more frontage along Brunerstown Road.

30. Booster Station No. 1 should include a hallway down the middle with exits at each end which would separate the chemical facilities from the rest of the building. Thus, half of the building would be nearly identical to that needed for Booster Station No. 2. Also, the corrosion inhibitor room should be completely enclosed. Dave and Jeff will discuss the layout of the room in more detail before the Design Memorandum is resubmitted.

31. A minimum of two manufacturers should be provided for all materials and equipment. The following changes should also be made to the list:

    a. Ductile Iron Pipe - add Clow
    b. Motors - delete Siemens
    c. Vertical Can Turbines - delete Peerless and consider adding Johnston
    d. Scrubbers - add Purafil for chlorine dry scrubbers
    e. Metering Pumps - delete LMI
    f. All Electrical Equipment - delete General Electric

32. GF should resubmit the Retention Basin Study, the Pump Study, and the Energy Study as three separate stand alone documents. The Design Memorandum should then be submitted and should reflect the conclusions of the three studies.

Project Schedule

1. Ray indicated that the remaining pipeline alignment west of the Kentucky River should be completed before the end of the month.

2. GF was requested to resubmit the Retention Basin Study, Pump Study, Energy Study, and Design Memorandum by the end of October provided all of the pipeline information was available.

3. A second meeting to review and finalize the above has been tentatively scheduled for November 5.

4. A meeting with the Division of Water to review the Design Memorandum has been tentatively scheduled for November 18.

5. Jeff indicated that the design may not be complete by December 15 as previously expected. KAWC requested that GF submit an updated schedule no later than October 23rd.

Action Items Resulting From This Meeting

Previous action items were first reviewed, and an updated status is provided in the on-line Project Discussion database. New action items from this meeting are as follows:

No.	Item	Responsibility	Due By
1	Send PDR the most current information regarding contact by KAWC with property owners.	Linda Bridwell	Oct 23
2	Provide backup information to Linda regarding the cost estimate for the river crossing.	Dave Reves	Nov 15
3	Send appraiser's maps of the proposed booster sites to Jeff.	Linda Bridwell	Oct 23
4	Provide backup justification related to the request from GF for additional compensation.	Jeff Raffensperger	Nov 15
5	Provide updated project schedule to KAWC.	Jeff Raffensperger	Oct 23
6	Investigate alternate routes in Woodford County.	Ray Ihlenburg	Dec 31

c: Darrell Ary - KAWC
Linda Bridwell - KAWC
Rick Buchanan - KAWC
Dillard Griffin - KAWC
John Hill - KAWC
Nick Rowe - KAWC
Julie Simpson - KAWC
Jeff Raffensperger - Gannett Fleming, Camp Hill
Ray Ihlenburg - PDR, Louisville

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Tom Friley 10/20/98 07:53 AM

To: Linda Bridwell/KAWC/AWWSC@AWW
cc:
Subject: BGWP, Georgetown Road

I suppose we can do any connection that is dreamed up. The G-town route is more difficult for the reasons you stated:
A. Need a tank or tanks to put some of the water. We both know that this is not such a bad thing-to build more storage.
B. Not as well equipped to move water from the G-town Rd/New Circle intersection on out into the system.

Currently there is a 20" main at the proposed location. This will handle maybe 7MGD in each direction. How well it dissipates after the 20" is a guess. Does not look as good as Leestown. The area would require at a minimum, 24" connection to the north, preferably @ Ironworks/I-64. Plus 20" artery into the town grid. Also concerned about getting water to Clays Mill/Parkers Mill Tanks. They are critical in the big scheme. We can parallel the 20" from Gtown/circle back to the 24" @ Leestown to ensure we can fill these tanks also.

The positive side is that we end up further north, i.e. closer to Toyota/Scott County. This could be a real benefit. Dual feeds to our No. 2 user makes me happy.

I assume we would still fix Midway as we pass on I-64.

Smart-el-ick comment: I bet the Water Company will not have to worry about getting 2 MGD usage out the line. We push this thing any more to the north it can tie in @ Toyota. Maybe we can go to Maysville first, then turn south.

Linda Bridwell 10/19/98 04:53

To: Tom Friley/KAWC/AWWSC@AWW
cc:

Subject: Bluegrass Water Project

Received a call from Mr. Ingram late today. Please address first thing -- can we hydraullically accept water into our system at New Circle and Georgetown instead of Leestown? I don't think we can. He and Mr. Lear were looking at compromise route to parallel interstate all the way to Georgetown Road, but I'm afraid that without tank there, we can't. I guess another option is to parallel interstate to Bethel Road and come in along FCI, then in Leestown Road. See any problems with that? I'll be in around 8 and would like to discuss unless you have prior engagement. Thanks!

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To: David M Reves/SYSENG/CORP/AWWSC@AWW
cc: Nick Rowe/KAWC/AWWSC@AWW
Subject: BWP

To follow up on our phone conversation--
PDR can go ahead and do aerial photography as previously authorized. They may also go ahead and develop PVA information for route parallelling I-64 from KY 151 to Midway and come in US 421 to previous work. Please confirm that with Jeff.
On December 1, we need to costs to date and GF/PDR need to have an accurate cost breakdown to change the route to above. I am also thinking that we may want to go back to about the Shelby/Franklin County line and turn northeast to I-64/Ky 151. As of this morning, the route from the metering point to KY 151 is still a go and Leestown Road in is still a go. We will discuss further the cathodic issues on Dec 1 for the portion not revised.
This route change is still preliminary and very confidential. We are developing the best approach to communicating this and will let you know as things progress.
I am requesting qualifications for easement acquisition team. We will get them on board quickly to help in the surveying team effort as discussed.
System Engineering charges from January 1998 forward were $31,536.81. Sorry that took so long.
I'll fax you revised BP tomorrow and if it all looks OK I'll e-mail to Sue. That way John could get it on Thursday and can send it back to me once he signs. It would be nice if it could go out Friday. Thanks!

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Gannett Fleming

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October 4, 1998

Dave M. Reves P.E.
Senior Design Engineer
American Water Works Service Co. Inc.
1025 Laurel Oak Road
P.O. Box 1770
Voorhees, NJ 08043

RE: Kentucky-American Water Company
Bluegrass Water Project
Extra Engineering Services

received
10/8/98

Dear Dave:

This letter will include our initial request for extra engineering services related to additional work being completed for route research, survey, mapping and printing services. The extra services request are explained as follows:

1. Provide a 1000' wide mapping corridor along the entire project route in lieu of the 400' wide corridor provided in our proposal. The cost from Photo Science, Inc. totals $22,000.

2. Provide 90 additional photo identifiable control points to meet national mapping standards for 1000 foot contour corridor - Originally the project was priced to survey and include 54 GPS (27 pairs) points, these would have provided horizontal and vertical control sufficient for planimetric mapping (no aerial contouring). As the project expanded from a 400 foot wide contour corridor to the present 1000 foot wide contour corridor the control needs have expanded to require 90 extra photo identification control points along the original corridor. This work has been completed by PDR Engineers Inc. We are requesting total compensation the amount of $15,500.00.

3. Provide survey for water line routing wherever it diverts from the original gas main/power line/Route 421 corridor-In several instances the water line route must be diverted around several subdivisions and a landfill as the existing gas main right of way routes directly through the following subdivisions and landfill: the subdivisions include

Majestic Oaks; Hunters Point Estates; Wiesinger Estates; and Bittersweet subdivision. The landfill in question is the Benson Valley area landfill. We are requesting as compensation for this extra survey services in the total amount of $19,000.00.

4. We had been requested to do routing studies for diverting the water main along two separate routes to avoid the Kentucky Attorney General's Estate. A route along Sink and Heddon Roads was selected as the final route. We are proposing to provide survey and mapping for aerial photography setting 17 panel points, completing survey control mapping services and survey the water line routing for a total cost of $21,500.00.

5. Provide property owner research for 256 extra properties-Under the original concept there were approximately 300 property owners which required property research for the original routing. Based on the reroutes that have occurred for this project we have provided property owner research for 256 extra properties. We request that we be compensated at a total cost of $7,500.00 for this work.

6. Booster Station #1 property survey-Linda Bridwell has requested PDR Engineers Inc. to provide a complete property survey for the Booster Station #1 site which is proposed to be located at the south west quadrant of the intersection of Kentucky 55 and Brunerstown Road (Parcel 33F, PVA Map 32). This is a 7.5 acre parcel. We are requesting compensation of $2,600.00 for this property survey work.

7. Booster station #2 - Linda Bridwell requested PDR Engineers to do a complete property survey in addition to the site survey for the Booster Station #2 site located at the end of Glens Branch Road, on the property owned by the Montague Trust (Parcel 20, PVA Map 8). This is a 57 acre parcel. We are requesting compensation in the amount of $5,400.00 to complete this additional survey work.

8. Provide 20 sets of contract documents for submittal on the Certificate of Convenience and Necessity. The 20 sets of contract documents cost is $7,500.00.

We are requesting total extra compensation in the amount of $101,000.00 for the extra services identified above. These extra requests do not include any changes in the contract for the pipeline starting at a point on Route 55 in Shelby County and additional request for a communications survey between the booster station sites and the Richmond Road Water Treatment Plant by radio. We need to further discuss the concept of credits related to a change in length of the pipeline in Shelby County at your convenience. This may be conveniently done at the meetings on the 13th and 14th.

Should you have any questions or comments concerning this extra services request, please contact me at this office

Very truly yours,

GANNETT FLEMING, INC.
Water Resources and Geotechnical Division

JEFFREY L. RAFFENSPERGER
Section Manager, Water System Design Section

cc: Linda C. Bridwell
Raymond W. Ihlenburg
W. Kirk Corliss
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American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

July 20, 1998
BP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A meeting to discuss outstanding items on the referenced project, including changes in the scope of work resulting from relocation of the point of delivery to Route 55, was held on July 6 at Kentucky-American Water Company's main office in Lexington. In attendance were Linda Bridwell, John Hill, and Nick Rowe representing Kentucky-American Water Company (KAWC); Jeff Raffensperger from Gannett Fleming, Inc. (GF); Alisha Graham, Ray Ihlenburg, and Barry Robinson from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). The following will summarize the main points of discussion from the meeting.

Comments on Previous Minutes

1. There were no comments on the minutes of 5-7-98 for the 5-1-98 permit meeting.

2. There were no comments on the minutes of 5-21-98 for the 5-19-98 electrical and instrumentation meeting.

Effect on the Scope of Work Resulting from Relocating the Point of Delivery to Route 55

1. LWC has not yet finalized the location or size of their proposed tank. The overflow elevation, however, has been tentatively set at elevation 950'. The tank size is expected to be at least 1.0 MG and no greater than 2.5 MG. One of the potential sites for the tank is directly at Route 55 (ground elevation = 770'), however, we are assuming at this time that LWC will only guarantee 30-40 psi at the point of delivery at Route 55.

2. LWC will provide a meter vault at the point of delivery. KAWC will also have meters within the pump stations which will be used for pump control in lieu of relying on LWC meters.

3. There will be no cross telemetry between the KAWC and LWC facilities. KAWC will simply monitor suction pressure at the first pump station in lieu of directly monitoring the level in the LWC tank.

4. With an overflow elevation at the LWC tank of 950', it may be possible to generate flow by gravity at the lower pumping rates between the first and second booster stations. This cannot be confirmed until the LWC tank operating range is known, and the final contour data along the pipeline route is available. There may be a high spot in the route that would prevent this. GF will proceed with the design assuming that the pumps will be required. If additional facts become available at a later date which show that flow by gravity at the lower pumping rates is possible, we may want to consider constructing the pump station to accommodate the pumps, but not physically installing the pumps and the related electrical equipment.

Pipeline Routing and Surveying Issues

1. In many locations, the original gas mains have been replaced with new mains which are within the easements but not in the location of the original mains. The gas companies are requiring that KAWC maintain a specific distance from the live gas mains, thus, this is having an impact on the width of the water main easement and the location of the water main within the easement.

2. Control stations have been set in the field, and PDR will begin actual pipeline survey work within a week. Ray requested that he receive updated property owner information prior to initiating these activities, and Linda will e-mail this information to him now and any time the information is updated.

3. Survey work within the Kentucky River will also begin within a week. Jeff indicated that he only needs to know the river bottom elevation (not to bedrock). PDR will use a depth finder to get a river bed profile, then take 4 actual rod readings to confirm the data.

4. Barry will contact David Baker at KAWC every Friday to let him know the general locations where PDR will be surveying for the upcoming week. PDR will also make their best attempt to contact the property owners before entering the property.

5. KAWC will be meeting with the PSC in August to discuss the project, and will need the property owner maps from PDR by that time.

6. There are two options for routing the pipeline in Woodford County. KAWC instructed PDR to proceed with Route 2 which is the shorter and preferred route. KAWC will confirm the route at a later date.

7. PDR will obtain pricing from their archeological subconsultant before deciding if we need to take some overburden archeological samples at this time. Both the archeological and wetlands subconsultants do not want to stop work once they get started, and it will be a

few weeks before PDR is far enough along to permit this.

Booster Station Sites

1. Separate minutes will be provided based on the site visits by Dave and Linda on June 25, and by Dave and Jeff on July 7.

Revised Operating Scenarios

1. Linda's letter of June 12 was reviewed and discussed. The first chart at the top of page 2 of that letter reflects a 1 in 20 year occurrence whereas the bottom chart reflects a 19 in 20 year occurrence. Jeff will use this information in completing the energy study. The energy study also needs to consider routine exercising of the large pumps.

Communications and Distributed Control

1. It was agreed that radio communications will be required from the Richmond Road Station to the booster stations, and between each booster.

2. KAWC has not been successful in making contact with parties potentially interested in running a fiber optic cable within our easement, however, they are continuing to actively pursue this. We will, however, proceed at this time based on radio communications.

3. KAWC will have radio communications in place within their distribution system by the end of 1999. GF will only be responsible for radio communications from the proposed boosters back to the Mercer Road tank (near the tie in point to the existing distribution system).

4. GF should assume that the entire KAWC distributed control system will be upgraded by the end of 1999 to 386, 32-bit protected mode with FIX Dynamics running at the operator workstations.

Preliminary Studies

1. The vortex separator study is nearing completion and will be done within a week. If the study proves that retention basins are more cost effective, GF will need to provide a cost comparison considering soil conditions on each side of the Kentucky River.

2. It was noted that pressures at the Kentucky River with a retention basin located on its west side will result in static pressures in excess of 300 psi during flushing operations.

3. The energy study and the pumping unit study will begin at this time based on the booster station locations recommended in a separate memorandum.

Permits

1. Linda has met with the DOW and will be sending out minutes shortly. The meeting with the DOW went well.

2. The meeting with the Army Corps of Engineers also went well. Although a separate permit will be required for the Kentucky River crossing, the nationwide permit will apply to all other stream crossings.

3. Scott Smith has indicated that he has some concerns regarding the schedule for receipt of permits, and requested a meeting to discuss this. (See further discussion below under Project Schedule heading)

Project Schedule

1. The project is currently 1 to 1-1/2 months behind schedule due primarily to the late start on the booster station design while the LWC issues were being finalized. In order not to delay the schedule further, access to the booster station sites for survey work is needed within two weeks.

2. Once access to the booster station sites is available, Jeff will update the project schedule. This should include input from Scott Smith. Jeff will submit the schedule at that time for review and further discussion as necessary.

3. In order to expedite the schedule to make up for the time lost, it was suggested that a meeting with the DOW be held once the Design Memorandum is finalized. The hydraulic design is basically complete at that time, and this may reduce the typical 60-day DOW review period. KAWC will contact DOW to see if this would be possible.

Potential Contractual Changes

1. The following items were identified at this time as changes in the scope of work:

   a. Shorter pipeline - no additional work west of Route 55 beyond what has been completed to date will be required.
   b. Rerouting of the pipeline to avoid developed areas or to avoid property owners who were no agreeable.
   c. Radio communications in lieu of telephone telemetry.
   d. 90 additional photo ID control points to encompass more width along the pipeline route.
   e. 20 additional sets of drawings needed for the certificate filing.

   GF was requested to address these items in a letter to Dave at this time in lieu of waiting until the end of the project.

2. It was reiterated that additional design compensation will only be considered if there was a clear change in the scope or schedule caused by KAWC, or if conditions, which could not have been foreseen by the consultant at the time their proposal was submitted, arose once the design phase was initiated. Additionally, requested fees must be generally in line with the costs submitted with the original proposal.

Action Items Resulting From This Meeting

No.	Item	Responsibility	Due By
1	Provide confirmation that Route 2 in Woodford County is the preferred route.	Linda Bridwell	July 31
2	Obtain pricing from the archeological subconsultant for overburden samples and discuss with the Water Company before proceeding.	Ray Ihlenburg	July 20
3	Contact DOW regarding a potential meeting at the Design Memorandum stage.	Linda Bridwell	July 31
4	Forward letter to Dave regarding changes in the scope of work.	Jeff Raffensperger	July 31

c: Linda Bridwell - KAWC
Tom Friley - KAWC
John Hill - KAWC
Nick Rowe - KAWC
Jeff Raffensperger - Gannett Fleming, Camp Hill
Alisha Graham - PDR, Louisville
Ray Ihlenburg - PDR, Louisville
Barry Robinson - PDR, Lexington

KENTUCKY-AMERICAN WATER COMPANY
BLUEGRASS WATER PROJECT

Meeting Agenda - July 6, 1998

1. Comments on Previous Minutes
   a. Minutes of 5-7-98 for 5-1-98 permit meeting
   b. Minutes of 5-21-98 for 5-19-98 electrical and instrumentation meeting
2. Effect on the Scope of Work Resulting from Relocating the Point of Delivery to Route 55
   a. Location and overflow elevation of the LWC tank
   b. Metering and telemetry
   c. Power and pumping units at first booster station
3. Pipeline Route Issues
   a. Current status of work
   b. Identification of potential conflicts with property owners and need for rerouting
   c. Schedule for archeological and wetlands investigations and need to expedite
4. Booster Station Sites
   a. Review of site visits by Dave and Linda on June 25
   b. Need for elevation data to recommend a site for the second booster
5. Revised Operating Scenarios
   a. Review of Linda's letter of June 12 > 10-day, normal weather
   b. Effect on the scope of work
6. Communications (telephone vs. radio vs. fiber optic)
   a. Between boosters - continue to pursue fiber optic, design radio
   b. To Richmond Road Station
7. Distributed Control System
   a. Upgrade of entire system as part of this project
   b. 386, 32-bit protected mode design for this project
8. Preliminary Studies
   a. Vortex separator
   b. Land for retention basin or vortex separator
   c. Power
9. Permits
   a. Potential problems or issues resulting from meetings
10. Review of Project Schedule
    a. Current projected completion date and effect on certificate filing
    b. Identification of critical path items
    c. Establishment of milestone dates
11. Project Discussion Database
    a. Ability to access by PDR
    b. Review of outstanding items
12. Discussion of Potential Contractual Changes
    a. Shorter pipeline
    b. Rerouting of pipeline
    c. Others

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May 14, 1998

Mr. Dan Evans
United States Corps of Engineers
600 Martin Luther King Place
Louisville, Kentucky

SUBJECT: Bluegrass Waterline Project

Dear Mr. Evans:

This letter is to confirm our meeting for 9:30 a.m., Friday May 15, 1998 at your office which is located at 600 Martin Luther King Place, 7th floor room 752.

The purpose of the meeting is to:

1. Brief you on the route and design considerations for the project.

2. Our preliminary ideas concerning crossing the Kentucky River.

3. How the nationwide permit program might work with this project.

4. Discussion of our schedule and corps time frames.

5. Specific requirements for the permit submittal-drawings required; wetland surveys; cultural and historical information, etc

6. How the Corps would deal with a project that could have two distinct parts managed by two entities, the Louisville Water Company from Jefferson County to the Shelby County Line and Kentucky American Water Company from the Shelby County Line to Lexington, Kentucky.

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7. Level of detail required on stream crossings other than the Kentucky River

8. Other issues that you deem necessary or that may come up as a result of the meeting.

Our attendees to the meeting will include: Linda Bridwell--Kentucky American Water; Lindsey Ingram--Counsel for Kentucky American Water; Ray Ihlenburg-Project Manager PDR Engineers; Scott Smith--Environmental Permit Manager--Bluegrass Waterline Project.

If you have any questions or if you have any specific requests for information that you would want us to bring to the meeting please contact me at 606-231-8936.

Very truly yours,

SCOTT R. SMITH ENVIRONMENTAL MANAGEMENT CONSULTANTS, INC.

Scott R. Smith
President

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May 13, 1998

Mr. Raymond W. Ihlenburg
Principal Senior Project Manager
PDR Engineers, Inc.
462 South 4th Avenue, Suite 400
Louisville, Kentucky 40202

SUBJECT: Bluegrass Waterline Project
Environmental Permit Status Report

Dear Mr. Ihlenburg:

I have had preliminary contact with Mr. Roy Massey, Deputy Secretary of the Kentucky Department of Natural Resources and Environmental Protection (KyDNREP), on May 12 concerning the water line project. According to Mr. Massey, both he and General Bickford (current Secretary KyDNREP) are very interested in hearing about this project. I told him that I had talked with Jack Wilson, Director of the Division of Water and that we were scheduling a briefing on the project. Mr. Massey stated that either he or the General would like to be at that meeting and that he would check with Mr. Wilson to confirm the date and time. He also mentioned to me that he had heard that Ben Chandler, the State Attorney General and possible candidate for governor, as well as the Kentucky Rural Water Association were going to be opposed to the project. He suggested that we try to verify this information and develop a plan to address their concerns or counter their position.

Mr. Jack Wilson has indicated that he would like to meet on Friday May 22 at 8:30am at the Division of Water offices in Frankfort. The itinerary at this time appears to include the following items:

1. Review the route of the project and proposed schedule.

2. Discuss our engineering considerations and assumptions concerning the project.

3. Mr. Wilson specifically mentioned that he wanted to talk about the pump stations and chlorine residual issue

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4. Jefferson and Fayette Counties have not filed their water planning document with the State yet. Mr. Wilson wondered if these documents would be consistent with our project?

5. Discussion of various permit requirements, time frames and schedules.

I have also been in contact with the Louisville Corps of Engineers. I spoke with Colonel Spear, the District Engineer and Mr. Ralph Walls, his civilian counterpart. They both expressed an interest in this project and a willingness to meet with us, explain the permitting system, discuss schedules and issues that we might encounter during our permit review. Mr. Walls asked that I coordinate with Mr. Dan Evans.

Mr Evans and I have tentatively set a meeting date for Friday May 15 at the Corps Offices in Louisville. I will fax the precise location of the meeting place to you and Linda as soon as I get it. He said that he was particularly interested in the following issues:

1. Our preliminary ideas concerning crossing the Kentucky River.
2. How the nationwide permit program might work with this project.
3. The route of the pipeline.
4. Discussion of our schedule.
5. Specific requirements for the permit submittal.
6. How the Corps would deal with a divided project.

I think that we will need to have available a map that shows the route of the pipeline and information explaining our preliminary approach to the Kentucky River Crossing.

He did not seem at all concerned about the smaller creek crossings. At this point he thinks that we might be able to use the nationwide permit program to cover those. He did not give me a clear indication of how the Corps would view a divided project with respect to permitting issues. I got the distinct impression that he intended this to be an informative but short meeting because, based on our telephone conversations, he did not anticipate many problems with our project.

I think that it is encouraging at this point that the two primary regulatory agencies that we will need to work with on this project appear to be cooperative and willing to work with us in order to move this project along in a timely manner. I'm looking forward to seeing what the results of the upcoming meetings will produce.

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If you have any questions concerning these matters do not hesitate to contact me.

Very truly yours,

SCOTT R. SMITH ENVIRONMENTAL MANAGEMENT CONSULTANTS, INC.

Scott R. Smith
President

A:MCH.LTR

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American Water Works Service Company, Inc.

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May 7, 1998
BP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A meeting to discuss outstanding items from the previous project meeting followed by a second meeting to discuss permitting issues was held for the referenced project on May 1 at Kentucky-American Water Company's main office in Lexington. In attendance for both meetings were Linda Bridwell representing Kentucky-American Water Company (KAWC), Jeff Raffensperger from Gannett Fleming, Inc. (GF), Ray Ihlenburg from PDR Engineers, Inc. (PDR), and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). Scott Smith of Scott R. Smith Environmental Management Consultants, Inc. (SEMC) was also in attendance for the second meeting only. The following will summarize the main points of discussion from the two meetings.

GENERAL PROJECT MEETING

1. Linda updated the team members on the recent discussions with the Louisville Water Company (LWC). LWC has indicated that they are not in agreement with the proposed pipeline route through Jefferson County along US 60 as there are two points where the pressure would drop slightly below 30 psi at a flow rate of 23 MGD and the English Station Tank at its lowest level. Additionally, LWC may now desire to own part of the pipeline into Shelby County as far east as Simpsonville. Linda has forwarded a letter to Dave regarding the hydraulic issues which he will respond to during the week of May 4. GF was instructed to hold off on any work associated with the first booster station and any field pipeline work in Shelby County until these issues are resolved.

2. Linda indicated that the purchased water agreement with LWC would include an attachment of expected ranges of water quality, but would not include water quality guarantees. Dave indicated that he would need to see this list to ensure that it is not different than the information that was used to develop the Design Concept. Dave also voiced his concern with not having guarantees, especially for non-regulated parameters

such as free ammonia.

2. The need to stay within the established lines of communication was reinforced. KAWC's contract is with GF, and any direction from KAWC to any of GF's sub-consultants, including PDR, which involves a change in the established scope of work, needs go through Dave who in turn will address the issue with Jeff.

3. The action items from the April 20 meeting were reviewed. These are now posted in the AWWSC on-line Project Discussion database, and the status of each action item can be viewed on-line. Only items of concern will be reiterated here in these minutes and in future minutes.

4. The major outstanding action items from the April 20 minutes are the identification of property owners along the pipeline route and initiation of contact with these people. Upon researching the location of the gas main, PDR has found that it is not where the USGS maps show it to be. Additionally, PDR is also having difficulty getting information from each gas company (the gas main is owned by more than one utility). This will result in an approximate two week delay in initiating contact with the property owners.

5. Comments and questions regarding the minutes dated April 27 for the initial project meeting held on April 20-21 were discussed as follows:
   a. *Item J on page 6 (use of crushed rock for bedding)* - This will be allowed in the specifications if the contractor has adequate equipment to properly crush the rock.
   b. *Item 13a on page 8 (preliminary studies)* - GF should use $5,000/acre of land when performing the retention basin study.
   c. *Item 12b on page 8 (inter basin transfer notification)* - If a hearing is required, GF will need to be involved in making the submittal in conjunction with other submittals as we are attempting to have only one public hearing.
   d. *Item 8b on page 6 (aerial photographs)* - PDR will provide a map from the PVA office but not the aerial photographs for KAWC's use when contacting the property owners.

6. The site investigations of potential booster station sites performed by Linda, Dave, and Jeff on April 21 were discussed. Selection of a site for the first booster is on hold until the LWC issues can be resolved. The second booster location will not be effected by the LWC issues, however, it was located in an upscale farm area which could result in opposition from local farm owners. GF will provide the property owner information for this site when the pipeline property owner information is submitted.

7. Jeff submitted a proposed project schedule for review (attached). However, detailed review of this schedule was postponed until the LWC issues are resolved and accurate information regarding the gas main is available.

8. Potential changes in the schedule or scope of work were discussed as follows:
   a. *Requirement for all permits to be received by the end of the year* - This is not

expected to effect the project schedule or scope.

b. *Potential need to accelerate the schedule in order to have all easements executed by the end of the year* - Execution of easements is the responsibility of KAWC, and Linda advised that GF does not need to do anything to accelerate their survey or design efforts beyond what was required by the RFP to meet this schedule.

c. *Further evaluation of Kentucky River crossing alternatives* - This was not in GF's scope of work and will be addressed once soils and survey information is available to perform this analysis.

d. *Requirement for 20 sets of drawings and specifications for submittal with the Certificate of Convenience and Necessity* - Jeff will submit a lump sum fee request to Dave addressing this issue.

e. *LWC issues* - This will be addressed once the changes in the project scope, if any, are finalized.

9. Dave will issue the Agreement for Engineering Services during the week of May 4. The initial contract dollar amount will be as follows:

Preliminary Engineering Studies	$23,000
Design and Easement Services	$838,000
Include the Retention Basin in the Pipeline Contract	-$1,000
Alternate Survey Approach	-$5,000
Total	**$855,000**

Jeff also submitted a proposed cash flow at the meeting based on this amount (attached). He was requested to revise this cash flow to incorporate estimated permitting costs.

PERMITTING MEETING

1. Jeff distributed a spreadsheet (attached) of all anticipated permits which will be used for monthly pre-approval of time and material permitting activities. Once approved, GF will need to stop and notify Dave if the actual activities start to deviate significantly from the anticipated activities. Jeff will post this each month in the Project Discussion database for approval by Dave.

2. Jeff was requested to break down the permitting tasks in his schedule such that the permit application and submittal is one task and the actual anticipated review period by the regulatory agency is a second separate task.

3. Each anticipated permit was reviewed and discussed with Scott Smith as follows:

a. *KPDES Point Source Discharge* - Linda indicated that KAWC may be able to include this in their existing permit. Linda had been talking to Larry Sander and Ronnie Thompson, and Scott will follow up on these conversations. The issue of having the contractor flush the line following construction was also discussed. It was agreed that since there will be multiple pipeline contracts, but only one possible point of discharge (Kentucky River), KAWC will need to take on additional responsibility for flushing that each contractor would normally assume.

Dave will find out if this was an issue on the Tri-County pipeline. Dave will also need to go back and determine if the KAWC dechlorination trailer(s) have adequate capacity for dechlorination of highly chlorinated water. The original investigation of the trailers' capacity was only based on dechlorinating a free residual of 4.0 mg/l based on the maximum possible operating residual.

b. *KPDES Storm Water* - This permit is required for construction. GF/PDR assumed in their proposal that the contractors would perform this activity, but Scott will investigate this further to determine if this needs to be done prior to construction. The preferred course of action is to have SEMC make initial contact, then make each contractor responsible to meet our specification requirements and possible penalties tied back into the contract.

c. *Flood Plain Construction Permit* - This is a permit to work within the flood plain. We are not effecting the existing topography, and it is mainly a construction issue. Not expected to be a problem but Scott will discuss this further with the State.

d. *Kentucky DOW permit* - In terms of the Certificate filing, this needs to be issued by October and is on the critical path, thus we need to initiate a dialog with the DOW immediately. Legally, there is a 60 day review period, but the DOW has advised Linda that they may want to extend this beyond 60 days for this project. It was agreed that we should provide information to the DOW as it becomes available. Scott will attempt to set up an initial meeting during the week of May 18 to generally review the project scope. Dave is available on May 18, 21, or 22 and would need to attend this meeting.

e. *Kentucky Section 401* - This ensures that State input is solicited for all federal permits. The federal agencies typically pull these people into the process, but Scott will make contact with the State directly to expedite this.

f. *Nationwide Corps Permit* - Scott will see if this applies to this project, and if so, it will simplify the permitting process as public hearings may be avoided. Meeting the December date for receipt of all permits may be difficult if the nationwide permit does not apply. Scott will schedule and meeting with the ACOE to discuss this. Linda will also need to attend.

g. *Army Corps of Engineers 404* - This is the river crossing permit, and the length of time for review is directly dependent on public input. The ACOE will also send this to the EPA for approval. Scott expects a minimum of 120 days for this process which includes 30 days of hearings. The permit will require endangered species, wetlands, archeological, and earthquake information, and Jeff will need to make logical links in his schedule for this. This permit applies to all stream crossings, but we may just be able to show the smaller crossings as lines on the drawings.

h. *Army Corps of Engineers Section 10* - This is the design of the stream crossing itself. We will possibly be required to submit this as one package with the 404 permit application.

i. *Army Corps of Engineers Federal Endangered Species* - Linda will provide Scott with a copy of the aquatic study after which Scott will perform a literature search. Additional work may be required beyond that depending on what is found.

j. *DOW Inter Basin Transfer* - If a public meeting is required, Scott suggested that

we lump this notification in with the other permits to avoid more than one hearing.

k. *KY Highway Crossings* - This also gets sent to the federal highway department. Linda will set up a meeting with them to discuss general issues and determine when the applications need to be submitted (maybe not until construction).

l. *County Road Crossings* - Scott will contact each county attorney to determine specific requirements. This will be done after KAWC makes contact with each county judge to inform them of the anticipated activities associated with this project.

m. *Railroad Crossings* - Scott has a personal friend that is the director of governmental relations from the railroad that he will contact since the railroads are typically difficult to deal with. This permit is needed before bids are received.

n. *Building Permits* - These are not required until the time of construction. Utilities are exempt from planning and zoning.

o. *Health Department Septic Systems* - There are no rest rooms in either booster station, however, there are analyzer, pump packing, and other discharges.

4. The appointment of an ombudsman was discussed. Scott wants to have this person oversee all of the state permitting. Scott will set up a meeting with General Bickford, who is the secretary of the cabinet, to assist in the appointment of the ombudsman. Linda will also need to attend this meeting.

5. Linda will ask David Whitehouse to contact each county judge to inform them of the activities that will going on in their respective county associated with this project.

6. KAWC's environmental attorney is David Smart. Scott suggests that this person be made aware of each permit. Linda will coordinate this with David Smart when each permit application is received from Scott. Linda will discuss this issue further with their in-house legal counsel, Herb Miller.

7. Scott indicated that he will perform a freedom of information release for this project.

ACTION ITEMS RESULTING FROM THIS MEETING (these are also listed in the on-line Project Discussions database)

No.	Item	Responsibility	Due By
1	Provide another column in the projected cash flow to include assumed permitting costs.	Jeff Raffensperger	May 15
2	Provide a lump sum cost to Dave for 20 sets of drawings and specs for the Certificate filing.	Jeff Raffensperger	June 30
3	Revise the project schedule to separate the permitting activities into one activity for preparation and submittal, and a second activity for the regulatory review period.	Jeff Raffensperger	May 15
4	Recheck the capacity of the KAWC dechlorination trailer to determine if it is adequate for use when the main is initially flushed with chlorine residuals greater than 20 mg/l.	Dave Reves	June 30
5	Determine how the Tri-County pipeline for NJAWC was flushed and	Dave Reves	June 30

	put into service when multiple sections were constructed by multiple contractors.		
6	Determine if the KPDES Storm Water permits are required prior to construction.	Jeff Raffensperger and Scott Smith	May 15
7	Schedule an initial meeting during the week of May 18 with the DOW. Dave will need to attend and is available only on the 18th, 21st, or 22nd.	Jeff Raffensperger and Scott Smith	May 12
8	Schedule a meeting with the ACOE to determine if a Nationwide Permit will apply to this project.	Jeff Raffensperger and Scott Smith	May 15
9	Forward a copy of the Aquatic Study report to Scott Smith.	Linda Bridwell	May 15 Done
10	Show logical links in the schedule for the ACOE 404 permit as a number of activities (endangered species, wetlands, archeological, etc.) are required to be complete before the application can be submitted.	Jeff Raffensperger	May 15
11	Schedule a meeting with the highway department to discuss general issues and determine when the permit applications need to be submitted (maybe not until construction).	Linda Bridwell	May 29
12	Ask David Whitehouse to contact each county judge to let them know what is going on with the project and to inform them that our environmental consultant will be contacting each county attorney regarding permit requirements for their respective counties.	Linda Bridwell	May 15 Done
13	Contact each county attorney after KAWC contacts each county judge to determine the specific permitting requirements for each county.	Jeff Raffensperger and Scott Smith	May 29
14	Schedule a meeting with General Bickford, the secretary of the cabinet, to assist in appointing an ombudsman for this project. Linda will also need to attend this meeting.	Jeff Raffensperger and Scott Smith	May 15
15	Discuss with Herb Miller the need to have David Smart aware of the permitting activities.	Linda Bridwell	May 15

c: Linda Bridwell - KAWC (w/att)
Barbera Brown - KAWC (w/att)
Tom Friley - KAWC (w/att)
Nick Rowe - KAWC (w/att)
Jeff Raffensperger - Gannett Fleming, Camp Hill (w/att)
Ray Ihlenburg - PDR, Louisville (w/att)
Barry Robinson - PDR, Lexington (w/att)

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May 5, 1998
BP 92-12

Ms. Linda C. Bridwell
Kentucky-American Water Company
2300 Richmond Road
Lexington, Kentucky 40502

Re: Bluegrass Water Project

Dear Linda:

I have reviewed your letter regarding your discussions with the Louisville Water Company (LWC) on April 24, and also had a brief conversation with Karen Willis on May 4. In terms of the ability of LWC to transmit water to the county line by gravity, I am not in agreement with their assessment. It appears that the issues which LWC has raised are not solely a function of being able to supply water to KAWC, but are instead issues which are directly related to LWC using this pipeline to service their existing customers in Jefferson County, or to service future needs of their existing bulk customers in Shelby County.

In speaking with Karen Willis, she indicated that this pipeline would be tied into their existing distribution system at various points which is the basis for their discussion regarding a "depression of pressures" in their system. If the pipeline were not tied into their distribution system, this problem would not exist. Without seeing their distribution system model, and based on my familiarity with the topography of the area, it appears that LWC already has low pressure problems in their system. Connecting the proposed pipeline to their distribution system would help them under normal KAWC low flow scenarios, but when the flow in the pipeline is high, additional water will be pulled through their distribution system resulting in the depression of pressures which Karen discussed.

When the route along US 60 was proposed to LWC, we were aware that there was at least one potential point of low pressure due primarily to high ground elevation relatively close to the English Station tank. Since I was not familiar with the area, and was only working off of a USGS map, I asked LWC to investigate the potential to reroute the pipeline to avoid the high point in this area since they would be more familiar with any potential physical concerns (i.e. impact on residential areas, etc.). Unfortunately, LWC did not look at any rerouting and only checked elevations along the proposed route based on actual survey data they had from previous

projects. Their analysis showed that there were actually two potential points of concern with pressures of approximately 25 psi under worst case conditions.

If the proposed pipeline were dedicated solely for KAWC use and not tied into the LWC distribution system, I believe we could approach the DOW regarding a variance from the required 30 psi minimum pressure requirement since were are only 5 psi short, there would be no tie ins and potential for cross connections, and this condition would only exist under extreme worst case conditions which would be an infrequent occurrence. However, after recently inspecting the potential site for the first booster station, which was found to be in a upscale residential area, I again reviewed the USGS maps for alternate routes and am now recommending a route similar to the original route which paralleled the existing gas main through Jefferson County as discussed below.

The original problem with the route paralleling the gas main was a high elevation near the county line (elev. 736') which prevented flow by gravity. The route I am now proposing deviates southwardly from the gas main and parallels an existing power line almost to the county line. This gets us around the high elevation and keeps the proposed first booster at an approximate ground elevation of 690'. I have attached a map of this proposed route as well as two hydraulic spreadsheets. The first spreadsheet reflects absolute worst case conditions with a flow of 23 MGD and a minimum water elevation in the English Station tank of 840'. Under these worst case conditions, there is no point along the pipeline where the pressure drops below 32 psi with a 36-inch main. The second spreadsheet reflects the best case scenario with an expected winter time minimum flow of 1.6 MGD and the English Station tank at an overflow elevation of 864'. In this scenario, the pressures near the tank are in the 40-50 psi range, and are well above this along the remainder of the pipeline.

I believe that it will be difficult for LWC to challenge the potential to achieve flow by gravity to the county line with this proposed route. However, if KAWC is still considering allowing LWC to construct a booster station in their system and oversize the pipeline for the purposes of serving their existing customers, there are a number of technical concerns of which you need to be aware. First, control of three booster station in series, particularly with one owned and operated by LWC, will be difficult and risky. From a hydraulics standpoint, we would suggest that a storage tank be provided on the suction side of the first KAWC booster to eliminate a second in-series pumping step, however this would also increase the detention time which is not desired from a water quality standpoint. Additionally, three pumping steps are not needed at the low flow rates, however, if a tank is provided on the suction of the second booster, this would force the need for the third pumping step or else the tank would need to be taken in and out of service regularly which is not practical. Lastly, if LWC would oversize the pipeline in Jefferson County for future consideration, but not generate additional flow at this time, we may need to maintain a higher minimum flow rate to maintain adequate water quality.

The potential changes in the design scope of work are significant and will potentially impact the schedule significantly if these issues are not resolved in a timely manner. I've instructed Gannett Fleming to hold off on all design and easement work for the first booster station and all piping within Shelby County. We are proceeding with our scheduled meeting with

GF to review electrical and instrumentation issues, including the required power study, on Friday, May 8. However, the potential changes in the scope of work associated with a third booster station can have a significant impact on the power requirements for the first KAWC booster, and we may need to revisit this issue again with GF once the LWC issues are resolved.

Please advise if you need any other assistance from our office in resolving these matters.

Sincerely,

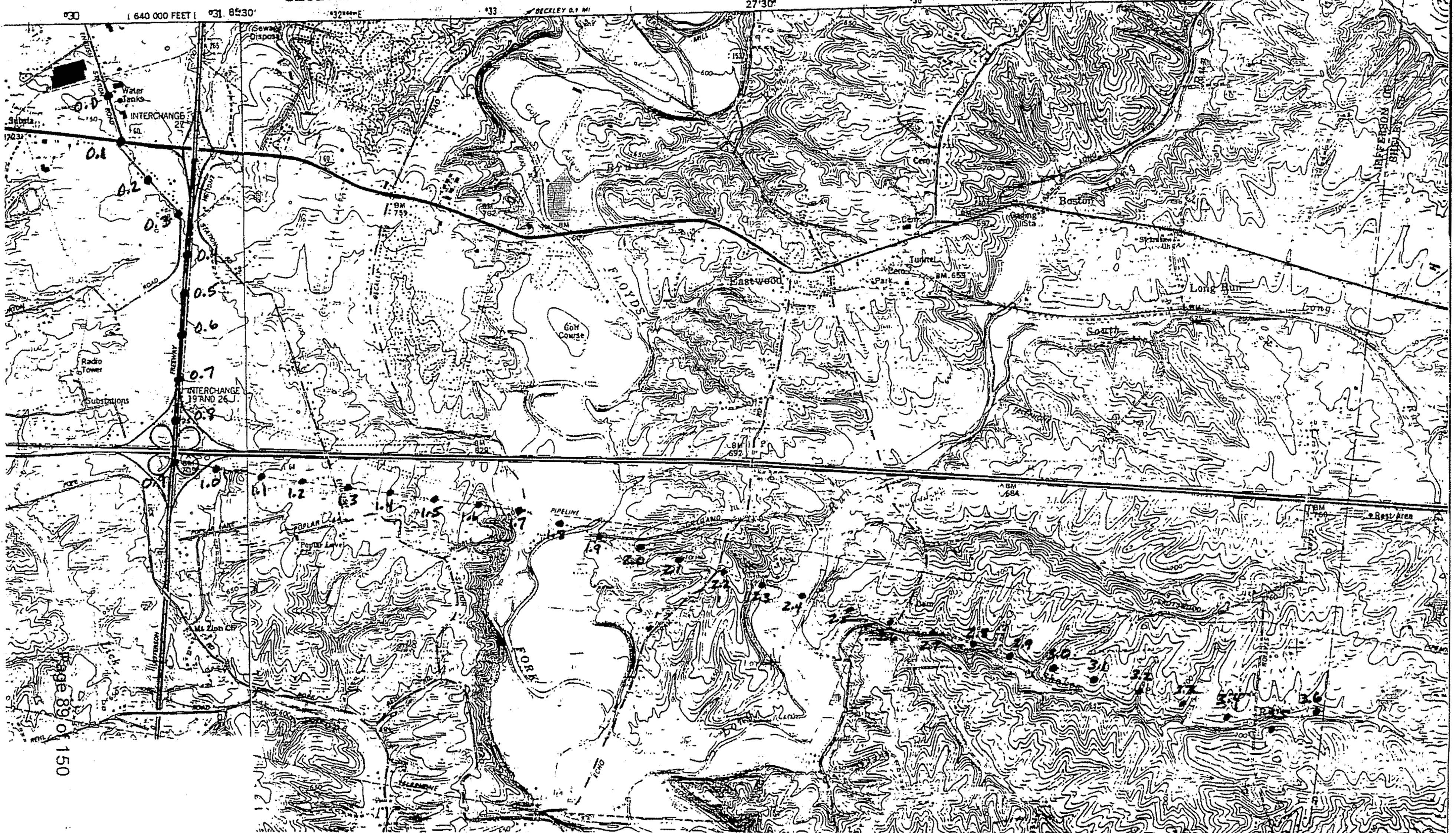
David M. Reves

c: T.A. Friley - KAWC (w/att)
N.O. Rowe - KAWC (w/att)
J. Raffensperger - Gannett Fleming, Camp Hill (w/att)

EFFERSONTOWN QUADRANGLE
KENTUCKY–JEFFERSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF KENTUCKY
KENTUCKY GEOLOGICAL SURVEY
UNIVERSITY OF KENTUCKY



American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

April 27, 1998
BP 92-12

MEMORANDUM

To: File

From: Dave Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

An initial design meeting was held for the referenced project on April 20 at Kentucky-American Water Company's main office in Lexington. In attendance were Linda Bridwell, Tom Friley, and Nick Rowe representing Kentucky-American Water Company (KAWC); Kirk Corliss and Jeff Raffensperger from Gannett Fleming, Inc. (GF); Alisha Graham, Ray Ihlenburg, and Barry Robinson from PDR Engineers, Inc. (PDR); and Dave Reves representing American Water Works Service Co., Inc. (AWWSC). Barbera Brown of KAWC also briefly attended the meeting. A second meeting was held on the morning of April 21 with KAWC's legal counsel, Lindsay Ingram, to discuss issues associated with the filing of the Certificate of Convenience and Necessity. Lastly, Dave Reves, Linda Bridwell, and Jeff Raffensperger visited the general areas of the recommend booster station sites on the afternoon of April 21.

The following will summarize the main points of discussion from the two meetings and summarize the findings from the site investigations. A summary of the required action items from the meeting, including identification of the responsible person and the date when resolution of the issue is needed, is also provided.

MEETING of APRIL 20, 1998

1. Internal Communications
   a. Identification of each primary member of the project team is provided in a table at the end of these minutes and includes contact information (addresses, phone numbers, e-mail, etc.).

   b. The primary points of contact for the owner and the consultant will be Dave Reves and Jeff Raffensperger respectively. It was emphasized that all communications must go through Dave and Jeff, and when appropriate, they will advise when these

lines of communication can be by-passed.

c. Should an issue arise that requires immediate action and Dave is not available, Rich Hubel (AWWSC Director - Design) should be contacted at (609) 346-8276. If neither Dave nor Rich are available, John Young (AWWSC VP - Engineering) should be contacted at (609) 346-8250. In the event that Jeff is not available, Kirk Corliss should be contacted. If neither Jeff nor Kirk are available, Dave Marks (GF Pipeline Design Manager) should be contacted at (717) 763-7211.

d. Only the following people should receive copies of all written correspondence on this project:
   - AWWSC - Dave
   - KAWC - Linda, Tom, and Nick
   - GF - Jeff
   - PDR - Ray and Barry

   These individuals will distribute written correspondence as necessary within their respective offices.

e. Dave will be responsible for the preparation and distribution of minutes from all meetings.

f. Dave briefly discussed the AWWSC on-line project discussion database which is proposed for use on this project. Jeff is currently using it on a New Jersey-American Water project. Due to time constraints, a demonstration of the database was postponed until the next meeting. In the interim, Jeff will go through the on-line registration process for this project and explain the procedure to the necessary PDR personnel. The hardware and software that KAWC needs to access this database via the internal Lotus Notes system will not be on-line until early May. Due to the tight schedule on this project, it was recommended that a "due date" field be added to this database.

2. Public Relations

a. Barbera Brown, who will be KAWC's public relations coordinator for this project, briefly attended the meeting to discuss public relations issues.

b. Barbera advised that she is working with Linda and Tom to prepare a packet of information to distribute to property owners along the pipeline route which will include general information about the project. The packet will also identify all of the consultants and subconsultants who will be working in the field on this project. Additional packets will be made available to all field personnel. Barbera requested copies of logos from GF for each of their subconsultants who will be working in the field.

c. Barbera will supply either hats or shirts with the Bluegrass Water Project logo on them to all sub-consultants who will be working in the field.

d. If Barbera needs to contact any subconsultant in the field for any reason, she will get in touch first with Tom. If Tom is not available, she will contact Barry directly.

e. Should a problem arise in the field with a customer or a property owner, the field personnel should contact Barbera directly at (606) 268-6332.

3. Administration of Time and Material Permitting Efforts

a. All permitting activities need to be generally approved in advance by Dave. In order to accomplish this, GF will first prepare a listing of all permits which will include an estimate of the number of manhours and costs associated with each. A projection of the expected activities, manhours, and costs will then be submitted monthly for approval.

b. It was noted that any work which is necessary to complete the design, which is also required for permitting activities (e.g. preparation of a specific contract drawing), is part of the lump sum design cost and cannot be reimbursed via time and materials.

c. GF was authorized to immediately begin any efforts associated with permitting to keep the project on schedule. An initial meeting to discuss the permitting activities and review the initial estimates has been scheduled for Friday, May 1.

4. Contractual Agreement and Invoicing

a. The actual agreement still needs to be prepared and forwarded to GF for signatures, however, the official project start date is Monday, April 20, 1998 which will be reflected in the contract documents. There are still some outstanding alternate idea issues that need to be resolved before the contract documents can be finalized. It is expected that the agreement will be forwarded to GF within approximately 2 weeks.

b. It was emphasized that potential changes in the scope of work above and beyond the requirements of the contractual agreement need to be addressed at that time and not wait until the end of the project.

c. Jeff will submit a proposed project cash flow and update this each month if necessary.

d. Invoices need to be submitted per normal AWWSC procedures. The original invoice should be addressed to KAWC but forwarded to Dave only. Dave will then approve the invoice and forward it on to Linda. It is expected that invoices will be received by Dave by the third week of each month (for work completed in the previous month). Linda needs to receive the approved invoices and have them booked within the first few days of the following month.

e. Invoicing associated with time and material permitting efforts will need to be done in conjunction with the identification of activities in Item 3a above. The invoice would generally include each individual's charged hours, and the total costs for the month associated with permitting.

5. Schedule

a. The need to develop and maintain a project design schedule was emphasized. Jeff will update the schedule which GF submitted with their proposal to identify specific milestone dates for the entire project at this time. This will be reviewed at the next project meeting. Critical activities for which dates need to be identified include all proposed meetings (per the RFP), permit submittals (to meet the schedule in the RFP), and action required by KAWC (e.g. initial contact with pipeline property owners, resolution of booster station land to allow borings and survey work to begin, etc.).

b. It was suggested that some meetings may be more appropriate to hold at GF's office when it is not necessary to have the entire project team in attendance. An example would be an initial electrical and instrumentation meeting. It was agreed that this is appropriate and that KAWC would be notified in advance of these meetings such that someone from their office could attend if desired.

c. It was agreed that it is not necessary to have separate Design Memorandum submittals for the pipeline and the booster stations.

d. The individual schedules of the primary team members were discussed, and will be considered by Jeff as he develops the overall project schedule. Those dates which are currently known where a team member will be unavailable are as follows:
   - Dave: July 8-14
   - Linda: May 4-8, June 8-12, June 29-July 4, July 19-July 23
   - Ray: May 8-11
   - Jeff: June 22-26, September 14-18

6. Potential Design Work for Louisville Water Company

a. Dave indicated that the Louisville Water Company may ask GF/PDR to perform design work for the pipeline improvements within their system. Should this occur, it was noted that the KAWC portion of the project must take priority.

7. Review of Potential Alternate Ideas

a. *Idea*: Conduct geotechnical investigations along the pipeline.
Resolution: It was noted that a contractor will take 4-6 weeks to perform a geotechnical survey (rock probes) along the pipeline route. The estimated cost to KAWC for a seismic survey (including both depth to rock and type of rock) is approximately $100,000. Before this issue can be resolved, Jeff will first talk to the larger national contractors to first determine their preference for classified vs. unclassified bidding. Tom will also talk to the smaller local contractors to

determine if they physically will have the time to perform rock probes themselves on a project of this magnitude.
Change to GF Lump Sum Cost: GF will potentially need to provide pricing pending results of additional investigation.

b. *Idea*: Reduce the amount of cover on the pipeline.
Resolution: It was agreed that this is appropriate. The cover will be reduced to either 30" or 36" depending on the required tilling depth on farm land.
Change to GF Lump Sum Cost: $0

c. *Idea*: Include the retention basin in the pipeline contract.
Resolution: It was agreed that this is appropriate. OK
Change to GF Lump Sum Cost: -$1,000

d. *Idea*: Increase the number of pipeline contracts.
Resolution: The capabilities of local contractors factored into the initial decision to bid the pipeline work in three segments, however, bonding capacities were not checked at that time. Tom will investigate bonding capacities of local contractors before a final decision is made on this issue.
Change to GF Lump Sum Cost: +$8,000 pending results of additional investigation.

e. *Idea*: Bid three or more pipeline contracts over three consecutive weeks.
Resolution: It was agreed that this is appropriate.
Change to GF Lump Sum Cost: -$0

f. *Idea*: Prepare easement descriptions without exact metes and bounds descriptions in rural areas.
Resolution: The effort to develop metes and bounds descriptions vs. centerline descriptions is basically the same. The issue is whether plat maps are required. PDR has indicated that plat maps are only required in Fayette county, however, their proposal includes development of plat maps along the entire pipeline route. KAWC's legal counsel will follow up on this and advise. NO
Change to GF Lump Sum Cost: -$35,000 pending results of additional investigation.

g. *Idea*: Install fiber optic cable in parallel with the pipeline.
Resolution: Linda will need to pursue this further with LFUCG.
Change to GF Lump Sum Cost: GF will potentially need to provide pricing pending results of additional investigation.

h. *Idea*: Relocate the proposed retention basin on the opposite side of the Kentucky River.
Resolution: If the preliminary study to utilize a vortex separator does not prove to be cost effective, then additional geotechnical investigation may be required to

determine if there is a savings associated with this item.
Change to GF Lump Sum Cost: GF will potentially need to provide pricing pending results of the preliminary study.

i. *Idea:* Revisit the chlorine dosages (not adequate for breakpoint chlorination).
Resolution: This is a detailed design issue that needs to be looked at again as the design progresses. The potential change may only be that more than one cylinder needs to be online for adequate withdrawal and that more storage may be needed.
Change to GF Lump Sum Cost: $0

j. *Idea:* Allow ground up bedrock to be used for bedding material.
Resolution: GF assumed that ground up rock could be used for backfill but not for bedding. If contractors bidding on the project have capabilities to crush the rock sufficiently such that it can be used for bedding, GF will consider allowing this in the specifications.
Change to GF Lump Sum Cost: $0

k. *Idea:* Move the booster stations closer to existing sources of power.
Resolution: This will be considered once the pipeline profile, property owner information, and the results of the preliminary investigation regarding power sources, are available.
Change to GF Lump Sum Cost: $0

l. *Idea:* Reduce the number of valves in the pipeline.
Resolution: It was agreed that it is appropriate to selectively locate the valves depending on the actual profile of the pipeline.
Change to GF Lump Sum Cost: $0

m. *Idea:* Develop 2-foot contours from the aerial photography and stake the gas main vs. the pipeline.
Resolution: It was agreed that this is appropriate and will save both time and costs associated with field survey work. Additionally, concrete and steel pipe manufacturers typically need additional detailed information due to the limited deflection capabilities of their pipe.
Change to GF Lump Sum Cost: -$5,000

OK

8. Easement and Survey Activities

a. Barry provided a technical explanation of the survey activities proposed by PDR. Everyone was in agreement with the proposed methodology.

b. PDR will immediately begin the PVA research such that KAWC can begin contacting property owners as early as Monday, May 4. KAWC also needs the aerial photographs for each property owner prior to May 4. Field work by PDR needs to begin by May 18 at the latest.

c. Tom will develop a spreadsheet which lists all of the property owners (once supplied by PDR), tenants on the site if different from the owner, a date or time period when it is acceptable for PDR to begin field work, and any other general information regarding the discussions KAWC had with each property owner that would be of importance to PDR.

d. GF will provide information to KAWC regarding the critical areas along the pipeline route that KAWC should focus on initially. It was noted that the critical hydraulic points which are highlighted in yellow in the spreadsheets in the RFP may need to be on the critical path. Additionally, the response from KAWC's legal counsel regarding the need for plat maps in the various counties will dictate the schedule for contacting property owners.

9. Kentucky River Crossing

a. It was noted that the cost to bore under the river would be significantly more than a simple cut and cover method of construction, but would potentially save time since a 404 permit would be avoided.

b. GF's proposal assumed a cut and cover method of construction, however, before a final decision is made, this issue will be discussed with GF's environmental consultant, and more detailed cost estimates will need to be developed.

10. Pump Station Operating Scenarios

a. It was noted that the RFP assumed a conservative scenario regarding the operation of the larger pumping units (i.e. they may not actually need to operate as frequently as stated in the RFP). Linda will revisit this and provide additional information as appropriate.

11. Booster Station Layouts

a. The preliminary layouts presented in GF's proposal were reviewed. The following items were noted:
   - A full two story building should be avoided. Only the suction piping for the pumping units may need to be at a different elevation. This area should also not be enclosed (i.e. provide an open recessed area with ladder access).
   - Consideration should be given to using a bridge crane if it will reduce the height of the building and simplify the layout.
   - Adequate upstream and downstream pipe diameters need to be provided for the meters. The meters must also be located within the building and not in buried vaults.
   - A common point of chemical application should be provided as far upstream of the pumping units as possible, but within the building.

b. GF will need to submit preliminary sketches of the booster stations for approval prior to submittal of the Design Memorandum.

12. Environmental and Permitting Issues

a. GF confirmed that an endangered species investigation is included in their proposal.

b. An inter basin transfer notification will be required for this project. KAWC will be totally responsible for this. GF will have no responsibilities associated with it.

c. It was suggested that a separate meeting be held with GF's environmental consultant, Scott Smith, to discuss permitting issues in detail. This has been scheduled for Friday, May 1. Dave will provide an agenda. GF was requested to provide the detailed permit listing discussed in item 3a above at this meeting, and also include additional information such as expected review time, need for public notification, and anything else that could effect the schedule.

d. GF proposed to schedule a meeting with a representative of the governor's office to assist in appointing an ombudsman for this project. This will be discussed further at the May 1 meeting.

13. Preliminary Studies

a. The three preliminary studies required by the RFP were briefly discussed. Dave will talk to Steve Marrano and propose some dates to GF to discuss the power study at GF's office. This meeting would also serve as an initial electrical/instrumentation kickoff meeting. $5000/acre for retention

14. Corrosion Control and Utilization of DIPRA's Services

a. Dave informed GF of the involvement with DIPRA (Mr. Allen Cox) to date on this project. GF's team includes a corrosion control subconsultant which may be needed in association with the steel and concrete pipe. GF will contact Mr. Cox to determine what further assistance he can provide on this project.

15. Need for Additional Information from KAWC

a. Linda will forward the KAWC distribution model to GF.

b. Linda will also forward maps and easement information along Leestown Road to GF.

MEETING of APRIL 21, 1998 w/LINDSAY INGRAM

1. The submittal of the Certificate of Convenience and necessity will need to occur prior to the end of the current year. Lindsay will need 20 copies of everything that GF is required to provide.

2. Competing utilities need to be shown on the drawings. Linda has these names and will provide this information to Jeff.

3. Lindsay indicated that all permits need to be received and included with his certificate filing. It was noted, however, that the information provided by KAWC in the RFP stated that only the DOW permit and any 404 permits for stream crossings needed to be received by December 1 and that all other permits only needed to be identified by this date. This issue will be discussed further with Scott Smith at the meeting scheduled for May 1 to determine if any of the other permits could effect the proposed schedule.

4. Lindsay also indicated that all easements need to be complete and executed in time for the certificate filing at the end of the year. It was noted that our approved budget and schedule for this project called for this activity not to be complete until September 1999. KAWC will need to address this issue further with Lindsay. Negotiations with property owners and execution of the easement agreements are the responsibility of KAWC and are not included in GF's scope of work.

5. Lindsay will advise as to the recording requirements for the easements. PDR believes that plat maps are only required in Fayette county. GF's proposal assumes that plat maps will need to be provided along the entire route, however, a time and cost savings can be achieved if the preparation of the plats can be avoided.

INVESTIGATIONS OF POTENTIAL BOOSTER STATION SITES

1. First Booster Site Near the Jefferson/Shelby County Line
   a. The proposed location identified in the RFP, based on the preliminary hydraulic analysis, was near the Jefferson/Shelby County line with easy access from I-64 at an approximate ground elevation of 650'.

   b. Investigation of the proposed site revealed that access from I-64 would not be possible. It was initially thought that access from an abandoned rest area would be possible, but the ramp for that rest area had been physically removed. Linda felt that the State would only allow access to I-64 from existing ramps which are several miles from the proposed location.

   c. The proposed pipeline route was followed backwards from the originally proposed booster station site to the county line. A potential site very close to the county line was identified. Access to this site was off of U.S. 60 along an existing unpaved road. This unpaved road also provided access to several upscale residential homes. GF will obtain property owner information in this area for further discussion and forward this information, along with aerial photographs in this area, to Dave and Linda.

2. Second Booster Just Downstream of Glenn's Creek
   a. The proposed location identified in the RFP, based on the preliminary hydraulic analysis, was just downstream of Glenn's Creek at an approximate ground elevation of 810'.

b. Investigation of the proposed site revealed that it was not in an open field as originally thought, but instead in the middle of several upscale horse farms. The site was easily located since the gas pipeline was clearly marked. There was no problem with access to this site. It appeared that a new upscale home was ready to begin construction within a few hundred yards of the proposed site. GF will also obtain property owner information in this area for further discussion and forward this information, along with aerial photographs in this area, to Dave and Linda.

ACTION ITEMS RESULTING FROM THIS MEETING

No.	Item	Responsibility	Due By
1	Discuss and resolve the need for plat maps along the pipeline route, particularly in Fayette County, with Lindsay Ingram.	Linda Bridwell	April 28
2	Perform the necessary research at each PVA for all property owners along the proposed route.	Ray Ihlenburg	April 28
3	Provide logos (both hard copy and electronic) to Barbera Brown of all subconsultants who may be working in the field.	Jeff Raffensperger	April 28
4	Provide maps and existing easement information along Leestown Road directly to Jeff.	Linda Bridwell	April 28
5	Provide a schedule to Tom for contacting property owners based on critical locations along the route.	Jeff Raffensperger	April 30
6	Provide aerial photographs to Tom for KAWC's use in making initial contact with the property owners.	Ray Ihlenburg	April 30
7	Schedule a meeting at GF's office with Steve Marrano to review the proposed power study and discuss general electrical and instrumentation issues.	Dave Reves	April 30
8	Assemble KAWC personnel that will begin making contact with property owners along the proposed pipeline route.	Nick Rowe	April 30
9	Add a "due date" field to the Project Discussion database.	Dave Reves	May 1
10	Ensure that all appropriate GF and PDR personnel are registered on-line for the AWW Project Discussion database for this specific project.	Jeff Raffensperger	May 1
11	Provide updated operating scenario information for the larger pumping units to Dave.	Linda Bridwell	May 1
12	Develop a permit spreadsheet for discussion at the next meeting and for use associated with projecting and reporting time and material permitting efforts.	Jeff Raffensperger	May 1
13	Develop a project schedule for discussion at the next meeting and be prepared to identify specific meeting dates and permit submittal dates.	Jeff Raffensperger	May 1
14	Submit a proposed cash flow schedule for this project.	Jeff Raffensperger	May 1
15	Forward property owner and aerial photography information to Dave and Linda for the proposed booster station sites.	Jeff Raffensperger	May 4
16	Begin contacting property owners.	Nick Rowe	May 4
17	Develop a spreadsheet of the property owners and other information regarding the initial contact.	Tom Friley	May 4
18	Begin forwarding the completed spreadsheets from Item 17 to PDR.	Tom Friley	May 15
19	Complete the packet of information which will be distributed to property owners along the pipeline route and submit several copies to GF/PDR	Linda Bridwell	May 15

	who will distribute them to any sub-consultants that will be working in the field.		
20	Provide necessary hats or shirts to GF/PDR that will identify each person as being associated with this project.	Linda Bridwell	May 15
21	Contact LFUCG and resolve their request to install a fiber optic cable in parallel with the proposed pipeline.	Linda Bridwell	May 15
22	Forward an electronic copy of KAWC's hydraulic steady state model to Jeff.	Linda Bridwell	May 29
23	Forward the list of competing utilities to Jeff for incorporation on the pipeline drawings.	Linda Bridwell	May 29
24	Contact local pipeline contractors to determine their bonding capacities and also to determine if they would physically have time to perform rock profiles for a project this size during the bid phase of the project.	Tom Friley	May 29
25	Contact the larger national contractors to obtain their views and comments regarding unclassified bidding for this project.	Jeff Raffensperger	May 29

c: Linda Bridwell - KAWC
Barbera Brown - KAWC
Tom Friley - KAWC
Nick Rowe - KAWC
Kirk Corliss - Gannett Fleming, Camp Hill
Jeff Raffensperger - Gannett Fleming, Camp Hill
Alisha Graham - PDR, Louisville
Ray Ihlenburg - PDR, Louisville
Barry Robinson - PDR, Lexington

Name and Role	Mailing Address	Phone	Fax	Other	E-mail
Dave Reves AWWSC Project Manager	American Water Works Service Co., Inc. 1025 laurel Oak Road P.O. Box 1770 Voorhees, New Jersey 08043	609-346-8278	609-346-8372	n/a	dreves@amwater.com
Linda Bridwell KAWC Project Manager	Kentucky-American Water Company 2300 Richmond Road Lexington, Kentucky 40502	606-268-6373	606-268-6374	mobile phone 606-339-6828	bridwell@kawc.com
Tom Friley KAWC Project Engineer	Kentucky-American Water Company 2300 Richmond Road Lexington, Kentucky 40502	606-268-6352	606-268-6374	pager 606-330-0304	will be provided later
Nick Rowe KAWC Project Officer	Kentucky-American Water Company 2300 Richmond Road Lexington, Kentucky 40502	606-268-6333	606-268-6333	n/a	will be provided later
Kirk Corliss GF Project Officer	Gannett Fleming, Inc. P.O. Box 67100 Harrisburg, PA 17106-7100 -or- 207 Senate Avenue Camp Hill, PA 17011 (for overnight mail)	717-763-7217 ext. 2275	717-763-1808	n/a	n/a
Jeff Raffensperger GF Project Manager	Gannett Fleming, Inc. P.O. Box 67100 Harrisburg, PA 17106-7100 -or- 207 Senate Avenue Camp Hill, PA 17011 (for overnight mail)	717-763-7217 ext. 2277	717-763-1808	n/a	jraffensperger@gfnet.com
Alisha Graham PDR Project Engineer	PDR Engineers, Inc. 462 South 4th Avenue, Suite 400 Meidinger Tower Louisville, Kentucky 40202	502-584-5555	502-584-5696	n/a	pdrlou@aol.com note: address the body of the e-mail to Alisha or use Ray Ihlenburg's e-mail address
Ray Ihlenburg PDR Project Manager	PDR Engineers, Inc. 462 South 4th Avenue, Suite 400 Meidinger Tower Louisville, Kentucky 40202	502-584-5555	502-584-5696	n/a	ihlenburgr@aol.com
Barry Robinson PDR Project Survey Manager	PDR Engineers, Inc. 800 Corporate Drive Suite 100 Lexington, Kentucky 40503	606-223-8000 ext. 238	606-224-1025	n/a	pdr@pdreng.com note: address the body of the e-mail to Barry

Nick: Agree w/ your assessment — file File-N SofS Design

Nick O. Rowe
Vice President - Operations
606-268-6333

TO: Roy W. Mundy II

FROM: Nick Rowe

DATE: February 27, 1998

SUBJECT: **I-64 LONGITUDINAL INSTALLATION**

David Whitehouse and I met with Mr. Yowell on Thursday, February 26th concerning our proposed occupancy of Interstate right-of-way.

Attached is a copy of correspondence I received from Mack Yowell concerning KAWC's request to occupy a portion of the right-of-way of I-64 for our proposed pipeline between Louisville and Lexington.

After a review of the correspondence from the Federal Highway Administration, and my conversations with Mr. Yowell, it seems that our request to occupy that right-of-way would greatly add complexity and complicate the State Highway Department's need to upgrade the Interstate freeways.

The areas of concern are noted throughout the letter with the fact that we would need access to our pipeline, and the possibility of dangers incurred due to a large water main break. At this time based on the attached letter, I would recommend that we continue to proceed with our procurement of easements and private right-of-ways along the pipeline route and forego any pursuit of easement in Interstate right-of-way.

If you have any questions, please feel free to give me a call.

NOR:ld

C: J. M. Yowell, P.E.; State Highway Engineer; Kentucky Transportation Cabinet; State Office Building, Frankfort, KY 40622
David Whitehouse
Linda Bridwell

U.S. Department
of Transportation
Federal Highway
Administration

Kentucky Division Office
Jesse A. Story, Division Administrator

330 West Broadway
Frankfort, KY 40601
PH. (502) 223-6720
FAX (502) 223-6735

Mr. James C. Codell, III, Secretary
Kentucky Transportation Cabinet
Frankfort, Kentucky

Dear Mr. Codell:

Subject: Kentucky-American Water Company
I-64 Longitudinal Installation

Reference is made to Mr. J. M. Yowell's letter, dated November 24, 1997 with attachment concerning a proposal for the Kentucky-American Water Company to occupy a portion of the I-64 right-of-way. Mr. Yowell requested our comments in response to a letter from the company, dated November 1, 1997, requesting reconsideration of a previous denial of the proposal by the KYTC.

The following are our thoughts on the matter:

1. Initially the right-of-way for I-64 was obtained for a four lane interstate facility with no consideration for utilities to be installed longitudinally within that right-of-way. The KYTC is now in the process of upgrading the State's Interstate freeways and six laning many of them. In all likelihood I-64 will be six laned also and a longitudinal utility installation, such as a trunk water line, would certainly complicate the issue.

2. New longitudinal installations within the control of access limits on Interstate facilities in Kentucky are contrary to the KYTC's Utility Accommodation Policy. Exceptions to that policy must address several conditions in order to justify the placement on I-64.

3. The construction and maintenance of a longitudinal utility within the right-of-way would needlessly expose the traveling public to inconvenience and unsafe conditions. Access to the utility construction site from the Interstate through roadways and ramps would aggravate this inconvenience and hazard.

4. There is the inherent danger of a possible high pressure water leak occurring that could seriously jeopardize the I-64 roadway and structures.

5. Since the utility would be granted an easement, if the proposal is approved by KYTC, remuneration would be appropriate for the use of I-64 right-of-way.

We believe the original position of the KYTC to deny the longitudinal installation of the water line within the right-of-way of I-64 is the correct one and one that should be sustained.

We appreciate the opportunity to comment on this matter. Please contact us at your earliest convenience if there are questions in this regard.

Sincerely yours,

Jesse A. Story
Division Administrator

Enclosure

ESTIMATED COST OF MOWING
I-64 SYNDER FREEWAY TO EXIT 48

1997	$55,700	(Actual)
1998	57,620	
1999	58,484	
2000	59,362	
2001	60,252	
2002	61,156	
2003	62,073	
2004	63,004	
2005	63,949	
2006	64,909	
2007	65,882	
2008	66,870	
2009	67,873	
2010	68,892	
2011	69,925	
2012	70,974	
2013	72,038	
2014	73,119	
2015	74,216	
2016	75,329	
2017	76,459	
2018	77,606	

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

February 9, 1998
BP 92-12

MEMORANDUM

To: File

From: D.M. Reves

Re: Kentucky-American Water Company
Bluegrass Water Project

A meeting scheduled for February 6 with the Louisville Water Company was held via conference call as poor weather conditions on the morning of the 6th would not allow for travel from Lexington to Louisville. The primary purpose of the conference call was to finalize outstanding technical and administrative issues on the project such that Kentucky-American Water Company could proceed with the Consultant proposal solicitation phase of the project. Participating in the conference call from Louisville Water Company (LWC) were Alan Arbuckle, Greg Heitzman, and Karen Willis. Linda Bridwell and Nick Rowe represented Kentucky-American Water Company (KAWC) while Dave Reves represented American Water Works Service Company (AWWSC). The main points of discussion from the meeting as well as some follow up comments are summarized below.

Conference Call w/Louisville Water Company on 02-06-98

1. Nick Rowe initiated the discussion by stressing the importance of this project and also indicated that KAWC was prepared to enter into an agreement with LWC to assume responsibility for all LWC design costs. Greg Heitzman indicated that a letter of understanding would be acceptable at this time until a formal agreement could be drafted. Greg also indicated that this will also become a priority project for LWC and that they expect their design efforts to only lag behind KAWC's design efforts by approximately one month.

2. LWC was in general agreement that the alternate northern pipeline route along US 60 within Jefferson County was a feasible route. They indicated that there would be more easements along this route, however, they also indicated that they would not require a storage tank on the suction side of the first booster station. LWC already has actual survey data along this route, and was requested to identify changes in the proposed route that would reduce costs, improve pressures, or simplify construction. Dave Reves

requested that a second confirmation of the Jefferson County route be provided by Friday, February 13 (via e-mail to Dave) prior to KAWC's RFP and Design Concept being issued to Consultants on February 17. Dave also requested that final written confirmation of the route be provided to KAWC by March 16 prior to Consultant proposals being received on March 19. It was noted that the primary goal in finalizing the pipeline route within Jefferson County is to ensure flow by gravity to the county line.

3. Although LWC will now not require a storage tank on the suction side of the first booster station, they are still concerned with hydraulic transients within their pipeline. To efficiently address this concern, the boundaries of the surge analysis required by the KAWC Design Concept will be expanded to incorporate the LWC English Station tank and pipeline within Jefferson County. LWC will need to provide pipe material, route, and elevation information to KAWC's consultant. The design of any recommended improvements within the LWC system resulting from the surge analysis will be the responsibility of LWC.

4. LWC was informed that KAWC is currently investigating a site for the first booster station that would provide easy access from I-64. This location could be up to a mile away from the Jefferson/Shelby County line. In terms of metering the water that LWC sells to KAWC, LWC would prefer to locate the meter(s) at the booster station in lieu of directly at the county line. The physical boundary of the pipeline was then discussed, and it was agreed that this does not need to be restricted by political boundaries (Jefferson/Shelby County line) and that it would make sense for LWC to own the pipeline up to the property line of the first booster station.

5. The need to include two meters (high and low flow) in the first booster station for pump control was discussed. LWC indicated that these meters would also be acceptable for their use in metering the water sales provided LWC was given access to the meters. The KAWC Design Concept will be expanded to provide telemetry signals from the first booster station which LWC can receive at their English Station tank (which is also a distribution facility). The signals will include flow rates, and station suction and discharge pressures.

6. Water quality guarantees were discussed with LWC. They indicated that they would only guarantee the minimum water quality required by law (e.g. 0.5 mg/L chlorine residual). If KAWC desired better than the minimum legal requirements, or if guarantees were desired for non-regulated parameters, LWC would potentially be agreeable to including this in their water sales agreement. The item that was noted was free ammonia residual to ensure that LWC is controlling their chlorine/ammonia ratio adequately to minimize the potential for nitrification.

7. Without a booster station in Jefferson County, the scope of design work between LWC and KAWC only overlaps from a standpoint of hydraulic transients and minor telemetry. Thus, it was agreed that KAWC and LWC should proceed with their respective scopes of work independently. LWC is welcome to utilize the same Consultant team that KAWC

selects provided it does not create a conflict in terms of manpower availability, however, there is no need to do this from a standpoint of coordination. Dave indicated that LWC will be copied on any correspondence that relates to LWC (including the final RFP and Design Concept), and will provide LWC with monthly progress reports for their general information. LWC is also welcome to attend any design review meetings and will be notified when meetings that will include surge, metering, and/or telemetry discussions are being scheduled. In terms of the LWC design work, KAWC would prefer to be somewhat more involved since KAWC will be the funding work. Since LWC plans to solicit consultant proposals on a time and material not to exceed basis, KAWC will need to participate in the review of the LWC RFP, their consultant selection process, and the review of all consultant invoices.

8. The following tentative project schedule was provided to LWC:

February 13, 1998	Receive comments from LWC on draft RFP and Design Concept, and northern pipeline route
February 17, 1998	Issue RFP and Design Concept to Consultants
February 24, 1998	Pre proposal meeting
March 16, 1998	Receive written confirmation of pipeline route from LWC
March 19, 1998	Receive consultant proposals
April 1, 1998	Finalize water sales agreement and award design contract
October 1, 1998	KAWC to submit DOW permit application
December 1, 1998	KAWC to file Certificate application and LWC design to be complete
January 15, 1998	Finalize all design work and initiate bidding process
April 1, 1998	Receive contractor bids
September 1999 - January 2000	Initiate construction
March 2001 - June 2001	Complete construction

Follow Up Comments

1. The following items are needed from KAWC to finalize the RFP and Design Concept:

   a. Resolution of the potential for discharge to Glenn's Creek.
   b. Resolution of the potential to flush the pipeline backward from the existing KAWC distribution system.
   c. Identification and tax maps of potential booster station sites.
   d. Results of jar tests to determine chloramine persistence.
   e. Definition of peak demand operating scenarios.
   f. Provide 8-1/2 x 11 maps of the proposed pipeline route.
   g. Specify the ammonia cylinder size available from KAWC's supplier. 800-lb was assumed in the Design Concept.

2. Linda provided a project schedule (see attached) prior to the conference call. After reviewing this schedule, I have the following comments/questions:

a. "Interview of Consultant Teams" is shown as a task item. It was previously agreed that this will not be necessary.

b. "Determining Permits Required and Filing Dates" is shown as a task item to be completed by April 30 by KAWC/Reves. This is an item for which the Consultants will be responsible. Should this date be specified in the Consultant's list of target dates in the RFP?

c. "Finalize Potential for I-64 Right of Way" is shown as a task item to be completed by February 28. Could this still potentially happen? If so, it should be resolved before the RFPs are issued (February 17).

3. The pre-proposal meeting time was confirmed for 9:00 am on February 24 at the main office. There may be as many as 10-15 people in attendance. The meeting with Montgomery Watson to review the Residual Study has been confirmed for 1:30 pm at KRS.

c: L.C. Bridwell - KAWC (w/att)
T.A. Friley - KAWC (w/att)
N.O. Rowe - KAWC (w/att)

Bluegrass Water Project Revised: 2/2/98

	Task/Issue	KAWC Contact	Responsible Party	Target Completion	1998 Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
	Engineering															
	Easement Development	Friley	GRW/Quest													
	Shelby County - Identify Property Owners	Friley	GRW/Quest	1/9/98												
	Review Packet to mail to Property Owners	Friley	Brown	2/15/98												
	Contact Property Owners	Friley	GRW/Quest	*2/15/98*												
	Gas Line Location	Friley	GRW/Quest	*2/15/98*												
	Begin Easement Development	Friley	GRW/Quest	2/28/98												
	Assess Environmental Issues	Friley	GRW/Quest	4/12/98												
	Easment Plat & Description	Friley	GRW/Quest	3/31/98												
	On-Site Staking	Friley	GRW/Quest	5/24/98												
	Franklin County - Identify Property Owners	Friley	GRW/Quest	1/16/98												
	Contact Property Owners	Friley	GRW/Quest	*2/15/98*												
	Gas Line Location	Friley	GRW/Quest	*2/15/98*												
	Begin Easement Development	Friley	GRW/Quest	3/29/98												
	Assess Environmental Issues	Friley	GRW/Quest	5/10/98												
	Easment Plat & Description	Friley	GRW/Quest	5/3/98												
	On-Site Staking	Friley	GRW/Quest	6/7/98												
	Woodford County - Identify Property Owners	Friley	GRW/Quest	*2/15/98*												
	Contact Property Owners	Friley	GRW/Quest	*2/15/98*												
	Gas Line Location	Friley	GRW/Quest	*2/15/98*												
	Begin Easement Development	Friley	GRW/Quest	4/26/98												
	Assess Environmental Issues	Friley	GRW/Quest	6/7/98												
	Easment Plat & Description	Friley	GRW/Quest	5/31/98												
	On-Site Staking	Friley	GRW/Quest	7/5/98												
	Fayette County -Identify Property Owners	Friley	GRW/Quest	*2/15/98*												
	Contact Property Owners	Friley	GRW/Quest	2/15/98												
	Gas Line Location	Friley	GRW/Quest	2/15/98												
	Begin Easement Development	Friley	GRW/Quest	5/24/98												
	Assess Environmental Issues	Friley	GRW/Quest	7/5/98												
	Easment Plat & Description	Friley	GRW/Quest	6/28/98												
	On-Site Staking	Friley	GRW/Quest	7/26/98												
	Set/Control Permanent Markers	Friley	GRW/Quest	*2/15/98*												
	Aerial Photographs - US 60 Route	Friley	GRW/Quest	3/31/98												
C	Determine Acreage at Booster Sites	Friley	Reves	1/26/98												
	Identify Potential Booster Sites	Friley	KAWC	2/13/98												
	Approach Property Owners - Booster Sites	Friley/Stock	KAWC	2/28/98												

	Task/Issue	KAWC Contact	Responsible Party	Target Completion	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
	Engineering															
C	Determine Certificate Filing Needs	Bridwell	Ingram	2/3/98												
C	Review Draft RFP	Bridwell	KAWC	1/30/98												
C	Provide Addresses for all consultants for RFP	Bridwell		2/3/98												
	Meet with LWC to discuss RFP	Bridwell	KAWC	2/6/98												
	Determine Chemical Feed Levels	Bridwell/Simpson	KAWC	2/13/98												
	Mail out RFP to Consultants	Bridwell	Reves	2/16/98												
	Pre-proposal Meeting with Consultants	Bridwell	Reves	2/24/98												
C	Request DIPRA assessment of route	Friley	DIPRA	1/23/98												
	Review Hydraulic Model - flush from Lexington end	Friley		2/13/98												
	Profile Projected summer Use	Bridwell/Griffin		2/6/98												
	Water Blending Study	Simpson		2/11/98												
	Review Construction Feasibility of Route Change	Friley		2/6/98												
	Finalize potential for I-64 Right-of-Way	Bridwell	KYDOT	2/28/98												
C	Contact DOW about KPDES	Simpson		1/30/98												
	Meet with DOW about KPDES	Simpson/Bridwell		2/9/98												
	Meet with LFUCG about Fiber Optic Cable	Bridwell		2/28/98												
	Re-Draft Work Orders on Project	Bridwell		2/28/98												
	Receive Proposals	Bridwell	KAWC/Reves	3/15/98												
	Interview Consultant Teams	Bridwell	KAWC/Reves	3/20/98												
	Select Design Consultant	Bridwell	KAWC/Reves	3/31/98												
	Determine Permits required and filing dates	Bridwell	KAWC/Reves	4/30/98												
	Complete Design	Bridwell	Consultant	9/30/98												
	File Plans and Specifications with DOW for Approval			10/1/98												
	Approach Property Owners - Easements Options	Friley		9/30/98												
	Construction Begins 8/15/99			3/1/01												
	Legal															
C	Meet to Discuss draft sales Contract	Miller/et al	Ingram	2/4/98												
	Draft Water Sales Contract	Bush/Bridwell/Miller	Ingram	2/13/98												
	Meet with LWC to discuss water sales contract	Miller/Bush		2/20/98												
	Draft Reimbursement Agreement for Design	Bridwell/Miller	Ingram	2/15/98												
C	Determine Application Filing Needs	Bridwell/Miller	Ingram	2/3/98												
C	Determine Application Hearing Needs	Bridwell/Miller	Ingram	2/3/98												
	Initiate Meeting with PSC to discuss reqts	Bridwell/Miller	Ingram	3/31/98												
	Determine Approvals Needed and Timing (DOW, KRA)	Bridwell/Miller	Ingram	2/13/98												
	Interbasin Transfer	Bridwell/Miller	Ingram	2/15/98												
	File Application for Certificate of Convenience & Nec.	Bridwell/Miller	Ingram	12/1/98												
	Certificate Hearing			Feb-99												
	Receive Certificate			Jun-99												
	Accounting/Finance															
	Finalize Cost of Service/Rate Assessment	Bush	Ober	2/15/98												
	Finalize Water Sales Contract	Bush		2/28/98												
	Develop Analysis on Rates	Grubb		2/28/98												
	Meet with PSC to discuss Rate Impact	Grubb		4/30/98												
	Community Relations															
	Initiate Community Outreach Program	Brown		2/15/98												

Office - IV
S of S
Design

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

January 23, 1998
BP 92-12

Karen A. Willis
Louisville Water Company
435 South Third Street
Louisville, Kentucky 40202

Re: Kentucky-American Water Company
Bluegrass Water Project

Dear Karen:

As we discussed recently via telephone, we have briefly investigated an alternate pipeline route through Jefferson County that could potentially convey water to the Jefferson/Shelby County line by gravity and avoid the need for a booster station in Jefferson County. I have enclosed a map showing the proposed route which basically follows US 60 for approximately the first 2/3 of the route then parallels an existing railroad track from that point to the county line.

I have also enclosed two print outs from a simple spreadsheet for this proposed route. The first printout reflects the ultimate station capacity of 23.0 MGD while the second reflects the expected daily flow rate of 2.4 MGD. Both spreadsheets reflect the minimum operating level in your English Station Tank and assume a 36-inch pipeline. The critical pressure points are located near the tank and are a result of elevation more than friction loss. It appears that these critical pressure points could be avoided if the pipeline were rerouted around the plateau at Station 0.6 and not parallel US 60 in this area.

If this route (or any another potential gravity route) would be acceptable to LWC, our initial feeling is that a storage tank at the county line, which you have previously indicated would be required by LWC, should be a LWC facility located in Jefferson County. The tank site would also include an altitude or other control valve on the suction of the tank, and a meter vault on the discharge of the tank. KAWC's first booster may not necessarily be located at the tank but potentially somewhere closer to I-64 where access would be better. In this scenario, the operations of the KAWC facilities would be relatively independent of the LWC operations, and thus the need for coordination of capital improvements required by each utility would be significantly simplified. Please also note that we have concluded from our water quality analyses that the first booster station will need to include chlorine, ammonia, and corrosion inhibitor chemical feed systems.

Linda Bridwell will be contacting your shortly to set up another meeting to discuss the above issues. I have also forwarded the hydraulic spreadsheet to you via e-mail for your general information and use. Please contact me directly at either (609-346-8278) or dreves@amwater.com if you have any questions prior to our next meeting.

Sincerely,

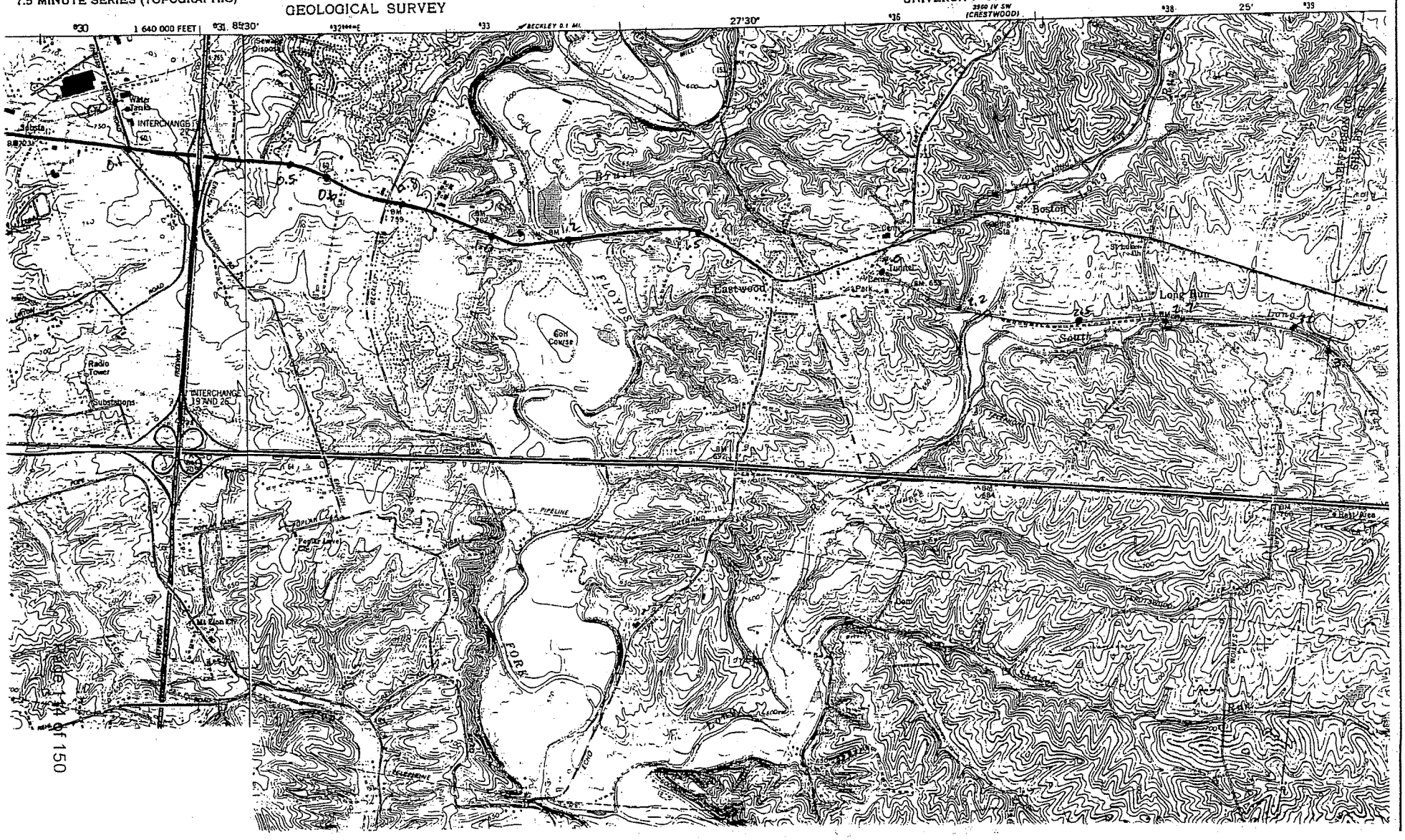
David M. Reves

c: L.C. Bridwell - KAWC (w/att)
T.A. Friley - KAWC (w/att)
N.O. Rowe - KAWC (w/att)

JEFFERSONTOWN QUADRANGLE
KENTUCKY–JEFFERSON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF KENTUCKY
KENTUCKY GEOLOGICAL SURVEY
UNIVERSITY OF KENTUCKY



Louisville-Lexington Pipeline

January 8, 1998

Flow from the English Station Tank to the Jefferson/Shelby County Line

					C=	130	
					Flow =	23.0	MGD
					Diameter =	36	inches
		Elevation	Distance	Head Loss	HGL	Pressure	Pressure
Location	Station	(feet)	(feet)	(feet)	(feet)	(feet)	(psi)
English Station Tank	0.0	764	0		830.0	66.0	28.6
	0.1	750	1,000	2.1	827.9	77.9	33.8
	0.5	750	4,000	8.2	819.7	69.7	30.2
Critical high point	0.6	770	1,000	2.1	817.7	47.7	20.7
	0.8	760	2,000	4.1	813.6	53.6	23.2
	1.0	680	2,000	4.1	809.5	129.5	56.1
	1.2	590	2,000	4.1	805.4	215.4	93.3
	1.5	700	3,000	6.2	799.2	99.2	43.0
	2.0	700	5,000	10.3	789.0	89.0	38.5
	2.2	600	2,000	4.1	784.9	184.9	80.1
	2.5	610	3,000	6.2	778.7	168.7	73.1
	2.7	630	2,000	4.1	774.6	144.6	62.6
	3.0	650	3,000	6.2	768.5	118.5	51.3
Jefferson/Shelby County Line	3.1	650	1,000	2.1	766.4	116.4	50.4

Louisville-Lexington Pipeline					C=	130	
January 8, 1998					Flow =	2.4	MGD
Flow from the English Station Tank to the Jefferson/Shelby County Line					Diameter =	36	inches
		Elevation	**Distance**	**Head Loss**	**HGL**	**Pressure**	**Pressure**
Location	**Station**	**(feet)**	**(feet)**	**(feet)**	**(feet)**	**(feet)**	**(psi)**
English Station Tank	0.0	764	0		830.0	66.0	28.6
	0.1	750	1,000	0.0	830.0	80.0	34.6
	0.5	750	4,000	0.1	829.8	79.8	34.6
Critical high point	0.6	770	1,000	0.0	829.8	59.8	25.9
	0.8	760	2,000	0.1	829.7	69.7	30.2
	1.0	680	2,000	0.1	829.7	149.7	64.8
	1.2	590	2,000	0.1	829.6	239.6	103.8
	1.5	700	3,000	0.1	829.5	129.5	56.1
	2.0	700	5,000	0.2	829.4	129.4	56.0
	2.2	600	2,000	0.1	829.3	229.3	99.3
	2.5	610	3,000	0.1	829.2	219.2	94.9
	2.7	630	2,000	0.1	829.2	199.2	86.2
	3.0	650	3,000	0.1	829.1	179.1	77.5
Jefferson/Shelby County Line	3.1	650	1,000	0.0	829.0	179.0	77.5

File - N SoS. Design

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

January 23, 1998
BP 92-12

Mr. Thomas A. Friley
Kentucky-American Water Company
2300 Richmond Road
Lexington, Kentucky 40502

Re: Bluegrass Water Project
Booster Station Sites

Dear Tom:

I've investigated the hydraulics and facility requirements for each of the booster stations further, and would like to provide the following information in regard to land acquisition.

BOOSTER STATION NO. 1

1. Acreage: In addition to the pumping units themselves, this facility will include three chemical systems and a chlorine scrubber system. In comparison, the Clays Mill booster station (site plan attached) houses pumping units only (with less capacity than the proposed facility), but with room on site for two large diameter storage tanks. The total acreage at that facility is slightly greater than 3 acres.

2. Accessibility: This facility does not necessarily need to be located directly at the Jefferson/Shelby County line. A site that would be easily accessible from I-64 to facilitate maintenance and chemical deliveries would probably be more desirable.

3. Hydraulic Considerations: If the booster is located some distance from the county line where the LWC tank will be located, we need to be cognizant of maintaining adequate suction pressures in the pipeline since it is a finished water main. I'm assuming at this time that the LWC tank would be at ground elevation 650 with an approximate minimum water level of 110 feet. If we need to maintain a minimum pressure of 30 psi (70 feet) in the pipe, we could lose approximately 40 feet in friction and/or elevation. At 23 MGD, the friction loss is approximately 2.1 feet per 1,000 feet of pipe. Thus, if the booster were located at I-64 which is a pipeline distance of approximately 4,000 feet, we would lose almost 9 feet due to friction meaning that we could be at an elevation no greater than 300

feet (El. 680) above the ground elevation at the tank.

4. Recommendation: Until we have topographical survey data and concurrence from LWC on the location and elevation of the storage tank, we can't pinpoint a site, but we at least need to identify a potentially feasible site at this time. Based on the above, I would recommend a site no less than 1.5 acres located somewhere near the 650 contour at I-64 about ½ mile from the Jefferson/Shelby County line.

BOOSTER STATION NO. 2

1. Acreage: This facility will not require the chemical feed systems that are needed at the first booster station, however, this site will require a retention basin to facilitate flushing of the line. In the absolute worst case scenario at a 23 MGD flow rate, and allowing for 4 theoretical hours of detention time, the basin could be as big as 4 MG with approximate dimensions of 115' x 450' x 10' deep (surface area is greater than 1 acre). We could potentially reduce the size of this basin if we agree that lower flows would generate adequate scouring velocities, and that shorter detention times would allow for adequate settling prior to discharge. For the time being, however, we need to conservatively assume that land to accommodate a basin of this size will be needed.

2. Hydraulic Considerations: Upon further investigation, not only are there concerns with the Kentucky River crossing and the "hump" just downstream of the river (which we discussed at the meeting), but Glenn's Creek also poses some high pressure problems. If the booster is located upstream of Glenn's Creek, the pressure at the Creek will approach 300 psi.

   I've modified and attached the first page of the hydraulic spreadsheet which I distributed at the meeting, and have also attached a section of the USGS map in the vicinity of the Kentucky River and Glenn's Creek. The optimal hydraulic location appears to be just downstream of Glenn's Creek at Station 18.1. This results in a longer first lift, however, by avoiding the hump just after the Kentucky River, the maximum pressure in the first lift is slightly lower in comparison to the previous scenario I discussed at the meeting. The pressures in the second lift would be significantly lower, and the high pressures at Glenn's Creek would be avoided.

   The concern with a booster at this location is the ability to adequately dispose of flushing water. If we parallel the transmission main with a drain line back to the Kentucky River, it would be nearly 4 miles long, would have to cross Glenn's Creek, and potentially would have some hydraulic limitations unless the pipe were oversized or buried deeper. If we tried to take a shorter route back to the Kentucky River in the direction of River Mile 78, we would definitely encounter hydraulic problems with flow by gravity. The obvious course of direction at this time is for Julie to discuss with the State the potential for discharging to Glenn's Creek.

3. Recommendation: Again, until we have topographical survey data and can get some

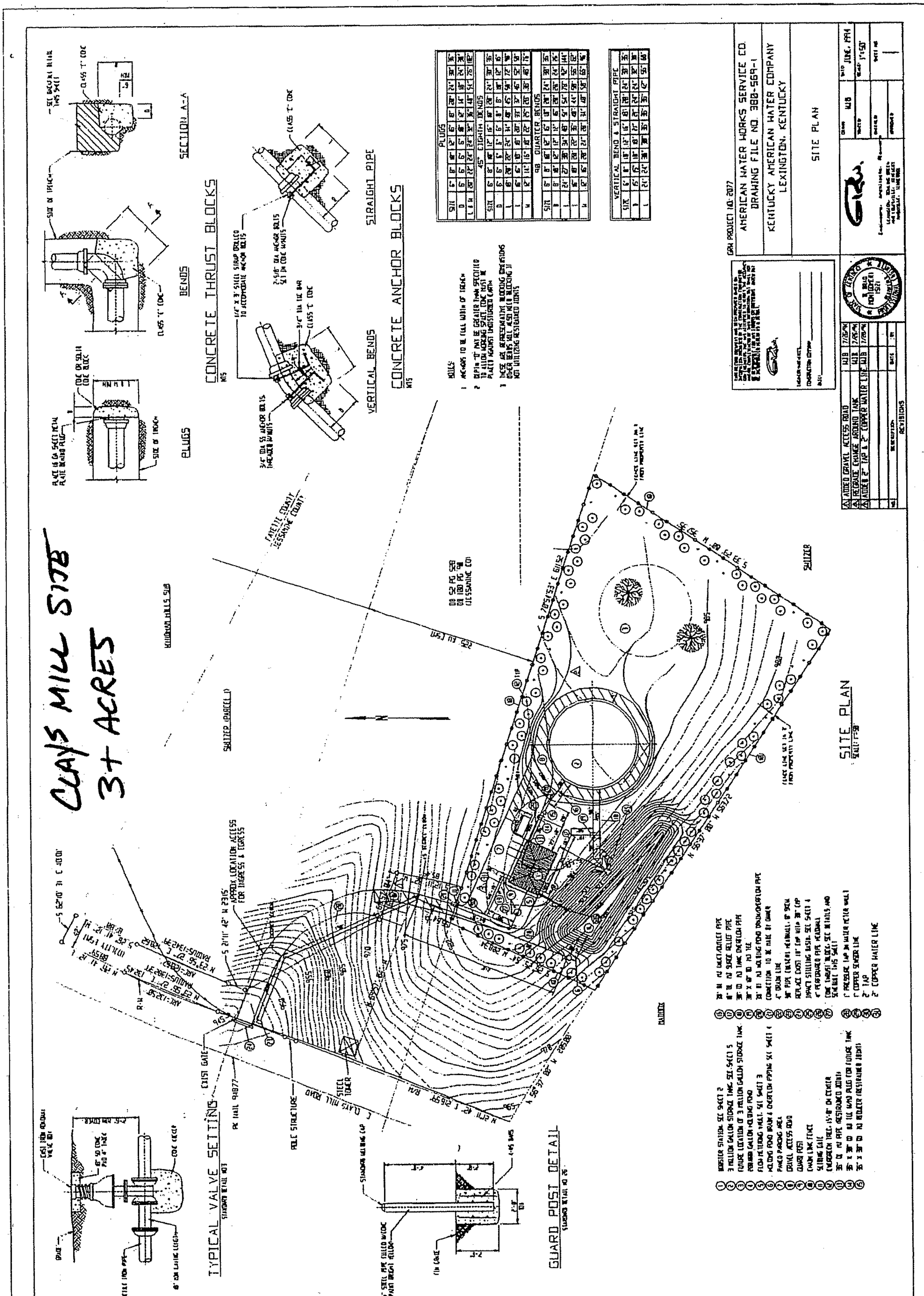
feedback from the State on the discharge issue, we can't pinpoint a site. However, if we can resolve the discharge issue at this time, I would recommend that we pursue a tentative site no less than 4.0 acres located in the vicinity of Station 18.1 at an approximate elevation of 810. It appears from the USGS map that there may be some existing roads to facilitate access to this location.

Please call me if there is any other information I can provide to assist you in your preliminary land investigation efforts.

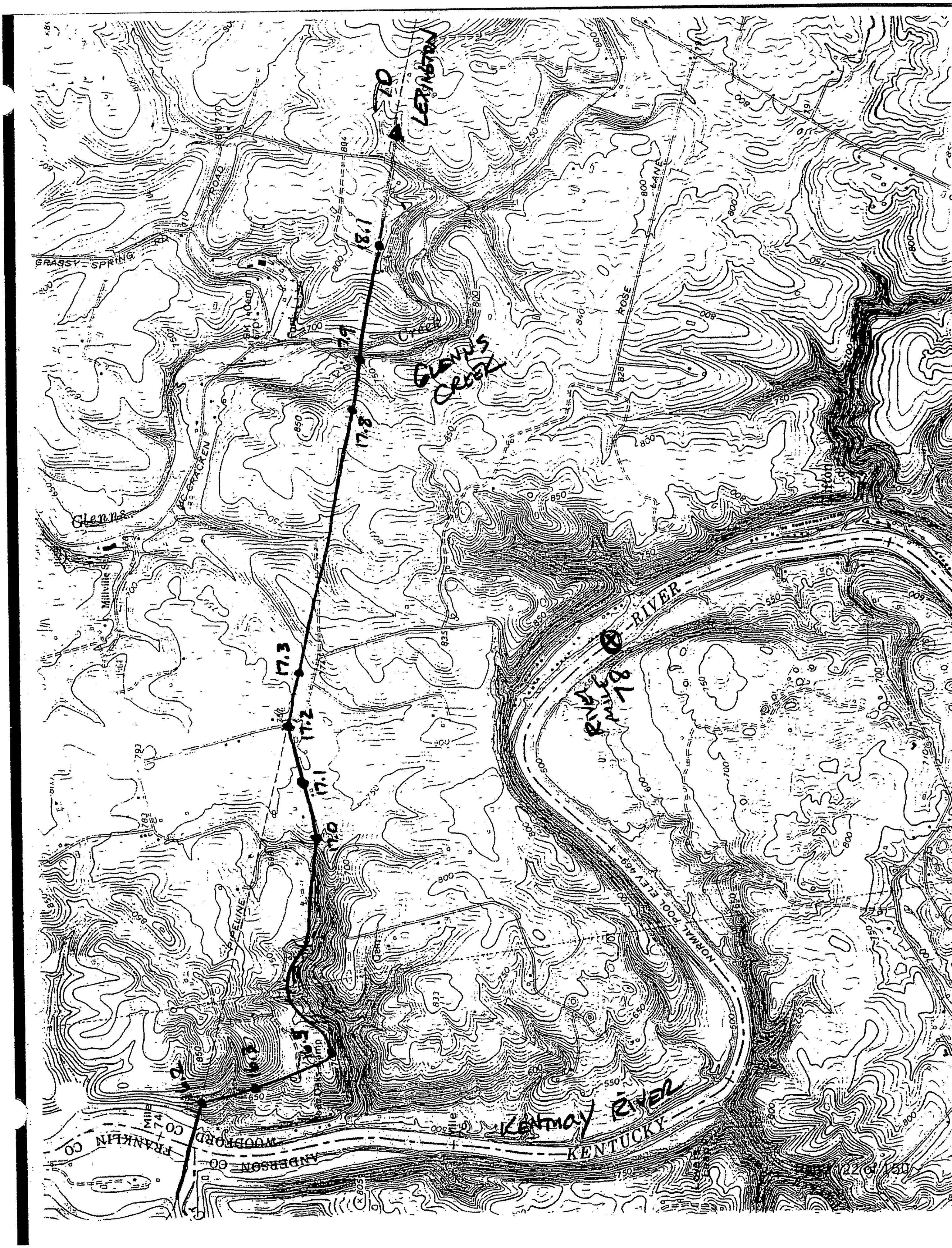
Sincerely,

David M. Reves

c: L.C. Bridwell - KAWC (w/att)
N.O. Rowe - KAWC (w/att)
J.W. Simpson - KAWC (w/att)


CLAYS MILL SITE
3+ ACRES
AMERICAN WATER WORKS SERVICE CO.
DRAWING FILE NO. 380-569-1
KENTUCKY AMERICAN WATER COMPANY
LEXINGTON, KENTUCKY
SITE PLAN
CONCRETE THRUST BLOCKS
CONCRETE ANCHOR BLOCKS
SECTION A-A
BENDS
PLUGS
STRAIGHT PIPE
VERTICAL BENDS
TYPICAL VALVE SETTING
GUARD POST DETAIL
CLAYS MILL ROAD
REVISIONS

Louisville-Lexington Pipeline							C=	130	
January 22, 1998							Flow =	23.0	MGD
Pipeline operating at capacity with both booster stations							Diameter =	36	inches
		Elevation	Distance	Head Loss	HGL	Pressure	Pressure	Pressure	Pressure
Location	Station	(feet)	(feet)	(feet)	(feet)	(feet)	(psi)	Class Req'd	Class to Use
New route (first booster station)	0.4	640	0		1288.2	648.2	280.7	300	350
New route (potental alternate booster location)	0.0	650	4,000	8.2	1288.2	638.2	276.3	300	350
New route	0.5	700	5,000	10.3	1277.9	577.9	250.2	300	350
New route	0.6	710	1,000	2.1	1277.9	567.9	245.9	250	300
	1.0	780	5,000	10.3	1267.7	487.7	211.2	250	300
	1.5	780	5,000	10.3	1257.4	477.4	206.7	250	300
	2.0	810	5,000	10.3	1247.2	437.2	189.3	200	250
	2.5	770	5,000	10.3	1236.9	466.9	202.2	250	300
	3.0	710	5,000	10.3	1226.6	516.6	223.7	250	300
	3.3	670	3,000	6.2	1220.5	550.5	238.4	250	300
	3.5	710	2,000	4.1	1216.4	506.4	219.3	250	300
	4.0	760	5,000	10.3	1206.1	446.1	193.2	200	250
pt. of delivery	4.5	660	5,000	10.3	1195.9	535.9	232.0	250	300
	5.0	710	5,000	10.3	1185.6	475.6	205.9	250	300
	5.5	790	5,000	10.3	1175.4	385.4	166.9	200	250
	6.0	770	5,000	10.3	1165.1	395.1	171.1	200	250
	6.1	800	1,000	2.1	1163.1	363.1	157.2	200	250
	6.5	730	4,000	8.2	1154.9	424.9	184.0	200	250
	6.7	680	2,000	4.1	1150.8	470.8	203.8	250	300
	7.0	800	3,000	6.2	1144.6	344.6	149.2	150	200
	7.5	780	5,000	10.3	1134.4	354.4	153.4	200	250
	7.9	710	4,000	8.2	1126.2	416.2	180.2	200	250
	8.0	810	1,000	2.1	1124.1	314.1	136.0	150	200
	8.5	890	5,000	10.3	1113.9	223.9	96.9	100	150
	9.0	810	5,000	10.3	1103.6	293.6	127.1	150	200
	9.5	850	5,000	10.3	1093.4	243.4	105.4	150	200
	10.0	880	5,000	10.3	1083.1	203.1	87.9	100	150
	10.5	870	5,000	10.3	1072.8	202.8	87.8	100	150
	11.0	850	5,000	10.3	1062.6	212.6	92.1	100	150
	11.1	740	1,000	2.1	1060.5	320.5	138.8	150	200
	11.5	820	4,000	8.2	1052.3	232.3	100.6	150	200
	12.0	800	5,000	10.3	1042.1	242.1	104.8	150	200
	12.2	710	2,000	4.1	1038.0	328.0	142.0	150	200
	12.5	800	3,000	6.2	1031.8	231.8	100.4	150	200
	13.0	760	5,000	10.3	1021.6	261.6	113.3	150	200
	13.5	770	5,000	10.3	1011.3	241.3	104.5	150	200
	14.0	800	5,000	10.3	1001.1	201.1	87.1	100	150
	14.5	790	5,000	10.3	990.8	200.8	87.0	100	150
	15.0	830	5,000	10.3	980.6	150.6	65.2	100	150
	15.5	750	5,000	10.3	970.3	220.3	95.4	100	150
	16.0	650	5,000	10.3	960.1	310.1	134.3	150	200
Kentucky River crossing	16.1	460	1,000	2.1	958.0	498.0	215.6	250	300
	16.2	600	1,000	2.1	956.0	356.0	154.1	200	250
	16.3	700	1,000	2.1	953.9	253.9	109.9	150	200
	16.5	700	2,000	4.1	949.8	249.8	108.2	150	200
	17.0	700	5,000	10.3	939.6	239.6	103.7	150	200
	17.1	740	1,000	2.1	937.5	197.5	85.5	100	150
	17.2	760	1,000	2.1	935.5	175.5	76.0	100	150
	17.3	770	1,000	2.1	933.4	163.4	70.8	100	150
Critical high point	17.8	830	5,000	10.3	923.2	93.2	40.3	50	100
Glenns Creek crossing	17.9	660	1,000	2.1	921.1	261.1	113.1	150	200
Suction pressure slightly raised	18.1	810	2,000	4.1	917.0	107.0	46.3	50	100
Second booster station	18.1	810		0.0	1342.3	532.3	230.5	250	300
	18.3	800	2,000	4.1	1338.2	538.2	233.0	250	300
	18.8	850	5,000	10.3	1327.9	477.9	206.9	250	300
	19.3	850	5,000	10.3	1317.6	467.6	202.5	250	300
	19.6	870	3,000	6.2	1313.5	443.5	192.1	200	250
	19.8	860	2,000	4.1	1313.5	453.5	196.4	200	250
	20.3	910	5,000	10.3	1303.3	393.3	170.3	200	250
	20.8	890	5,000	10.3	1293.0	403.0	174.5	200	250
	21.3	890	5,000	10.3	1282.8	392.8	170.1	200	250
	21.8	830	5,000	10.3	1272.5	442.5	191.6	200	250
	22.3	850	5,000	10.3	1262.3	412.3	178.5	200	250
	22.8	910	5,000	10.3	1252.0	342.0	148.1	150	200
	23.3	850	5,000	10.3	1241.8	391.8	169.6	200	250
	23.6	810	3,000	6.2	1235.6	425.6	184.3	200	250
	23.8	850	2,000	4.1	1231.5	381.5	165.2	200	250
	24.3	860	5,000	10.3	1221.3	361.3	156.4	200	250
	24.8	900	5,000	10.3	1211.0	311.0	134.7	150	200
	25.3	950	5,000	10.3	1200.8	250.8	108.6	150	200
	25.8	920	5,000	10.3	1190.5	270.5	117.1	150	200
	26.3	900	5,000	10.3	1180.3	280.3	121.3	150	200
KAWC distribution system gradient	26.8	950	5,000	10.3	1170.0	220.0	95.3	100	150


TO LEXINGTON
18.1
17.9
17.8
GLENN'S CREEK
17.3
17.2
17.1
17.0
16.5
16.3
RIVER MILE 78
KENTUCKY RIVER
GRASSY SPRING RD
ROAD
McCRACKEN
ROSE LANE
Creek
Glenns
Millville
PIPELINE
RIVER
NORMAL POOL ELEV 469
KENTUCKY
FRANKLIN CO
WOODFORD CO
ANDERSON CO

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

January 21, 1998
BP 92-12

MEMORANDUM

To: File

From: D.M. Reves

Re: Bluegrass Water Project

A meeting was held on January 21 in Lexington to primarily discuss issues associated with the referenced project. In attendance were Linda Bridwell, Tom Friley, Dillard Griffin, Nick Rowe, and Julie Simpson from Kentucky-American Water Company (KAWC); and Dave Reves and John Young from American Water Works Service Company (AWWSC). The following will summarize the action items required at this time and the individual responsible for that item. Other items discussed at the meeting which will require changes in the draft Request for Proposal and Design Concept will be summarized by means of direct modification and reissuance of that document.

Dave Reves

1. Provide Tom with recommended acreages for both booster station sites and the optimal hydraulic location of the second booster station. Neither booster needs to be located directly on the pipeline route, and the first booster doesn't need to be located at the Jefferson/Shelby County line but does need to remain at an approximate elevation no higher than the ground elevation at the county line.

2. Forward hydraulic information to Karen Willis regarding the proposed northern route from the LWC English Station tank to the Jefferson/Shelby County line. This has been previously discussed with her by phone.

3. Finalize the RFP and Design Concept and forward 8 copies to Linda such that they are received on either Monday January 26 or Tuesday, January 27 at the latest. KAWC will initiate a conference call with System Engineering at 8:30 am on Thursday, January 29 to discuss this submittal. Friday

4. Forward copies of both the LWC water quality data and the Calgon corrosion inhibitor recommendations to Julie.

Julie Simpson

1. Perform additional jar testing to determine chloramine decay under pipeline conditions (closed jar - slightly chilled - no stirring) and tank conditions (semi open - slightly warmed - gentle stirring).

2. Provide max-min-avg KAWC water quality data to Dave per the blank chart in the Background section of the Design Concept representing conditions at the extremes of the distribution system.

3. Call the State regarding a KPDES discharge permit. The potential discharge rate could be as high as 23 MGD over at least a 10 hour time duration.

Tom Friley

1. Obtain aerial photographs of the alternate northern pipeline route within Shelby county. This should not be performed until we receive concurrence from LWC that this will be an acceptable route, but will need to be done before the RFP is issued to consultants.

2. Run the KAWC hydraulic model to determine how much flow can be generated backward through the pipeline to the Kentucky River. If velocities of at least 2 ft/sec (9 MGD) are not possible, alternate disposal locations will need to be investigated.

3. Confirm that the alternate pipeline routing at the beginning of the pipeline and at the Kentucky River crossing is feasible from a construction standpoint. Also provide copies of USGS maps in these locations showing the specific routing that would be feasible and desired.

4. Provide distribution maps to Dave showing the area between the tie in point at the KAWC system and the nearest storage tank.

5. Call Allen Cox at DIPRA and initiate the soils survey. Until the easement consultant has progressed further, DIPRA can at least begin identifying gas company anode beds and the radius of influence for each.

6. Identify potential land at each booster station site (specific parcels), obtain tax maps, and initiate preliminary discussions with property owners.

Linda Bridwell

1. Develop a true critical path method schedule such that all significant project activities are defined along with relationships between the activities. This will assist in identifying critical items in the schedule and the effect that delays in specific activities have on the overall project schedule. The schedule will need to be maintained and updated throughout the project.

2. Determine (as part of the above schedule) which items are needed from both KAWC and LWC in relation to the filing of the Certificate. This information will need to be reflected in the schedule for the Design Consultants when RFP is issued.

3. Set up a meeting with LWC for either February 6 or February 3 to review the draft RFP and Design Concept. With the first booster station out of Jefferson County, the scope of work for the two companies does not overlap and there is no longer a need to combine the design work into a single project. The only technical issues which need to be addressed with LWC are the confirmation of the northern route, the ownership of the tank and meter vault by LWC, and water quality guarantees. Dave had previously asked Karen Willis to comment on the northern route, but no response has been received to date.

4. Provide primary names, addresses, and phone numbers for each member of each design team to Dave.

5. Revise the work orders for the project.

Linda Bridwell and Dillard Griffin

1. Develop anticipated pumpage requirements for the booster stations (flow rates, durations, and frequency). This is needed to size the chemical feed storage facilities and finalize preliminary pump sizing, and will also be needed for the pump and energy study which is the first item required of the Design Consultant.

Linda Bridwell and Nick Rowe

1. Discuss and finalize the pipeline route along Old Frankfort Pike with Roy Mundy.

2. Negotiate a revised water sales agreement with LWC.

3. Negotiate a reimbursement contract with LWC to allow them to proceed further with the necessary design improvements within their system.

4. Discuss electronic communication capabilities (Lotus Notes) at KAWC with Coleman Bush. This would greatly assist in the communications on this project as well as future projects.

c: L.C. Bridwell - KAWC
T.A. Friley - KAWC
D. Griffin - KAWC
N.O. Rowe - KAWC
J. Simpson - KAWC

Kentucky-American Water Company

2300 Richmond Road • Lexington, Kentucky 40502 • (606) 269-2386 • Fax (606) 268-6327

File - N
S&S Design

Linda C. Bridwell, P.E.
Director of Engineering

COPY

January 6, 1998

Mr. J. M. Yowell, P.E.
State Highway Engineer
Kentucky Transportation Cabinet
State Office Building Room 1005
Frankfort, Kentucky 40622

Dear Mr. Yowell:

Thank you for taking the time to meet with Roy Mundy, Nick Rowe and me on December 18, 1997. We appreciated having the opportunity to discuss with you a number of the issues regarding source of supply in Central Kentucky.

As a follow-up to the meeting, we have carefully reviewed the Interstate 64 right-of-way location. Kentucky-American Water Company would utilize the right-of-way, if possible, from the Gene Snyder Freeway (Interchange 19) to the Graefenburg exit (Interchange 48). We are still reviewing the route beyond that but, due to construction and hydraulic considerations, we would probably not benefit from use of the right-of-way east of Interchange 48. We will be on the southern side of the interstate. I have attached a sketch of the area.

We are anticipating a 36-inch main of either ductile iron, steel or concrete construction. We normally require a 15-foot wide easement but could easily install the main within the outermost 10 feet of the right-of-way, with a total of 30 feet required for construction work. The operating pressures would range from 40 psi to slightly over 300 psi, depending on location and operation. Obviously, the pipe would be designed to safely accommodate areas of high pressure.

We would anticipate including various tee joints to provide future water service to area water districts. Service to individual customers will have to be reviewed as they arise in order to not violate federally protected service areas.

I hope this information will allow your office to further evaluate the potential. Please do not hesitate to contact me if anything additional is needed.

Sincerely,

Linda C. Bridwell

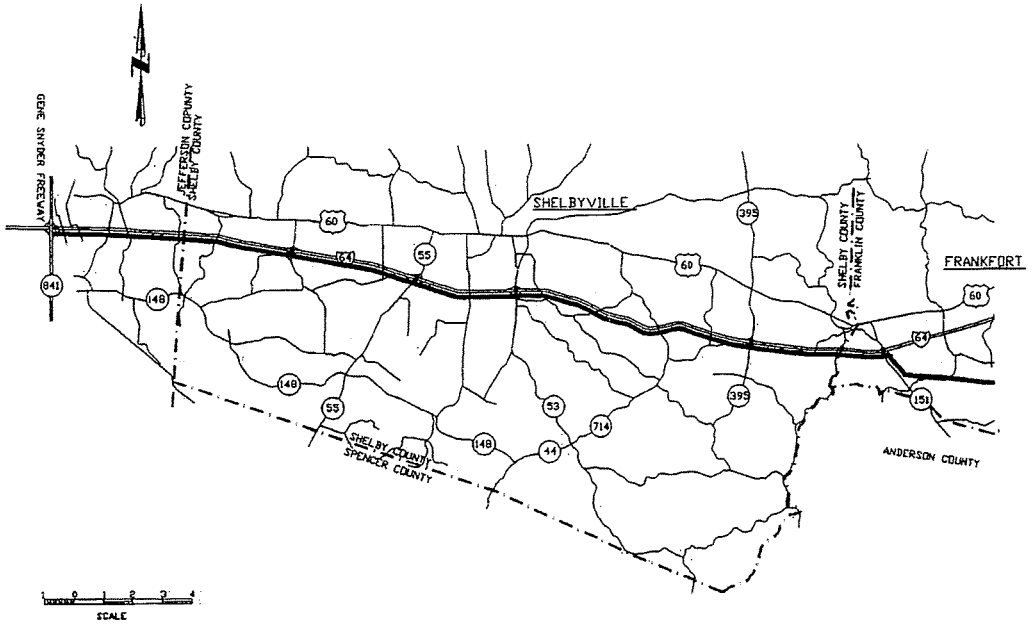
Linda C. Bridwell, P.E.
Director of Engineering

LCB/dm

Attachment

c: R. W. Mundy II
N. O. Rowe

F:\APPS\DEBBIE\Eng\LB\YOWELL.DOC



LEGEND:

—— PROPSED TRANSMISSION MAIN

KENTUCKY-AMERICAN WATER COMPANY
PROPOSED
LEXINGTON PIPELINE ROUTE

SCALE: SEE BAR SCALE ON DRAWING

FILE NAME: d:\ACADMAP\LOUISVIL

DWG. SCALE = 11 x 17 PAPER = 1" =1"

Kentucky-American Water Company

2300 Richmond Road • Lexington, Kentucky 40502 • (606) 269-2386 • Fax (606) 268-6327

File - N
Water Supply
Design

Linda C. Bridwell, P.E.
Engineering Manager

COPY

November 18, 1997

Mr. J. M. Yowell, P.E.
State Highway Engineer
Kentucky Transportation Cabinet
State Office Building Room 1005
Frankfort, Kentucky 40622

Dear Mr. Yowell:

Kentucky-American Water Company is initiating design for its proposed pipeline to purchase water from the Louisville Water Company and supply it to Central Kentucky. One of the components of our initial work is to finalize the pipeline route.

Although your office had previously stated that it was not feasible to locate the pipe within the right-of-way for I-64, we realize that some issues may have changed in recent years. I am requesting that you reconsider this issue and determine if there is now some possibility of negotiating to allow at least part of the pipeline to be installed in the interstate right-of-way.

I would appreciate the opportunity to discuss this matter with you further. Please contact me at your earliest convenience; my telephone number is (606) 268-6373.

Sincerely,

Linda C. Bridwell/dm

Linda C. Bridwell, P.E.
Engineering Manager

LCB/dm

c: R. W. Mundy II
L. W. Ingram

N:\APPS\OLIVER\LB\YOWELL.DOC

KENTUCKY-AMERICAN WATER COMPANY
WATER SUPPLY PROJECT

DESIGN CONCEPT

I. Background

Kentucky-American Water Company (KAWC) provides potable water service to over 88,000 customers and nearly 250,000 people in six communities within central Kentucky. The primary source of supply for KAWC is the Kentucky River which is supplemented by Jacobson Reservoir. Two surface water treatment plants process and distribute finished water through over 1,200 miles of main. The larger of the two plants is referred to as the Kentucky River Station (KRS) and has a rated capacity of 40.0 MGD. The second treatment plant is referred to as the Richmond Road Station (RRS) and has a rated capacity of 25.0 MGD.

In 1988, extremely dry weather produced very low flows in the Kentucky River during the early summer months which dramatically emphasized the need to supplement existing sources of supply. Peak day demands during that period also exceeded the combined rated capacity of the two existing treatment plants. Since that time, a number of alternate source, production, and conservation measures have been extensively evaluated. Ultimately, on August 21, 1997, the Kentucky Public Service Commission ordered KAWC to "take the necessary and appropriate measures to obtain sources of supply so that the quantity and quality of water delivered to its distribution system shall be sufficient to adequately, dependably, and safely supply the total reasonable requirements of its customers under maximum consumption through the year 2020".

Based on the numerous alternatives which have been evaluated over the past ten years to resolve the source of supply and production deficits, KAWC has concluded that purchasing finished water from the Louisville Water Company (LWC) is the best and most economical solution. LWC currently has adequate source and treatment capacity to meet the KAWC projected deficits, and only distribution system improvments would be required within the existing LWC system. KAWC's responsibility, which encompasses the scope of work for this project, would consist of approxmately 50 miles of 36-inch pipe which is capable of transferring a maximum of 23.0 MGD from the LWC distribution system to the KAWC distribution system. Two booster stations would also be required to convey the water at safe operating pressures.

All background information related to this project, including existing or historical data, and preliminary efforts which have been initiated or completed to date, are presented below to assist the Consultant in completing the detailed design:

1. Pipeline Route - A route evaluation was performed in 1990, and the final proposed route is shown on U.S.G.S. map sections which can be found in the Attachments. The pipeline will begin at the Jefferson County/Shelby County Line approximately ½ mile south of

Route 64 where it will connect to the LWC distribution system. The pipeline will generally parallel an existing gas transmission main across Shelby and Franklin Counties. The pipeline will cross the Kentucky River into Woodford County and continue to parallel the gas transmission main up to Route 60. At this point, the main will travel northeast and parallel an existing overhead power line until reaching Route 1681 (Frankfort Road). The main will head east along Route 1681, cross into Fayette County, continue to follow Route 1681 (which becomes Old Frankfort Pike), and connect with the KAWC distribution system at Route 4 (New Circle Road). A map of the KAWC distribution system in the area of the proposed tie in is also provided in the Attachments.

The total length of the pipeline is approximately 265,000 feet (50.2 miles). Nine U.S.G.S. quad maps encompass the pipeline route including Fisherville, Simpsonvile, Shelbyville, Waddy, Frankfort West, Lawrenceburg, Tyrone, Versailles, and Lexington West, KY. Aerial photographs of the pipeline route are available for inspection at the KAWC main office.

2. Easements - The Water Company has retained a pipeline easement consultant who will provide a metes and bounds description, centerline staking every 50 feet, and projection of the metes and bounds on existing aerial maps. The easement consultant's scope of work will also include the following:

   a. Identification of any anode beds for the existing gas pipeline and the associated radius of influence. This will be performed in conjunction with the Ductile Iron Pipe Research Association (DIPRA). If the proposed pipeline route will cross through the radius of influence of any anode bed, it is the easement consultant's responsibility to either reroute the pipeline, or work with KAWC and the Gas Company to relocate the anode bed. If neither of these are possible, it will be the design consultant's responsibility to design adequate corrosion protection due to stray current. The design consultant shall assume at this time that design of corrosion protection facilities associated with stray current will not be required.

   b. A wetlands delineation along the entire pipeline route and at both booster station sites, development of a mitigation plan, and preparation of applicable permits. The easement consultant.

   c. An archeological survey along the entire pipeline route and at both booster station sites. This includes both a Phase I and Phase II assessment as necessary. Again, the easement consultant will attempt to reroute the pipeline to avoid areas which would require a Phase II assessment.

   The easement consultant will provide information to the design consultant in segments as it becomes available beginning in December 1997. All of the work being performed by the easement consultant as defined above is expected to be complete by March 1, 1998.

3. Deficits - The projected peak day demand and source of supply deficits are presented

below. Water from the pipeline to meet the projected peak day demands is only expected to be required for 1-3 days per year per the schedule below. Water from the pipeline to meet projected source of supply deficits is only expected to be required should a drought of record occur during the respective year. If the drought of record would occur, the source of supply requirements presented below would be needed over an approximate 183-day period.

Year	Peak Day Demand Deficit (MGD)	Source of Supply Deficit (MGD)
2000	7.73	14
2005	11.24	16
2010	14.76	19
2015	18.02	21
2020	21.28	23

No water sales along the pipeline route are anticipated at this time, and reserve capacity in the pipeline is not required. Thus, flow in the pipeline will be driven the majority of the time by water quality concerns. This would include the need to maintain minimum flows to ensure adequate water quality while minimizing purchased water costs. It would also include the ability to occasionally flush the line at maximum rates (23 MGD which will be the required pipeline capacity per the table above). Additional discussion regarding the need to maintain adequate water quality in the pipeline is presented in subsequent sections.

4. Water Quality Compatibility - Typical finished water quality data for both the LWC and KAWC systems is presented below. The data reflects what can be expected at the extremes of each respective distribution system where the pipeline will connect.

Parameter	Units	Kentucky-American			Louisville Water Company		
		min	avg	max	min	avg	max
Turbidity	NTU						
pH	units						
Alkalinity	mg/L						
Hardness (as $CaCO_3$)	mg/L						
Iron	mg/L						
Manganese	mg/L						
Fluoride	mg/l						
Phosphate	mg/l						
Total Dissolved Solids	mg/l						
Total Chlorine Residual	mg/l						
Free Chlorine Residual	mg/l						
Zinc	mg/l						
Aluminum	mg/l						
Sodium	mg/l						
Bromide	mg/l						
Chloride	mg/l						
Nitrite	mg/l						

Nitrate	mg/l			
TOC	mg/l			
TTHM (quarterly)	ppb			

In general, the two waters are relatively compatible with the exception of the method of corrosion control. LWC maintains a higher pH for corrosion control whereas KAWC utilizes a zinc orthophosphate corrosion inhibitor. It is expected that blends higher than 70/30 (KAWC to LWC) or 80/20 (LWC to KAWC) would be non-corrosive. Considering that flow in the pipeline will normally be relatively low (to maintain water quality) or occasionally high (for flushing or to meet projected demand or source deficits), the blend is expected to be typically non-corrosive at the tie in point to the KAWC distribution system

5. Minimum Flow Requirements - Since the need for flow from the pipeline to meet projected peak demand and source of supply deficits is infrequent, typical flows will be driven by the need to maintain adequate water quality. Keeping the pipeline out of service (either full or empty) and putting it into service as needed is not an option due to a number of water quality, cost, operational, and time concerns. Thus, it will be necessary to maintain a minimal flow through the pipeline to ensure adequate water quality. Since the cost of purchased water from LWC will be higher than the cost for KAWC to produce water, it is important that these flow rates necessary to maintain adequate water quality be minimized.

The two primary water quality concerns when attempting to minimize the flow rates are chloramine residual and nitrification. Since chloramines can persist in the water for extended times even at high temperatures, coupled with the fact that re-chloramination along the pipeline would be possible, maintaining an adequate residual is not expected to be a problem. The secondary concern, however, would be the formation of THMs if frequent rechloramination became necessary. Even in this unlikely case, the [NEED FINISHED TOC AND/OR THM INFO FROM LWC HERE]. Thus, maintaining an adequate chloramine residual is not expected to be the controlling factor in determining the minimum flow rates.

The practice of chloramination coupled with the potential long detention times (in both the proposed pipeline and in the LWC distribution system), conducive temperatures for potentially 6 months of the year, and alkaline pH conditions, all will accelerate the growth of nitrifying bacteria (nitrification). Experiences in the LWC distribution system, and as documented by the results of published studies within the industry, have shown that nitrification will typically begin to occur after 7-8 days in stagnant warm water tanks. The maximum detention time through the LWC system to the tie in point to the pipeline is estimated to be four days [NEED TO CONFIRM WITH LWC]. At a flow rate of 3.5 MGD, an additional 4 days of detention time would exist in the pipeline. Although this does not take into account the fact that the water will be cooler in the pipeline underground, it is still expected to be the minimum flow rate in the pipeline during warm weather months. It is also expected that this flow rate can halved to

approximately 1.75 MGD in cold weather months resulting in 8 days of detention time in the pipeline alone.

Only actual operations of the pipeline will confirm the required minimum flow rates, however, the above numbers will dictate the minimum pumping requirements for the proposed facilities. Should nitrification occur in the pipeline, the ability to chlorinate beyond breakpoint, flush, dechlorinate, and adequately dispose of the water will also need to be addressed in the proposed facilities. Specific details of this as well as the pumping requirements are presented subsequently in the Design Scope.

6. LWC and KAWC Distribution System Analyses - Both KAWC and LWC have completed hydraulic analyses of their existing distribution systems in relation to the proposed pipeline. KAWC has determined that a gradient of 1170 at 23 MGD down to 1130 at 1.75 MGD will required to adequately distribute the water from the pipeline into the distribution system. This gradient is at the tie in point at Route 4 (New Circle Road).

   The LWC analysis of their distribution system has shown that [MEETING ON OCTOBER 30 TO DISCUSS].

7. Pipeline Hydraulics - The results of a very rough preliminary steady state hydraulic analysis of the pipeline is included in the Attachments in the form of five spreadsheets. This consisted of identifying approximate elevations along the pipeline route (every 5,000 feet and at select high and low points), and determining the number of booster stations required and the necessary pipe pressure class for maximum and minimum flow scenarios. The following criteria and assumptions are included in the analysis:

   a. The pipe diameter is 36-inch and the overall C-factor for the entire system is 130.
   b. The maximum desired pressure at any point in the pipeline is 300 psi.
   c. The minimum desired pressure at any point in the pipeline is 40 psi.
   d. The selected pipe pressure class (assuming DIP) is one pressure class above that required.
   e. The suction pressure at the Jefferson County line at the tie in to the LWC system is at grade and is relatively constant (i.e. a tank will be provided on the suction of the first booster).
   f. The gradient at the KAWC system is 1170 at maximum capacity and 1130 at minimum capacity.
   g. If boosters in series are required, the flow rate will be controlled by a variable speed pump at the last booster. There will be no storage tanks at any intermediate boosters.

   The spreadsheets in the Attachments are summarized as follows:

   Pg. 1 This scenario shows the pipeline operating at maximum capacity (23.0 MGD) requiring two booster stations. Locating the second booster station just downstream of the Kentucky River results in acceptable pressures at the low point

in the pipeline at the Kentucky River crossing. Maintaining the minimum desired pressure of 40 psi at the suction of the second booster station also keeps pressures at all other locations along the pipeline above 40 psi. The pumping (horsepower) requirements at each booster station will be basically the same (216.8 psi vs. 206.3 psi {246.3 - 40.0}).

Pg. 2 This scenario shows the pipeline operating at the minimum expected flow rate (1.75 MGD) requiring only a single lift. Pressures at the Kentucky River crossing are high (290.9 psi) but still under the maximum desired limit.

Pg. 3 This scenario determines the maximum flow rate that can be achieved in a single lift while not exceeding 300 psi at any location along the pipeline. The resulting flow rate is 7.0 MGD which results in a pressure of 300.3 psi at the Kentucky River crossing. Pressures at all other points along the pipeline are well below 300 psi.

Pg. 4 This scenario determines the pressures in the pipeline at the 7.0 MGD flow rate in the previous scenario but with two booster stations. In order to maintain 40 psi at any location along the pipeline, the suction pressure at the second booster station needs to be maintained at 80 psi. The pressure at the Kentucky River crossing is safely maintained at 227.6 psi.

Pg. 5 This spreadsheet determines which flow scenario controls the pipe pressure rating. The two flow scenarios being compared are those from page 1 (23.0 MGD in two lifts) and page 3 (7.0 MGD in one lift).

[NEED TO DECIDE IF WE ARE COMFORTABLE WITH A SINGLE LIFT HIGH PRESSURE SCENARIO AT FLOW RATES NEEDED TO MAINTAIN WATER QUALITY]

8. Land and Utilities - [NEED FEEDBACK FROM KAWC AFTER MEETING WITH LWC ON OCTOBER 30 - LAND ALSO POTENTIALLY NEEDED AT THE TIE IN POINT TO THE KAWC SYSTEM]

9. Discussions with the Power Company - [CONTACT HAS BEEN MADE BY STEVE MARRANO. WAITING FOR ADDITIONAL INFORMATION FROM THE POWER COMPANIES]

10. RRS SCADA System - Distributed Control Systems are currently in use at each of the two existing KAWC treatment plants. The systems are not in any way linked to each other. Control and monitoring for the proposed booster stations will be accomplished from the Richmond Road Station. The DCS at this location consists of Bristol Babcock Series 3300 products running ACCOL control software and Genesis for DOS at the operator workstations. Additional detail regarding the control and monitoring requirements is presented subsequently in the Design Scope.

11. Construction Cost - The Water Company's estimated construction cost for this project (contractor bid price + any utility capital fees) is $35,464,000.

Louisville-Lexington Pipeline							C=	130	
October 28, 1997							Flow =	23.0	MGD
Pipeline operating at capacity with both booster stations							Diameter =	36	inches
		Elevation	Distance	Head Loss	HGL	Pressure	Pressure	Pressure	Pressure
Location	Station	(feet)	(feet)	(feet)	(feet)	(feet)	(psi)	Class Req'd	Class to Use
First Booster Station	0.0	730	0		1230.8	500.8	216.8	250	300
	0.5	750	5,000	10.3	1220.5	470.5	203.7	250	300
	1.0	780	5,000	10.3	1210.2	430.2	186.3	200	250
	1.5	780	5,000	10.3	1200.0	420.0	181.9	200	250
	2.0	810	5,000	10.3	1189.7	379.7	164.4	200	250
	2.5	770	5,000	10.3	1179.5	409.5	177.3	200	250
	3.0	710	5,000	10.3	1169.2	459.2	198.8	200	250
	3.3	670	3,000	6.2	1163.1	493.1	213.5	250	300
	3.5	710	2,000	4.1	1159.0	449.0	194.4	200	250
	4.0	760	5,000	10.3	1148.7	388.7	168.3	200	250
	4.5	660	5,000	10.3	1138.5	478.5	207.2	250	300
	5.0	710	5,000	10.3	1128.2	418.2	181.1	200	250
	5.5	790	5,000	10.3	1118.0	328.0	142.0	150	200
	6.0	770	5,000	10.3	1107.7	337.7	146.2	150	200
	6.1	800	1,000	2.1	1105.7	305.7	132.4	150	200
	6.5	730	4,000	8.2	1097.5	367.5	159.1	200	250
	6.7	680	2,000	4.1	1093.4	413.4	179.0	200	250
	7.0	800	3,000	6.2	1087.2	287.2	124.4	150	200
	7.5	780	5,000	10.3	1077.0	297.0	128.6	150	200
	7.9	710	4,000	8.2	1068.8	358.8	155.3	200	250
	8.0	810	1,000	2.1	1066.7	256.7	111.2	150	200
	8.5	890	5,000	10.3	1056.5	166.5	72.1	100	150
	9.0	810	5,000	10.3	1046.2	236.2	102.3	150	200
	9.5	850	5,000	10.3	1035.9	185.9	80.5	100	150
	10.0	880	5,000	10.3	1025.7	145.7	63.1	100	150
	10.5	870	5,000	10.3	1015.4	145.4	63.0	100	150
	11.0	850	5,000	10.3	1005.2	155.2	67.2	100	150
	11.1	740	1,000	2.1	1003.1	263.1	113.9	150	200
	11.5	820	4,000	8.2	994.9	174.9	75.7	100	150
	12.0	800	5,000	10.3	984.7	184.7	80.0	100	150
	12.2	710	2,000	4.1	980.6	270.6	117.2	150	200
	12.5	800	3,000	6.2	974.4	174.4	75.5	100	150
	13.0	760	5,000	10.3	964.2	204.2	88.4	100	150
	13.5	770	5,000	10.3	953.9	183.9	79.6	100	150
	14.0	800	5,000	10.3	943.7	143.7	62.2	100	150
	14.5	790	5,000	10.3	933.4	143.4	62.1	100	150
	15.0	830	5,000	10.3	923.2	93.2	40.3	50	100
	15.5	750	5,000	10.3	912.9	162.9	70.5	100	150
	16.0	650	5,000	10.3	902.7	252.7	109.4	150	200
Kentucky River Crossing	16.1	460	1,000	2.1	900.6	440.6	190.8	200	250
	16.2	600	1,000	2.1	898.6	298.6	129.3	150	200
Maintain 40 psi Suction	16.5	800	3,000	6.2	892.4	92.4	40.0	50	100
Second Booster Station	16.5	800	0	0.0	1368.9	568.9	246.3	250	300
	16.6	750	1,000	2.1	1366.9	616.9	267.1	300	350
	16.7	700	1,000	2.1	1364.8	664.8	287.9	300	350
	16.8	740	1,000	2.1	1362.8	622.8	269.7	300	350
	17.0	770	2,000	4.1	1358.7	588.7	254.9	300	350
	17.5	830	5,000	10.3	1348.4	518.4	224.5	250	300
	17.8	810	3,000	6.2	1342.3	532.3	230.5	250	300
	18.0	800	2,000	4.1	1338.2	538.2	233.0	250	300
	18.5	850	5,000	10.3	1327.9	477.9	206.9	250	300
	19.0	850	5,000	10.3	1317.6	467.6	202.5	250	300
	19.3	870	3,000	6.2	1313.5	443.5	192.1	200	250
	19.5	860	2,000	4.1	1313.5	453.5	196.4	200	250
	20.0	910	5,000	10.3	1303.3	393.3	170.3	200	250
	20.5	890	5,000	10.3	1293.0	403.0	174.5	200	250
	21.0	890	5,000	10.3	1282.8	392.8	170.1	200	250
	21.5	830	5,000	10.3	1272.5	442.5	191.6	200	250
	22.0	850	5,000	10.3	1262.3	412.3	178.5	200	250
	22.5	910	5,000	10.3	1252.0	342.0	148.1	150	200
	23.0	850	5,000	10.3	1241.8	391.8	169.6	200	250
	23.1	810	1,000	2.1	1239.7	429.7	186.1	200	250
	23.5	850	4,000	8.2	1231.5	381.5	165.2	200	250
	24.0	860	5,000	10.3	1221.3	361.3	156.4	200	250
	24.5	900	5,000	10.3	1211.0	311.0	134.7	150	200
	25.0	950	5,000	10.3	1200.8	250.8	108.6	150	200
	25.5	920	5,000	10.3	1190.5	270.5	117.1	150	200
	26.0	900	5,000	10.3	1180.3	280.3	121.3	150	200
KAWC Distribution System	26.5	950	5,000	10.3	1170.0	220.0	95.3	100	150

Louisville-Lexington Pipeline							C=	130		
October 28, 1997							Flow =	1.75	MGD	
Pipeline operating at minimum flow rate with one booster station							Diameter =	36	inches	
		Elevation	Distance	Head Loss	HGL	Pressure	Pressure	Pressure	Pressure	
Location	Station	(feet)	(feet)	(feet)	(feet)	(feet)	(psi)	Class Req'd	Class to Use	
First Booster Station	0.0	730	0		1134.6	404.6	175.2	200	250	
	0.5	750	5,000	0.1	1134.5	384.5	166.5	200	250	
	1.0	780	5,000	0.1	1134.4	354.4	153.5	200	250	
	1.5	780	5,000	0.1	1134.4	354.4	153.4	200	250	
	2.0	810	5,000	0.1	1134.3	324.3	140.4	150	200	
	2.5	770	5,000	0.1	1134.2	364.2	157.7	200	250	
	3.0	710	5,000	0.1	1134.1	424.1	183.6	200	250	
	3.3	670	3,000	0.1	1134.0	464.0	200.9	250	300	
	3.5	710	2,000	0.0	1134.0	424.0	183.6	200	250	
	4.0	760	5,000	0.1	1133.9	373.9	161.9	200	250	
	4.5	660	5,000	0.1	1133.8	473.8	205.2	250	300	
	5.0	710	5,000	0.1	1133.7	423.7	183.5	200	250	
	5.5	790	5,000	0.1	1133.7	343.7	148.8	150	200	
	6.0	770	5,000	0.1	1133.6	363.6	157.4	200	250	
	6.1	800	1,000	0.0	1133.5	333.5	144.4	150	200	
	6.5	730	4,000	0.1	1133.5	403.5	174.7	200	250	
	6.7	680	2,000	0.0	1133.4	453.4	196.3	200	250	
	7.0	800	3,000	0.1	1133.4	333.4	144.4	150	200	
	7.5	780	5,000	0.1	1133.3	353.3	153.0	200	250	
	7.9	710	4,000	0.1	1133.2	423.2	183.3	200	250	
	8.0	810	1,000	0.0	1133.2	323.2	140.0	150	200	
	8.5	890	5,000	0.1	1133.1	243.1	105.3	150	200	
	9.0	810	5,000	0.1	1133.0	323.0	139.9	150	200	
	9.5	850	5,000	0.1	1133.0	283.0	122.5	150	200	
	10.0	880	5,000	0.1	1132.9	252.9	109.5	150	200	
	10.5	870	5,000	0.1	1132.8	262.8	113.8	150	200	
	11.0	850	5,000	0.1	1132.7	282.7	122.4	150	200	
	11.1	740	1,000	0.0	1132.7	392.7	170.0	200	250	
	11.5	820	4,000	0.1	1132.6	312.6	135.4	150	200	
	12.0	800	5,000	0.1	1132.5	332.5	144.0	150	200	
	12.2	710	2,000	0.0	1132.5	422.5	182.9	200	250	
	12.5	800	3,000	0.1	1132.4	332.4	143.9	150	200	
	13.0	760	5,000	0.1	1132.3	372.3	161.2	200	250	
	13.5	770	5,000	0.1	1132.3	362.3	156.9	200	250	
	14.0	800	5,000	0.1	1132.2	332.2	143.8	150	200	
	14.5	790	5,000	0.1	1132.1	342.1	148.1	150	200	
	15.0	830	5,000	0.1	1132.0	302.0	130.8	150	200	
	15.5	750	5,000	0.1	1131.9	381.9	165.4	200	250	
	16.0	650	5,000	0.1	1131.8	481.8	208.6	250	300	
Kentucky River Crossing	16.1	460	1,000	0.0	1131.8	671.8	290.9	300	350	
	16.2	600	1,000	0.0	1131.8	531.8	230.3	250	300	
Second Booster Station OFF	16.5	800	3,000	0.1	1131.7	331.7	143.6	150	200	
	16.6	750	1,000	0.0	1131.7	381.7	165.3	200	250	
	16.7	700	1,000	0.0	1131.7	431.7	186.9	200	250	
	16.8	740	1,000	0.0	1131.7	391.7	169.6	200	250	
	17.0	770	2,000	0.0	1131.7	361.7	156.6	200	250	
	17.5	830	5,000	0.1	1131.6	301.6	130.6	150	200	
	17.8	810	3,000	0.1	1131.5	321.5	139.2	150	200	
	18.0	800	2,000	0.0	1131.5	331.5	143.5	150	200	
	18.5	850	5,000	0.1	1131.4	281.4	121.8	150	200	
	19.0	850	5,000	0.1	1131.3	281.3	121.8	150	200	
	19.3	870	3,000	0.1	1131.3	261.3	113.1	150	200	
	19.5	860	2,000	0.0	1131.2	271.2	117.4	150	200	
	20.0	910	5,000	0.1	1131.1	221.1	95.8	100	150	
	20.5	890	5,000	0.1	1131.0	241.0	104.4	150	200	
	21.0	890	5,000	0.1	1131.0	241.0	104.3	150	200	
	21.5	830	5,000	0.1	1130.9	300.9	130.3	150	200	
	22.0	850	5,000	0.1	1130.8	280.8	121.6	150	200	
	22.5	910	5,000	0.1	1130.7	220.7	95.6	100	150	
	23.0	850	5,000	0.1	1130.6	280.6	121.5	150	200	
	23.1	810	1,000	0.0	1130.6	320.6	138.8	150	200	
	23.5	850	4,000	0.1	1130.5	280.5	121.5	150	200	
	24.0	860	5,000	0.1	1130.4	270.4	117.1	150	200	
	24.5	900	5,000	0.1	1130.3	230.3	99.7	100	150	
	25.0	950	5,000	0.1	1130.3	180.3	78.1	100	150	
	25.5	920	5,000	0.1	1130.2	210.2	91.0	100	150	
	26.0	900	5,000	0.1	1130.1	230.1	99.6	100	150	
KAWC Distribution System	26.5	950	5,000	0.1	1130.0	180.0	77.9	100	150	

Louisville-Lexington Pipeline							C=	130		
October 28, 1997							Flow =	7.00	MGD	
Pipeline operating with one booster station and not exceeding 300 psi at any location							Diameter =	36	inches	
		Elevation	Distance	Head Loss	HGL	Pressure	Pressure	Pressure	Pressure	
Location	Station	(feet)	(feet)	(feet)	(feet)	(feet)	(psi)	Class Req'd	Class to Use	
First Booster Station	0.0	730	0		1189.9	459.9	199.2	200	250	
	0.5	750	5,000	1.1	1188.8	438.8	190.0	200	250	
	1.0	780	5,000	1.1	1187.7	407.7	176.5	200	250	
	1.5	780	5,000	1.1	1186.5	406.5	176.0	200	250	
	2.0	810	5,000	1.1	1185.4	375.4	162.5	200	250	
	2.5	770	5,000	1.1	1184.3	414.3	179.4	200	250	
	3.0	710	5,000	1.1	1183.1	473.1	204.9	250	300	
	3.3	670	3,000	0.7	1182.4	512.4	221.9	250	300	
	3.5	710	2,000	0.5	1182.0	472.0	204.4	250	300	
	4.0	760	5,000	1.1	1180.9	420.9	182.2	200	250	
	4.5	680	5,000	1.1	1179.7	519.7	225.0	250	300	
	5.0	710	5,000	1.1	1178.6	468.6	202.9	250	300	
	5.5	790	5,000	1.1	1177.5	387.5	167.8	200	250	
	6.0	770	5,000	1.1	1176.3	406.3	175.9	200	250	
	6.1	800	1,000	0.2	1176.1	376.1	162.8	200	250	
	6.5	730	4,000	0.9	1175.2	445.2	192.8	200	250	
	6.7	680	2,000	0.5	1174.7	494.7	214.2	250	300	
	7.0	800	3,000	0.7	1174.0	374.0	162.0	200	250	
	7.5	780	5,000	1.1	1172.9	392.9	170.1	200	250	
	7.9	710	4,000	0.9	1172.0	462.0	200.0	250	300	
	8.0	810	1,000	0.2	1171.8	361.8	156.6	200	250	
	8.5	890	5,000	1.1	1170.6	280.6	121.5	150	200	
	9.0	810	5,000	1.1	1169.5	359.5	155.7	200	250	
	9.5	850	5,000	1.1	1168.4	318.4	137.9	150	200	
	10.0	880	5,000	1.1	1167.2	287.2	124.4	150	200	
	10.5	870	5,000	1.1	1166.1	296.1	128.2	150	200	
	11.0	850	5,000	1.1	1165.0	315.0	136.4	150	200	
	11.1	740	1,000	0.2	1164.7	424.7	183.9	200	250	
	11.5	820	4,000	0.9	1163.8	343.8	148.9	150	200	
	12.0	800	5,000	1.1	1162.7	362.7	157.0	200	250	
	12.2	710	2,000	0.5	1162.2	452.2	195.8	200	250	
	12.5	800	3,000	0.7	1161.6	361.6	156.6	200	250	
	13.0	760	5,000	1.1	1160.4	400.4	173.4	200	250	
	13.5	770	5,000	1.1	1159.3	389.3	168.6	200	250	
	14.0	800	5,000	1.1	1158.2	358.2	155.1	200	250	
	14.5	790	5,000	1.1	1157.0	367.0	158.9	200	250	
	15.0	830	5,000	1.1	1155.9	325.9	141.1	150	200	
	15.5	750	5,000	1.1	1154.7	404.7	175.3	200	250	
	16.0	650	5,000	1.1	1153.6	503.6	218.1	250	300	
Kentucky River Crossing	16.1	460	1,000	0.2	1153.4	693.4	300.2	350	400	
	16.2	600	1,000	0.2	1153.2	553.2	239.5	250	300	
Second Booster Station OFF	16.5	800	3,000	0.7	1152.5	352.5	152.6	200	250	
	16.6	750	1,000	0.2	1152.3	402.3	174.2	200	250	
	16.7	700	1,000	0.2	1152.3	452.3	195.8	200	250	
	16.8	740	1,000	0.2	1152.0	412.0	178.4	200	250	
	17.0	770	2,000	0.5	1151.6	381.6	165.2	200	250	
	17.5	830	5,000	1.1	1150.4	320.4	138.7	150	200	
	17.8	810	3,000	0.7	1149.8	339.8	147.1	150	200	
	18.0	800	2,000	0.5	1149.3	349.3	151.2	200	250	
	18.5	850	5,000	1.1	1148.2	298.2	129.1	150	200	
	19.0	850	5,000	1.1	1147.0	297.0	128.6	150	200	
	19.3	870	3,000	0.7	1146.3	276.3	119.7	150	200	
	19.5	860	2,000	0.5	1145.9	285.9	123.8	150	200	
	20.0	910	5,000	1.1	1144.8	234.8	101.7	150	200	
	20.5	890	5,000	1.1	1143.6	253.6	109.8	150	200	
	21.0	890	5,000	1.1	1142.5	252.5	109.3	150	200	
	21.5	830	5,000	1.1	1141.4	311.4	134.8	150	200	
	22.0	850	5,000	1.1	1140.2	290.2	125.7	150	200	
	22.5	910	5,000	1.1	1139.1	229.1	99.2	100	150	
	23.0	850	5,000	1.1	1137.9	287.9	124.7	150	200	
	23.1	810	1,000	0.2	1137.7	327.7	141.9	150	200	
	23.5	850	4,000	0.9	1136.8	286.8	124.2	150	200	
	24.0	860	5,000	1.1	1135.7	275.7	119.4	150	200	
	24.5	900	5,000	1.1	1134.5	234.5	101.6	150	200	
	25.0	950	5,000	1.1	1133.4	183.4	79.4	100	150	
	25.5	920	5,000	1.1	1132.3	212.3	91.9	100	150	
	26.0	900	5,000	1.1	1131.1	231.1	100.1	150	200	
KAWC Distribution System	26.5	950	5,000	1.1	1130.0	180.0	77.9	100	150	

Louisville-Lexington Pipeline							C=	130	
October 28, 1997							Flow =	7.00	MGD
Pipeline operating at same previous not to exceed 300 psi flow rate but with both booster stations							Diameter =	36	inches
		Elevation	Distance	Head Loss	HGL	Pressure	Pressure	Pressure	Pressure
Location	Station	(feet)	(feet)	(feet)	(feet)	(feet)	(psi)	Class Req'd	Class to Use
First Booster Station	0.0	730	0		1022.3	292.3	126.6	150	200
	0.5	750	5,000	1.1	1021.1	271.1	117.4	150	200
	1.0	780	5,000	1.1	1020.0	240.0	103.9	150	200
	1.5	780	5,000	1.1	1018.9	238.9	103.4	150	200
	2.0	810	5,000	1.1	1017.7	207.7	89.9	100	150
	2.5	770	5,000	1.1	1016.6	246.6	106.8	150	200
	3.0	710	5,000	1.1	1015.5	305.5	132.3	150	200
	3.3	670	3,000	0.7	1014.8	344.8	149.3	150	200
	3.5	710	2,000	0.5	1014.3	304.3	131.8	150	200
	4.0	760	5,000	1.1	1013.2	253.2	109.6	150	200
	4.5	660	5,000	1.1	1012.0	352.0	152.4	200	250
	5.0	710	5,000	1.1	1010.9	300.9	130.3	150	200
	5.5	790	5,000	1.1	1009.8	219.8	95.2	100	150
	6.0	770	5,000	1.1	1008.6	238.6	103.3	150	200
	6.1	800	1,000	0.2	1008.4	208.4	90.2	100	150
	6.5	730	4,000	0.9	1007.5	277.5	120.2	150	200
	6.7	680	2,000	0.5	1007.1	327.1	141.6	150	200
	7.0	800	3,000	0.7	1006.4	206.4	89.4	100	150
	7.5	780	5,000	1.1	1005.2	225.2	97.5	100	150
	7.9	710	4,000	0.9	1004.3	294.3	127.4	150	200
	8.0	810	1,000	0.2	1004.1	194.1	84.0	100	150
	8.5	890	5,000	1.1	1003.0	113.0	48.9	50	100
	9.0	810	5,000	1.1	1001.8	191.8	83.1	100	150
	9.5	850	5,000	1.1	1000.7	150.7	65.3	100	150
	10.0	880	5,000	1.1	999.6	119.6	51.8	100	150
	10.5	870	5,000	1.1	998.4	128.4	55.6	100	150
	11.0	850	5,000	1.1	997.3	147.3	63.8	100	150
	11.1	740	1,000	0.2	997.1	257.1	111.3	150	200
	11.5	820	4,000	0.9	996.2	176.2	76.3	100	150
	12.0	800	5,000	1.1	995.0	195.0	84.4	100	150
	12.2	710	2,000	0.5	994.6	284.6	123.2	150	200
	12.5	800	3,000	0.7	993.9	193.9	84.0	100	150
	13.0	760	5,000	1.1	992.7	232.7	100.8	150	200
	13.5	770	5,000	1.1	991.6	221.6	96.0	100	150
	14.0	800	5,000	1.1	990.5	190.5	82.5	100	150
	14.5	790	5,000	1.1	989.3	199.3	86.3	100	150
	15.0	830	5,000	1.1	988.2	158.2	68.5	100	150
	15.5	750	5,000	1.1	987.1	237.1	102.7	150	200
	16.0	650	5,000	1.1	985.9	335.9	145.5	150	200
Kentucky River Crossing	16.1	460	1,000	0.2	985.7	525.7	227.6	250	300
	16.2	600	1,000	0.2	985.5	385.5	166.9	200	250
Maintain 80 psi Suction	16.5	800	3,000	0.7	984.8	184.8	80.0	100	150
Second Booster Station	16.5	800	0	0.0	1152.0	352.0	152.4	200	250
	16.6	750	1,000	0.2	1151.8	401.8	174.0	200	250
	16.7	700	1,000	0.2	1151.6	451.6	195.5	200	250
	16.8	740	1,000	0.2	1151.3	411.3	178.1	200	250
	17.0	770	2,000	0.5	1150.9	380.9	164.9	200	250
	17.5	830	5,000	1.1	1149.8	319.8	138.5	150	200
	17.8	810	3,000	0.7	1149.1	339.1	146.8	150	200
	18.0	800	2,000	0.5	1148.6	348.6	151.0	200	250
	18.5	850	5,000	1.1	1147.5	297.5	128.8	150	200
	19.0	850	5,000	1.1	1146.3	296.3	128.3	150	200
	19.3	870	3,000	0.7	1145.9	275.9	119.5	150	200
	19.5	860	2,000	0.5	1145.9	285.9	123.8	150	200
	20.0	910	5,000	1.1	1144.8	234.8	101.7	150	200
	20.5	890	5,000	1.1	1143.6	253.6	109.8	150	200
	21.0	890	5,000	1.1	1142.5	252.5	109.3	150	200
	21.5	830	5,000	1.1	1141.4	311.4	134.8	150	200
	22.0	850	5,000	1.1	1140.2	290.2	125.7	150	200
	22.5	910	5,000	1.1	1139.1	229.1	99.2	100	150
	23.0	850	5,000	1.1	1137.9	287.9	124.7	150	200
	23.1	810	1,000	0.2	1137.7	327.7	141.9	150	200
	23.5	850	4,000	0.9	1136.8	286.8	124.2	150	200
	24.0	880	5,000	1.1	1135.7	275.7	119.4	150	200
	24.5	900	5,000	1.1	1134.5	234.5	101.6	150	200
	25.0	950	5,000	1.1	1133.4	183.4	79.4	100	150
	25.5	920	5,000	1.1	1132.3	212.3	91.9	100	150
	26.0	900	5,000	1.1	1131.1	231.1	100.1	150	200
KAWC Distribution System	26.5	950	5,000	1.1	1130.0	180.0	77.9	100	150

Louisville-Lexington Pipeline							
October 28, 1997							
Comparison of pipe pressure classes for double lift at capacity vs. single lift at rate not to exceed 300 psi							
				Capacity	Minimum	Controlling	
		Elevation	Distance	Pressure	Pressure	Pressure	Controlled
Location	Station	(feet)	(feet)	Class to Use	Class to Use	Class to Use	By
First Booster Station	0.0	730	0	300	250	300	Capacity
	0.5	750	5,000	300	250	300	Capacity
	1.0	780	5,000	250	250	250	Capacity
	1.5	780	5,000	250	250	250	Capacity
	2.0	810	5,000	250	250	250	Capacity
	2.5	770	5,000	250	250	250	Capacity
	3.0	710	5,000	250	300	300	Minimum
	3.3	670	3,000	300	300	300	Capacity
	3.5	710	2,000	250	300	300	Minimum
	4.0	760	5,000	250	250	250	Capacity
	4.5	660	5,000	300	300	300	Capacity
	5.0	710	5,000	250	300	300	Minimum
	5.5	790	5,000	200	250	250	Minimum
	6.0	770	5,000	200	250	250	Minimum
	6.1	800	1,000	200	250	250	Minimum
	6.5	730	4,000	250	250	250	Capacity
	6.7	680	2,000	250	300	300	Minimum
	7.0	800	3,000	200	250	250	Minimum
	7.5	780	5,000	200	250	250	Minimum
	7.9	710	4,000	250	300	300	Minimum
	8.0	810	1,000	200	250	250	Minimum
	8.5	890	5,000	150	200	200	Minimum
	9.0	810	5,000	200	250	250	Minimum
	9.5	850	5,000	150	200	200	Minimum
	10.0	880	5,000	150	200	200	Minimum
	10.5	870	5,000	150	200	200	Minimum
	11.0	850	5,000	150	200	200	Minimum
	11.1	740	1,000	200	250	250	Minimum
	11.5	820	4,000	150	200	200	Minimum
	12.0	800	5,000	150	250	250	Minimum
	12.2	710	2,000	200	250	250	Minimum
	12.5	800	3,000	150	250	250	Minimum
	13.0	760	5,000	150	250	250	Minimum
	13.5	770	5,000	150	250	250	Minimum
	14.0	800	5,000	150	250	250	Minimum
	14.5	790	5,000	150	250	250	Minimum
	15.0	830	5,000	100	200	200	Minimum
	15.5	750	5,000	150	250	250	Minimum
	16.0	650	5,000	200	300	300	Minimum
Kentucky River Crossing	16.1	460	1,000	250	400	400	Minimum
	16.2	600	1,000	200	300	300	Minimum
Maintain 40/80 psi Suction	16.5	800	3,000	100	250	250	Minimum
Second Booster Station	16.5	800	0	300	250	300	Capacity
	16.6	750	1,000	350	250	350	Capacity
	16.7	700	1,000	350	250	350	Capacity
	16.8	740	1,000	350	250	350	Capacity
	17.0	770	2,000	350	250	350	Capacity
	17.5	830	5,000	300	200	300	Capacity
	17.8	810	3,000	300	200	300	Capacity
	18.0	800	2,000	300	250	300	Capacity
	18.5	850	5,000	300	200	300	Capacity
	19.0	850	5,000	300	200	300	Capacity
	19.3	870	3,000	250	200	250	Capacity
	19.5	860	2,000	250	200	250	Capacity
	20.0	910	5,000	250	200	250	Capacity
	20.5	890	5,000	250	200	250	Capacity
	21.0	890	5,000	250	200	250	Capacity
	21.5	830	5,000	250	200	250	Capacity
	22.0	850	5,000	250	200	250	Capacity
	22.5	910	5,000	200	150	200	Capacity
	23.0	850	5,000	250	200	250	Capacity
	23.1	810	1,000	250	200	250	Capacity
	23.5	850	4,000	250	200	250	Capacity
	24.0	860	5,000	250	200	250	Capacity
	24.5	900	5,000	200	200	200	Capacity
	25.0	950	5,000	200	150	200	Capacity
	25.5	920	5,000	200	150	200	Capacity
	26.0	900	5,000	200	200	200	Capacity
KAWC Distribution System	26.5	950	5,000	150	150	150	Capacity

America
1025 Laurel Oak Roa

LINDA: THIS LETTER IS SLIGHTLY DIFFERENT FROM THE ONE JOHN FAXED YOU DATED SEPT. 2. PLEASE DESTROY THE SEPT. 2 FAX. THE CORRECTIONS/CHANGES/ADDITIONS IN THIS LETTER ARE MINOR AND ARE ON PAGE 2, ITEM 8; PAGE 3, END OF ITEM 10 FROM THE PREVIOUS PAGE; AND THE VERY LAST PARAGRAPH IN THE LETTER.

DOUG

Ms. Linda C. Bridwell
Kentucky-American Water Company
2300 Richmond Road
Lexington, Kentucky 40502

Re: Water Supply Project

Dear Linda:

I have reviewed your memorandums of August 19 and August 28 regarding the schedule for the referenced project and discussed this with Rich Hubel and John Young. We are well aware of the importance of this project and will do everything we can to expedite the design up through the filing of the Certificate of Convenience and Necessity. Before we can finalize the schedule, we have a number of comments and questions as follows:

INFORMATION REQUIRED FROM KENTUCKY-AMERICAN
BEFORE RFP AND DESIGN CONCEPT CAN BE FINALIZED

1. Pipeline Route - Since route selection will not be the consultant's responsibility, maps at a scale large enough to provide detail that will allow the consultants to adequately locate the route will need to be prepared. The scale of a U.S.G.S. map would not be adequate, although an overview on a U.S.G.S. map should still be provided. Additional detailed maps will also need to be provided where the pipeline will connect with the existing KAWC distribution system. Your typical distribution system maps would be adequate for this. I would like to be able to include with the RFP one copy of these maps for each consultant member of each team.

2. Power Lines - If there are any power lines crossing or in the vicinity of the pipeline route, please also provide this information on the maps requested in Item 1.

3. Easement RFP - One of the items in the preliminary schedule was a review of KAWC's RFP for easement acquisition which you suggested we eliminate. Since the design consultants will need survey information that the easement consultant will prepare,

coordination between the two RFPs is absolutely necessary. The design RFP will need to specify exactly what the easement consultant will provide, what format it will be in, and when it will be available. Although I currently haven't shown a logical link in the schedule for this, it will follow the critical path and determine how much time the design consultant needs to complete their scope of work.

4. System Capacity - I have not received any information regarding the final capacity of the system. I will need to know what the pipeline capacity will be, and whether we need to consider any future reserve capacity in the pipeline. I will also need to know what the current pumping capacity should be, and whether we should allow space for future pumping capacity.

5. Sales Along Pipeline Route - If there are any projected or even potential sales along the route, the location and average and maximum daily usage should be provided for each one.

6. Louisville Water Company Water Quality Data - The maximum, average, and minimum values of pH, alkalinity, hardness, total chlorine residual, and free chlorine residual will need to be provided. Additionally, if LWC routinely flushes their system and operates with a free chlorine residual, I would need to know the frequency of this. Lastly, I would like to know the specific corrosion inhibitor they are using, their typical maintenance and passivation dosages, and the corrosion rates (max, avg, and min) that we can expect to see at our connection to their system.

7. Louisville Water Company Hydraulic Data - The maximum, average, and minimum pressures that will be experienced at the first booster station at minimum and maximum flow rates will need to be provided. An actual distribution map of the LWC system in this area showing the tank that will set the gradient to the first booster and any proposed piping improvements is also needed. I'll also need to know if the pressures at the first booster will fluctuate regularly due to system demands or if the LWC tank is close enough to the first booster to make this a non-issue.

8. Booster Station Sites - The locations of the two sites need to be identified at this time and maps provided showing the location (please identify in relation to the pipeline route) and total acreage of each (preferably tax maps). The amount of land that is required is dependent on the need for tanks at the booster station sites which can't be finalized until the information in Items No. 5 and No. 7 is available.

9. Utilities - Each utility at each booster station site needs to be identified along with a contact person and phone number. This would include electric, gas, and sewer.

10. Gas Company Information - Since the pipeline will parallel the gas company's pipeline, it may be of help to find out if there is any useful information that the gas company can share with us such as rock profiles along the route or any other unusual circumstances they may have encountered in the construction of their pipeline. This may eliminate some of the

work that the design consultant will need to do. Additionally, I assume this gas line will be relatively close to the proposed water main which could create some corrosion problems if cathodic protection systems are in place for the gas line. It will be necessary to find out from the gas company where these cathodic protection systems are located in relation to the proposed water main.

11. Pipeline Contractor Capabilities - In order to expedite the construction of the pipeline and open up the bidding to get the best competitive pricing, we may want to bid the pipeline in sections based on the capabilities of local contractors. The design consultant will need to know how to break out the documents and how many bid segments will be necessary. It probably makes sense to have at least two pipeline segments, one up to the second booster and one to the Kentucky-American system. You'll need to determine then if the length of these two segments would eliminate smaller contractors from bidding based on completing the work before the booster stations would be completed. You can assume that both booster stations could be completed in approximately the same amount of time that was required for the Clays Mill booster.

REPLY TO YOUR COMMENTS ON THE DRAFT SCHEDULE

1. Pipeline and Booster RFP and Design Concept - The development of the Design Concept is probably the most important step in any project and not simply a tool to retain a consultant. The consultant's only responsibility is to perform the detailed design, and the goal of the Design Concept should be to ensure that no further conceptual design is required once a consultant is on board. Projects typically do not fall behind schedule due to a "lack of focus", but instead due to a lack of proper planning. If the project is not thought out properly, it only leads to delays and problems in subsequent phases of the project where they are more time consuming and more costly to resolve. If a project needs to be expedited, the development of the Design Concept is not the place to cut back, and in fact can ultimately delay the project further in doing so. Although this is not a highly technical project, there are a number of issues that need be thoroughly thought out including, but not limited to:

   a. Storage Tanks at the Booster Stations - This is dependent on the information received for Items No. 5 and No. 7 above.

   b. Range of Operation of the System - Will it be acceptable to only have the capability to meet minimum flow requirements and maximum capacity with a large gap in between?

   c. Sizing of the Larger Pumping Units - The quantities and heads that we will experience here will rule out most of the major pump manufacturers we normally deal with in our industry. It may be more cost effective to provide pumps in series, and further investigation of this and discussions with pump manufacturers is required.

d. Flushing & Disposal of Water - We need to determine how this can be accomplished and if any additional capital facilities will be required. Reversal of flow to facilitate flushing of the line also needs to be investigated.

e. Standby Power - Dependent on discussions with the power companies. Standby power will most likely not be needed, but needs to be discussed further.

f. Pipeline External Corrosion - We may want to consider having DIPRA do a survey of the route. Also, stray current becomes a concern if steel is utilized.

g. Pipeline Internal Corrosion - We may need to provide an inhibitor booster feed system dependent on the information received for Item No. 6 above.

h. Kentucky River Crossing - After visiting this site, there are most likely no major concerns. I will, however, need to locate the crossing on a U.S.G.S. map to confirm this.

I've begun preliminary work on the RFP and Design Concept, and completion is partially dependent on receiving the information requested in the first section above. Once the information is received and reviewed in our office, I would suggest that we reevaluate the project schedule and target specific dates for draft completion, review meetings, and issuance to the consultants.

2. Internal Review Periods - You have indirectly suggested shortening the internal review periods for the RFP and Design Concept. Review time is totally dependent on the schedules and work loads of those that will be reviewing the document. My only comment is that it is necessary that all functional groups at KAWC (water quality, production, distribution, maintenance, engineering, safety, etc.) have an opportunity to review and comment on the draft document at this time as opposed to providing conceptual comments after the detailed design is initiated.

3. Consultant Proposal Preparation Period - The consultants will most likely need four weeks to prepare an adequate proposal. Time needs to be allotted in this for them to physically investigate the pipeline route. When we have previously tried to shorten this period of time (e.g. KRS residuals project), the consultants have requested additional time. We may be able to shorten this to three weeks but two weeks is not realistic.

4. Consultant Design Period - The one year time period in the schedule can be shortened to eight months which is reasonable. This is very dependent on the easement consultant providing timely information. Review of your Easement RFP by System Engineering is necessary from a standpoint of coordination.

5. Bid Period - The current schedule shows a bid period of only 2-1/2 months and not 3-1/2 months. Anything shorter than 2-1/2 months, especially if multiple segments will be bid, is not realistic. This 2-1/2 month period includes not only the actual advertisement period,

but preparation of the contract documents and evaluation of the bids.

6. Filing for Certificate - The duration proposed was only a guess. We can make this activity to be any duration, and time it to end with the receipt of construction bids.

Please call me to discuss. I will also need to know how System Engineering charges should be handled (i.e. do I need write a new work order), and who my direct contact at Kentucky-American should be for this project. Additionally, I would appreciate it if you could update me on the status of Kentucky-American's Lotus Notes installation. Having this electronic link in place will greatly help to improve communications and coordination on this project. I will be out of the office from September 8-11, and from September 16-18 but will be checking my voice mail and e-mail daily.

Sincerely,

David M. Reves

c: S.J. Tambini - Region
J.S. Young, Jr.

File - N
Louisville Design

American Water Works Service Company, Inc.

1025 Laurel Oak Road • P.O. Box 1770 • Voorhees, New Jersey 08043 • (609) 346-8201 • Fax (609) 346-8360

September 29, 1997
BP 92-12

Magnetic flowmeters

MEMORANDUM

To: File

From: D.M. Reves

Re: Kentucky-American Water Company
Water Supply Project

A meeting was held with the Louisville Water Company on September 26 to discuss various issues associated with the proposed Louisville-Lexington pipeline. In attendance were Greg Heitzman and Karen Willis from Louisville Water Company (LWC); Linda Bridwell and Tom Friley representing Kentucky-American Water Company (KAWC); and Dave Reves from American Water Works Service Company (AWWSC). Prior to the meeting with LWC, Linda, Tom, and Dave also discussed a number of other technical and administrative issues. The following will summarize the main points of discussion from both meetings.

KAWC/AWWSC Discussions

1. All of the hydraulic analyses which have been performed to date by AWWSC have assumed that the pipeline would terminate at the Parker's Mill tank with a ground elevation of 970 and an overflow elevation of 1130 per the Alvord Burdick Howson 1990 report. KAWC has advised that this route had been changed per the desires of the previous governor, however, the original route may now be more desirable. KAWC will advise AWWSC as to the proposed route. It was originally thought at the meeting that the HGL at the Kentucky-American system for the new route was higher than that at the Parker's Mill Tank, however, further investigation found this not to be true. It appears that the alternate route proposed would be slightly longer than the route terminating at the Parker's Mill Tank.

2. Another concern which needs to be investigated by KAWC is the ability to distribute 23 MGD once it reaches the Kentucky-American system. KAWC will need to run their hydraulic model to determine what additional distribution system improvements are required above and beyond the scope of work associated with the pipeline itself. The model runs should consider the two potential locations for tying into the KAWC system, as well as the projected incremental increases in peak day demand and source of supply deficit. The existing Parker's Mill Tank has a pumping capacity of 9.0 MGD which is

adequate to meet peak day demands beyond 2000 but not past 2005. The 9.0 MGD pumping capacity, however, is not adequate to meet the existing source of supply deficit in a drought condition. KAWC will advise if assistance from System Engineering is needed in this effort.

3. One item of concern with the pipeline route is the proximity to the gas line and the potential of stray current from cathodic protection systems. The locations and specific details of any cathodic protection system anode beds along the route need to be identified by either KAWC or the easement consultant. It is preferred that the pipeline route avoid any anode bed areas of influence by either rerouting the pipeline or relocating the anode bed, otherwise cathodic protection will also be needed for our pipeline in these areas. As part of a typical soil survey, DIPRA could determine the area of influence from any anode beds.

4. Potential booster station sites will need to be identified by KAWC before the design concept can be finalized. This should not be an item for which the design consultant is responsible. The design consultants would not be able to submit firm pricing without the sites being identified, and it may also delay their efforts in completing the design of the booster stations. The optimal hydraulic locations can and have already been identified based on preliminary assumptions. This may change, however, depending on the results from Item 2 above, and the LWC hydraulic analysis which is discussed below.

5. It was suggested that the pipeline be bid in three segments of approximately equal length with the last segment beginning at the second booster station. Assuming that a contractor can lay 400 feet per day, one crew could complete each segment in approximately one year which would not make pipe installation a critical path item and would also not limit smaller contractors from bidding.

6. The work that the easement consultant will perform will include a meets and bounds description, centerline staking every 50 feet, and projection of the meets and bounds on aerial maps which are already owned by KAWC. This information will be provided to the design consultant as it becomes available. The easement proposals will be received on September 30 at which time we will have a better idea of the schedule for receiving the easement data and providing it to the design consultant. The design consultant's land survey responsibility will only include pipeline centerline elevations in order to determine appropriate pipe pressure classes, and complete topographical and survey work at the booster station sites.

7. Dave will obtain electronic USGS maps along the proposed pipeline route. KAWC will provide maps to Dave of the KAWC distribution system in the area of the proposed tie in once the location is finalized.

8. KAWC will short list the potential design consultants to no more than 4 or 5. AWWSC will review the pre qualifications for the recommendations made by KAWC. Consoer Townsend Engineers of Chicago, IL has asked if they could provide a statement of

qualifications for this project, however, Linda has indicated that it is too late at this point.

9. All AWWSC time should be charged to work order A-7585.1. The work order will be revised by KAWC after the design consultant proposals are received. KAWC will also prepare the BP revision and forward it to Dave for comments in early October.

10. KAWC will forward contacts and phone numbers for the two electric companies at each of the proposed booster station sites. It was noted that the two current electric utilities are proposed to merge into one company (Louisville Gas and Electric).

11. Dave distributed a spreadsheet (attached) showing pipe requirements for maximum capacity (23 MGD), assumed highest pumping capacity to maintain adequate flow for water quality purposes (5 MGD), and a comparison of the pressure requirements for both scenarios showing which will control. It was noted that flows up to 10 MGD are possible in a single lift from Louisville without exceeding 300 psi at any point along the line.

12. The preliminary plan for pumping capabilities are as follows:

<u>First Booster at the Jefferson County Line</u>

- Two 5 MGD variable speed pumps assuming turndown to 2 MGD. Second pump would be a backup to the first. These pump would operate the majority of the time to maintain minimum flows in a single lift.
- One 10 MGD variable speed pump assuming turndown to 5 MGD. This pump would be needed to meet projected max day demands and ensure that there are no gaps in pumping capabilities from 2 to 23 MGD. It would also operate in a single lift.
- One 23 MGD constant speed pump to provide source of supply during a drought and meet projected peak day demands above 10 MGD. The pumping rate would vary with the operation of a variable speed pump in series at the second booster station.

<u>Second Booster just downstream of the Kentucky River</u>

- One 23 MGD variable speed pump to operate in series with the 23 MGD pump at the first booster station. It is assumed that the pump turndown would be to 10 MGD.

The above scenarios assume no pumping reliability beyond a minimum flow rate of 5.0 MGD. KAWC will advise on the adequacy of this. It should be noted that the 23 MGD pumps, in a drought scenario, would need to operate continuously for as much as 120 days. KAWC will also advise on the need for standby emergency power. Initial thoughts are that standby power is not needed to maintain minimum flows but would most likely be needed in a drought scenario. It should be noted that capital costs for redundancy and standby power associated with the proposed 23 MGD pump will be significant. Lastly, it should again be noted that the above pumping scenarios assume that LWC can provide adequate flows and pressures to the county line (see further discussion below), and has not yet taken into account the potential modifications required in the KAWC system.

13. KAWC will provide information to Dave regarding the capacity of their portable

dechlorination unit.

Louisville Water Company Meeting

1. LWC discussed the possibility of utilizing the same design consultant selected by KAWC for the capital work in the LWC system. Since there probably will be no overlap or significant coordination between the pipeline and the LWC improvements, it is preferred that LWC not utilize the same design consultant to avoid conflicts in schedules unless there is a significant benefit in doing so.

2. LWC does not currently believe that they can transmit water to the county line without providing a booster station due to a rise in elevation just before the county line. Options to overcome this would be a very deep pipeline or rerouting the pipeline around the high point. Distribution storage improvements are expected to be costly and would also worsen their ability to maintain acceptable water quality at the extremes of their system. LWC will investigate this further and provide more information at a later date. They have also indicated that would require KAWC to provide a storage tank on the suction of the first booster to prevent surge conditions in the LWC system. The possibility of LWC owning and operating the first booster was also discussed. Locating the booster several miles in from the county line would solve the hydraulic problem discussed above and would also be of benefit to LWC for long term needs. It was indicated, however, that the preferred scenario is ownership and operation by KAWC unless it is clearly not cost effective to do so.

3. Typical finished water quality data was provided at the meeting by LWC. This data, however, was finished water data from the treatment plants. LWC will attempt to begin monitoring the remote tank nearest the county line to provide data that is more representative of that which will be received at the county line. It was also noted that LWC does not use a corrosion inhibitor for corrosion control (typical finished pH = 8.3) and does not convert to a free chlorine residual when flushing their system.

4. The LWC average day is 120 MGD. They do not believe that there would be any benefit in providing the capability to flow 15 MGD backwards through the pipeline into their system.

5. Greg asked if LWC will also need to have actual bids for their capital work at the time KAWC applies for a Certificate of Convenience and Necessity. Linda will advise

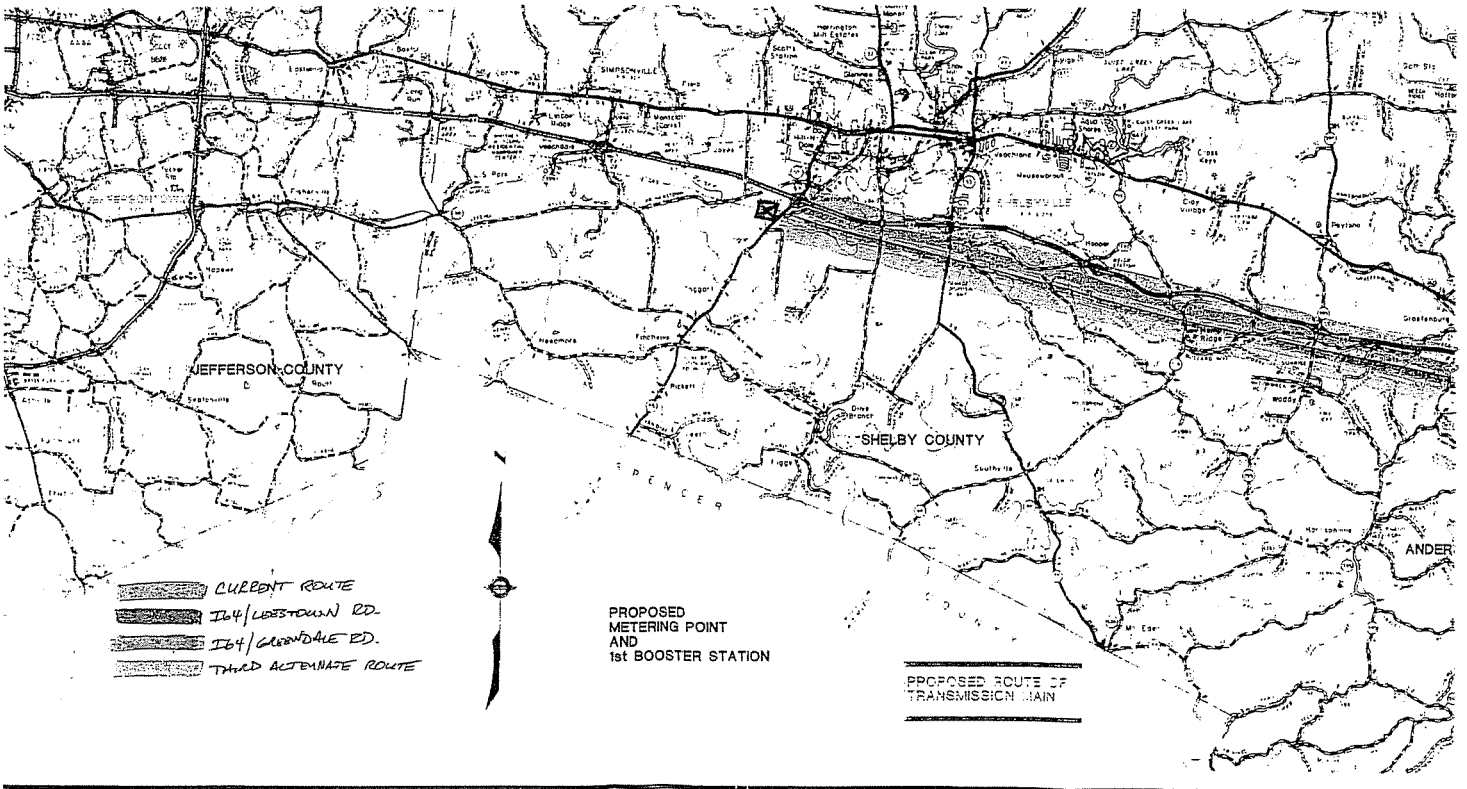
6. Greg briefly discussed the potential rate structure concerns associated with peak demands being significantly greater than average demands. Since the actual operation of the pipeline is not known at this time, it was suggested the KAWC might want to consider an initial 5 year rate structure which would then be renegotiated after actual operating conditions are better known.

7. A follow up meeting with LWC has been scheduled for Thursday, October 30 at 10:00 am at their office. At that time, LWC expects to be able to provide options for providing adequate suction pressures at the county line, their specific requirements for a suction tank on the first booster station, a plan for monitoring water quality at their storage tank closest to the county line, and information regarding detention times in their system.

Follow Up

1. After meeting with LWC, KAWC and AWWSC agreed that detailed design cannot be initiated until January 1, 1998 at the earliest. The goal at this time is to receive consultant proposals prior to the December 16 board meeting. This would require that the RFP and Design Concept be issued by November 14 at the latest. This schedule is only attainable if all of the issues above are resolved in a timely manner.

c: [redacted]
T.A. Friley - KAWC
S.J. Tambini - Region

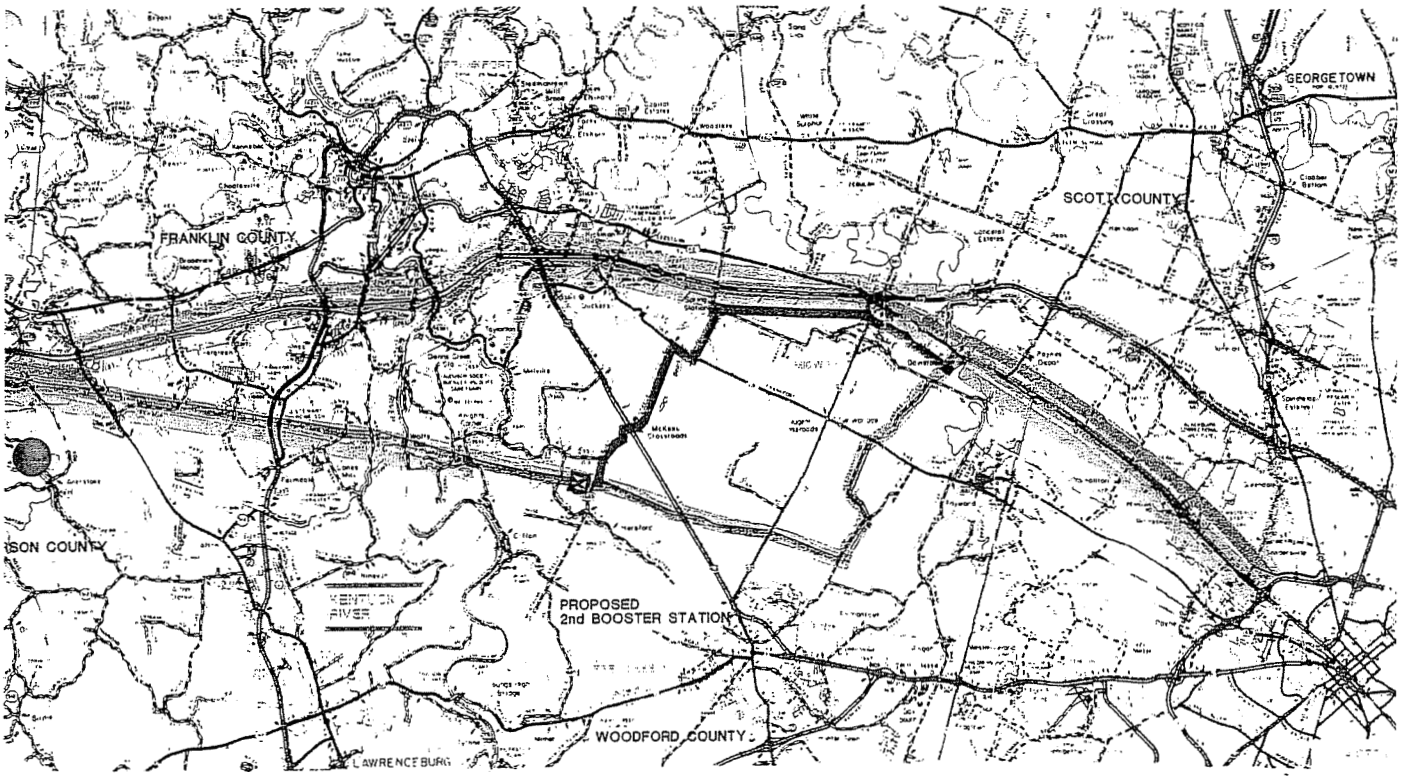


REVISIONS	DATE	BY

Kentucky-American Water Company

KENTUCKY AMERICA
BLUEGRASS

Date of Photography: Apr. 18, 1993



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KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 10 of 19

Witness: Linda C. Bridwell

10. Have the cost and time estimates for the Louisville pipeline option been updated to reflect the additional eastward buildout of the LWC system that has occurred since 1999 and that which is proposed?

Response:

No. In its previous negotiations, LWC proposed to build facilities to the same location currently proposed. However, at that time, KAW would reimburse LWC for the cost of that construction. The current proposal to the BWSC indicates only a reduction of approximately two miles of pipe from Middletown to I-265 and does not indicate that the BWSC would not be responsible for reimbursement of those costs. KAW has not reduced its cost estimate for any reduction of pipe from the previous plan.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 11 of 19

Witness: Linda C. Bridwell

11. What were the factors relied upon by KAWC in the 1990's when it proposed a pipeline to purchase treated water from the Louisville Water Company? Please provide any engineering study that supported the connection to Louisville.

Response:

Cost, availability of supply, feasibility of construction, water quality and perceived feasibility of approval.

Please refer to:

- "Kentucky-American Water Company Lexington/Louisville Transmission Main Overview Study"; Alvord, Burdick & Howson, June 1989. Filed in the first Phase of Case No. 93-434.
- "Kentucky-American Water Company Evaluation of Source of Supply Alternatives"; Alvord, Burdick & Howson, March 1990. Filed in the first Phase of Case No. 93-434.
- 1992 Kentucky-American Water Company Least Cost/Comprehensive Planning Study. Filed with the PSC in July 1992.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 12 of 19

Witness: Linda C. Bridwell / Richard C. Svindland

12. Please explain why a 42-inch transmission line is needed? Is the line sized for a 25 mgd plant, or does KAWC intend to expand treatment capacity at the proposed plant in order to treat raw water from the Ohio River or other source(s)?

Response:

Refer to the Gannet Fleming Report, page 24 that was filed in Response to Item 6 of 34 of the Commission Staff's First Set of Interrogatories and Production of Documents.

The line has capacity for 30 MGD.

KENTUCKY-AMERICAN WATER COMPANY
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CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 13 of 19

Witness: Nick O. Rowe/Linda C. Bridwell

13. Please provide any long-term business plan including proposed capital construction projects.

Response:

Please refer to the response to Item 2f of this same data request for a copy of KAW's five-year capital plan.

For a copy of the business plan please refer to the response to Item 67 of the Attorney General's First Data Request in Case No. 2007-00143.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 14 of 19

Witness: Linda C. Bridwell

14. Would the withdrawal of 30 mgd from Pool 3 in anyway affect the supply available to the City of Frankfort now or in the future?

In Response 2 to the Commission Staff requests, Ms. Bridwell indicated that KAWC is unaware of any calculations of maximum safe yield in Pool 3, yet the Gannett Fleming Report (March 2007) speaks to the MSY of Pool 2. Does Gannett Fleming have any MSY data on Pool 3?

Response:

No, the withdrawal would not affect Frankfort's supply. The response to Item 2 of the Commission Staff's First Set of Interrogatories was incorrect, as Gannett-Fleming reviewed the safe yield of Pool 3 in its report. Refer to page A-9 of the report filed in response to Item 6 of 34 of the Commission's First Set of Interrogatories filed May 21, 2007.

KENTUCKY-AMERICAN WATER COMPANY
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CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 15 of 19

Witness: Linda C. Bridwell / Richard C. Svindland

15. a. Where will KAWC get additional water supply after 2020?

b. What is the treatment capacity of the KAWC under peak and average conditions?

c. Has KAWC assessed and compared the relative costs for adding additional treatment capacity above the proposed Pool 3 plant, and expansion by LWC of comparable treated water capacity?

d. Please explain the basis and provide calculations explaining the basis for KAWCs conclusion that the Ohio River is a "Phase 2" source for meeting central Kentucky's water needs rather than an immediate and long-term solution.

e. Is the cost of construction of Phase I and Phase II of the current KAWC plan more or less expensive to the ratepayer than the construction of a pipeline to connect to the LWC?

f. It is stated on page 20 of the Gannett Fleming Report that KAWC would have to install 260,000 feet of pipeline to reach the LWC. Hasn't the LWC agreed to build a pipeline further east, thereby reducing KAWC's pipeline length and cost?

g. Referring to CAWS First Data Request Item 11, when does KAWC project that an Ohio River connection will be necessary to meet the water supply needs of Central Kentucky?

Response:

a. Please refer to our response to Citizens For Alternative Water Solution's First Data Request Question 1 b.

b. The combined reliable capacity of Kentucky River Station and Richmond Road Station water treatment plants is 65 MGD.

c. No.

d. KAW has received a water withdrawal permit with no restrictions for reduced withdrawals during low-flow periods sufficient through 2030, with no need for an additional supply for 20 years or more.

e. Since KAW does not have a defined Phase II, we do not have information regarding this request.

f. Please refer to the response to Item 10 of this same data request.

g. Please refer to the response to Item 8 of this same data request.

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CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 16 of 19

Witness: Linda C. Bridwell / Richard C. Svindland

16. a. Please explain the methodology used by O'Brien and Gere (described in their letter of 10/12/2005) that was used to modify the "2004 Feasibility Study."

b. Please explain why Gannett-Fleming was retained to provide another supply study and provide a copy of the Request for Proposal (RFP) for this study. What circumstances necessitated another supply study? Did KAWC ratepayers pay for this additional study, and what was the cost?

Response:

a. We do not have any information with which to answer this question.

b. Gannett Fleming was retained in 2005 to help KAW and AW assess its current source of supply options and evaluate the work done by the BWSC. This was done by updating the Louisville pipeline cost estimates, evaluating BWSC plans, confirming the Kentucky River safe yields, reviewing the demand projections and determining if existing facilities could be expanded. Gannett Fleming was then asked to determine if any fatal flaws existed in any of the solutions and to recommend other cost effective solutions.

Gannett-Fleming was retained first to provide an independent review of the previous studies and recommend solutions. Because of concerns KAW had with the BWSC schedule, KAW solicited a proposal from a firm that was familiar to American Water and the issue, but had not been involved in the ongoing efforts of the BWSC or any of its members. A formal RFP was not developed and the scope and cost were negotiated by the Southeast Region Engineering Director. KAW believed it prudent to undertake an independent review on behalf of its customers prior to a final commitment to the BWSC.

The cost for the initial study was $50,000 and covered the items listed above. The study was increased by $50,000 to look at a Pool 2/3 WTP option, pipeline routes from said WTP, components needed for regional participation and Pool 2/3 safe yield. The final cost of the study is $191,800 and covers report finalization as well as some of the preliminary work needed to develop a scope for this project. These costs are currently in a construction work in progress account and would be passed along to customers if approved by the Commission.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 17 of 19

Witness: Linda C. Bridwell

17. When will the Dam 10 improvements be made, and how much additional volume will be available when Dam 10 improvements are made?

Response:

The Kentucky River Authority owns Dam 10 and the information should be sought from it.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 18 of 19

Witness: Richard C. Svindland

18. Where will the dewatered solids be disposed of from the new treatment plant? How will the wastes be transported to the disposal site?

Response:

Please see KAW's response to the Commission Staff's First Set of Interrogatories and Request for Production of Documents Item 33 of 34.

KAW intends to use one of its dump trucks to transport dewatered solids to the disposal site.

KENTUCKY-AMERICAN WATER COMPANY
CASE NO. 2007-00134

CITIZENS FOR ALTERNATIVE WATER SOLUTION'S
FIRST SUPPLEMENTAL DATA REQUEST

Item 19 of 19

Witness: **Richard C. Svindland / Linda C. Bridwell**

19. a. Please explain the criteria used to select the proposed site of the treatment plant, and the routing of the transmission line.

b. Please explain whether a change in zoning will be sought for the location of the plant or associated facilities or lines.

c. Please identify where electric service will be obtained for the plant.

d. Please explain the easement acquisition program that LWC has or will use to acquire the easements. Will the acquisition be willing-seller or will condemnation be used.

e. Please provide a copy of any environmental assessment completed for the proposed treatment plant and associated line. Is KAWC aware that Braun's Rock Cress, a federally endangered species is located on the proposed pipeline path, and has consultation with the U.S. Fish and Wildlife Service been initiated? If so, please provide any correspondence.

f. The 5.5 mile "sludge route" is illegible on the map provided. Please describe the route. Please describe the trucks that will be used for haulage, and the anticipated trips per day.

Response:

a. Please see KAW's response to the Commission Staff's First Set of Interrogatories and Request for Production of Documents, Item Nos. 16 & 25 of 34.

b. Please see KAW's response to the Commission Staff's First Set of Interrogatories and Request for Production of Documents Item No. 12 of 34.

c. Please see KAW's response to the Commission Staff's First Set of Interrogatories and Request for Production of Documents, Item No. 16 of 34, criterion 8. It is up to either Owen Electric or Kentucky Utilities to determine the best electric service route to our site.

d. Assuming that LWC is a typographical error and that it is intended to say KAW, KAW hopes to obtain each needed easement through a willing seller. If a seller is unwilling, KAW will evaluate minor route adjustment options, such as installing

in highway right-of-way and will determine the best course of action. Condemnation will only be used where absolutely needed.

e. KAW is compiling an endangered species survey. KAW is aware that Braun's Rock Cress has populations in Kentucky and Tennessee, but is not aware of any populations on the proposed alignment. KAW's consultant has coordinated with the Kentucky Division of Water, USACE Louisville District and the Kentucky State Nature Preserve. KAW has initiated contact with the U.S. Fish and Wildlife Service.

f. Please see KAW's response to the Commission Staff's First Set of Interrogatories and Request for Production of Documents, Item No. 33 of 34. Refer to the paper color copy provided to the intervener that is legible. The dump truck proposed will likely be a single axle 8 ton dump trucks that KAW currently utilizes in Lexington and Owen County. At average flows and average river turbidities, two trips per day are anticipated.