

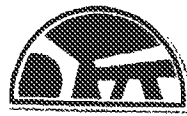
Olszewski, Rosemarie (DEQ)

From: Stibitz, Brom (DTMB)
Sent: Tuesday, March 26, 2013 9:52 AM
To: Wyant, Dan (DEQ)
Cc: Dillon, Andy (Treasury)
Subject: Fwd: City of Flint Water Supply Assessment--from Rowe Professional Services Co
Attachments: DOC[2].PDF; ATT00001.htm

Additional follow up information on te KWA issue.

Begin forwarded message:

From: "Hichez, Amy (Treasury)" <HichezA@michigan.gov>
To: "Dillon, Andy (Treasury)" <DillonA2@michigan.gov>, "Stibitz, Brom (Treasury)" <StibitzB@michigan.gov>
Cc: "Cousineau, Sara (Treasury)" <CousineauS@michigan.gov>, "Hichez, Amy (Treasury)" <HichezA@michigan.gov>
Subject: City of Flint Water Supply Assessment--from Rowe Professional Services Co



ROWE PROFESSIONAL SERVICES COMPANY

Large Firm Resources. Personal Attention.

January 7, 2013

Mr. Edward Kurtz, Emergency Financial Manager
City of Flint
1101 S. Saginaw Street
Flint, MI 48502

Subject: Review of December 21, 2012 Presentation -- City of Flint Water Supply Assessment

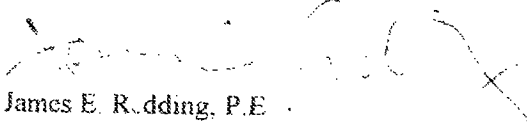
Dear Mr. Kurtz:

As requested, we have reviewed the analysis of water supply alternatives for the City of Flint which was presented to the State Department of Treasury by Tucker, Young, Jackson, and Tull, Inc. (TYJT) on December 21, 2012. Our review is attached and summarizes the primary differences between the TYJT assessment and our previous studies and provides explanations of why we believe there are differences.

We have also reviewed the options for continued DWSD supply included in the TYJT presentation. It is not clear whether these are presented as specific offers on behalf of DWSD or included as examples for analysis, but we have noted some items which we believe should be addressed and considered as these options are compared.

If there are questions, please contact me.

Sincerely,
ROWE Professional Services Company



James E. Redding, P.E.
Vice President / Director of Engineering

Attachment

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**Review of TYJT December 21, 2012 Presentation
City of Flint Water Supply Assessment
Prepared by Rowe Professional Services Company**

DWSD Supply (Slides 7 through 9)

1. The 8 mgd maximum day supply by DWSD options can result in periods during the summer when most of the water to meet demands will be supplied by the City from the river. To aid in maintaining a consistent water quality, softening of the water from the river should be provided with this option, greatly increasing the City's costs.
2. Upgrades to Flint's WTP and dams will be needed for options requiring blending, since the WTP will be required to provide continuous, reliable service and compliance with recent surface water treatment regulations.
3. The rates for the options analyzed are shown on Slide 9 as "TYJT Estimates". Options and rates shown are different than presented by DWSD previously.

	DWSD 11/29/2012	TYJT Estimates
18 mgd Maximum Day - P&B	\$16.24	\$16.37
12 mgd Maximum Day - P&B	\$16.30	\$16.31
8 mgd Maximum Day -P&B		\$12.68
12 mgd Maximum Day - Inlay	\$14.38	\$14.38
8 mgd Maximum Day - Inlay		\$11.11

4. Since the rates used in the analyses are shown as estimates, are they actual offers or just presented as "what if" scenarios?
5. We assume that the Inlay options are based on transfer of the 72" main through Lapeer County to Flint. The analyses show a capital cost of \$4.7 million; we assume that this is the proposed purchase / lease cost to Flint. This should be clarified along with pertinent details.
6. If the transmission main is transferred to Flint, what are Flint's responsibilities regarding service to the Lapeer County customers? If they remain DWSD customers, then Flint should receive some revenue for the use the main. It does not appear this is included in the TYJT analyses.
7. If the transmission main is transferred to Flint, we assume that the city will be responsible for the maintenance of the 50 year old main. The TYJT analysis did not include this.
8. Do the rates shown include the credit for "reliability" which had been discussed with DWSD?
9. If the point of commerce is changed from Baxter and Potter to Inlay, a new meter pit will be required. The cost of this does not appear to be included in the TYJT cost analyses.

Flint River Supply (Slide 10)

1. If any of the "blending" options are chosen, it will be necessary to upgrade the Flint WTP and dams to provide reliable, continuous service and compliance with recent surface water treatment regulations.

Data Collected (Slide 14)

1. The slide notes that Flint blending is based on DWSD supplying 2/3 and Flint supplying 1/3 of 12 MGD ADD. For the maximum day demand (18 mgd), if DWSD supplies a maximum of 8 mgd, Flint will supply 10 mgd or 56% of the total. However, such a large portion will make it more difficult to blend and achieve consistent water quality. Flint will need to soften water for these options.

Benchmarking Comparisons (Slide 16)

1. The slide subtitles are "KWA O&M Inflation Factor" and "DWSD and Flint Rate Inflation Factor". It seems appropriate to benchmark O&M costs for the KWA, because future costs of service will be dependent on how operating costs are impacted by inflation. For Flint, it does not seem appropriate that "rate inflation" from other utilities be used to determine the impact of inflation on future cost of service. Rates are impacted by inflation, but also by other factors such as debt and customer base. O&M expenses and rates are different and care should be exercised not to mix the two during analyses. The TYJT analyses apply an inflation factor (based on rates from other utilities) to the Flint WTP operating expenses, which does not seem to be consistent.
2. The KWA will supply raw water; SOCWA and YUCA both supply finished water. Regulations impact the O&M for finished water suppliers but should not impact the KWA O&M. The use of data from SOCWA and YUCA does not seem like a comparable comparison with the KWA. Finished water suppliers will have increased costs due to regulatory compliance, which really are not due to "inflation" of the costs of wages, power, chemicals, etc.
3. DWSD has a history of rates to Flint and other suburban wholesale customers. Rates tend to be quite specific to each utility, based on much more than just the costs of operating and maintenance. It appears that DWSD historical rates have not been considered in projecting future DWSD rate increases.

Capital Financing (Slide 17)

1. KWA bonds are planned to be general obligation bonds, backed by member counties.

O&M Inflation Factor (Slide 20)

1. SOCWA and YUCA are finished water suppliers; ever-changing regulatory requirements will impact their operating costs more than a raw water supplier, such as KWA.
2. KWA will be a supplier of raw water. O&M costs should primarily be limited to power and labor, with a little chemical use for zebra mussel control. KWA will not provide treatment of the water.

3. The KWA study assumed power, labor, and chemical costs increase at an annual average of 3%. TYJT indicated this is too low and suggested 5%.
4. Following are examples of historical inflation, which support the 3% as a reasonable assumption for O&M expenses (not rates)
 - a. Labor- GCDC-WWS labor costs have increased at an annual average rate of 2.5% since 2003
 - b. Electricity Rates in Michigan (per U.S. Energy Information Administration) have increased an average of 3.2% since 1999.
 - c. The U.S. Bureau of Labor Statistics indicates that the inflation rate over the last 30 years has been an average of 2.8%.

Finished Water Rate Inflation (Slide 21)

1. TYJT bases their assumptions for rate inflation on a survey of rates from three other water suppliers, but ignored the actual rate history of DWSD. TYJT assumed DWSD rate increases of 4.4% annually (if water is purchased from P&B) and 2.9% annually (if water is purchased from Inlay). Based on the actual charges by DWSD to Flint, DWSD historical rates are as follows:
 - a. 10 year increase in DWSD rates to Flint: 10.5% annually
 - b. Average annual increase through 45 year history: 6.7%
2. Note that for the KWA analyses, an inflation factor has just been applied to power, labor, and chemicals. Although higher prices for labor, power, and chemicals impacts utility rates; rates are impacted by many other factors, many of which are not related to inflation. Rate inflation will likely be different than O&M inflation. Other factors impacting rates:
 - a. Debt – the amount of debt varies widely between utilities
 - b. Number of customers / quantity of water sold – there are many fixed expenses with a utility, that if are distributed amongst more users/more gallons sold will result in lower rates. Conversely, if there are fewer users or less water sold, the rates are higher. Assumptions regarding future water consumption will have a great impact on “rate inflation”.
3. Unlike KWA and Flint operating expenses which will increase over time based on inflation, the cost of continued DWSD service should be based on the inflation of DWSD rates, to include the increasing cost of other DWSD expenses such as debt and the impact of reduced customers’ demands in addition to increasing O&M expenses.
4. Even though there could be a one-time reduction in DWSD rates through adopting the model contract, limiting peak demands, and or changing the point of commerce: it doesn’t seem reasonable to assume that subsequent annual increases will only average 4.4% through the 30 year period of analysis. This is significantly less than historical performance (yet TYJT suggests that inflation for KWA O&M expenses will increase at almost double the rate of historical indicators).

Capital Financing with Revenue Bonds (Slide 24)

1. Note that the KWA bonds will be general obligation bonds backed by the member counties.
2. The 2009 KWA Study assumed 6%, 25 year financing. The interest rate for planning was reduced in the 2012 Study update to 5%, which is still higher than if bonds were sold today.
3. Financial consultants determined the charges for purchasing capacity in the KWA supply based on the estimated project cost plus appropriate financing costs. Based on 60 units of capacity, \$538,764,000 will be generated for repayment of debt and project costs using the capacity charges in the KWA capacity agreement.

25 years * 60 units * \$355,300 / unit =	\$532,950,000
3 years * 60 units * \$32,300 / unit =	\$ 5,814,000
	\$538,764,000
4. For a KWA project cost of \$272,421,558, total P&I is \$483 million. The difference of \$55,500,000 is available for financing expenses (capitalized interest, bond issuance costs, etc.) and additional contingencies.
5. Bond holder reserve is not a requirement for general obligation bonds.
6. TYJT assumed that 3% interest would be earned on the bond holder reserve during the 25 year bond period. Current interest rates are less than 1% and it seems inappropriate to assume such a high rate will be earned on retained funds.
7. Bondholder reserve, if provided, should be applied against the last couple of P&I payments. The TYJT did not apply it. This will reduce their project costs.

KWA Construction (Slides 26 through 29)

TYJT has indicated that the KWA construction cost estimate is too low. The primary differences in cost estimates for the project appear to be the following components:

1. Pump Stations (Slide 27) – The TYJT estimate for the pump stations is more than double that used by the KWA (\$54,573,314 vs. \$24,618,080). KWA estimates were based on actual construction costs from recent projects completed by Genesee County within the last eight years.
 - a. 32mgd water pump station including two-10 MG ground storage tanks – \$13.4 million
 - b. 80 mgd wastewater pump station, 50 feet deep wetwell – \$8.3 million
 - c. 30 mgd wastewater pump station, 50 feet deep wetwell – \$9.4 million

The KWA budgeted amount seems reasonable for two pumping stations as currently planned and to be constructed in rural areas (not southeast Michigan).

2. Redundant Power – There is no need for redundant power; other provisions will provide reliability of supply.
3. Land – Preliminary engineering has continued so earlier budgets established for planning for land acquisition can be greatly reduced. Options have been obtained on all properties which must be

purchased, so purchase prices are known. It will be necessary to obtain easements for only two miles of pipeline construction. All land costs are now estimated at \$1.25 million.

4. Engineering, Legal, Administration & Contingencies

- a. The October 2012 KWA estimate provided an allowance of 25% of construction cost to cover engineering, legal, administration, and contingencies (ELAC). This was reduced from the 38% allowance used in the 2009 Study because ongoing planning and design have firmed up many of the details of the project, including:
 - i. The intake design has been completed and all regulatory permits obtained.
 - ii. The transmission main route has been determined. Meetings with road agencies have firmed up the requirements for construction and restoration within rights-of-way. Environmental review and permitting are in process.

- b. TYJT costs for Intake Crib, Pump Stations, and Transmission Mains (Slide 30) include a 30% allowance for ELAC. These allowances (from Slides 26 through 28) total \$72,139,566. In addition, Slide 30 provides the following additional ELAC costs in the project total:

Design Engineering / Pump Stations	\$16,939,581
Construction Management	\$14,434,410
Administration	\$ 349,440
Legal	\$ 831,000
Total	\$32,554,431

- c. Combining this with the \$72,139,566 totals \$104,693,997 or 43% of the estimated construction cost. We believe that such a high allowance for ELAC is not appropriate for a project of this magnitude where preliminary engineering and some design have already been completed.

Cost Comparison (Slide 30)

1. The TYJT pump station price is too high based on costs of similar projects; costs used by KWA are based on costs of recent local projects. The KWA estimate is believed to be sufficient for the proposed pumping stations.
2. Redundant power is not required; this does not need to be included in the TYJT estimate.
3. Land for LHPS – actual price is \$360,000
4. Design Engineering - PS and Transmission – KWA included engineering in the 25% ELAC allowance included in the \$207,752,895 estimated cost of transmission mains; TYJT included engineering in their 30% ELAC allowance included in the \$218,811,559 estimated cost. By adding \$16,939,581 for design engineering, \$14,434,609 for construction administration, \$349,440 for administration, and \$831,000; it seems that ELAC is being “double-counted”. The TYJT 43% allowance for ELAC seems unwarranted for a project with a great deal of preliminary and design engineering completed. The 25% KWA allowance is believed to be sufficient.
5. Easements and land (other than LHPS) should total \$1,140,000, based on current options and specific needs for easements.

Other Considerations – Redundancy / Reliability (Slide 33)

1. Unfunded Mandates, Future Regulations
 - a. The proposed KWA supply will deliver raw water; it is not anticipated to be affected by future changes to regulations. Regulations will impact the City of Flint with respect to treatment and/or distribution of finished water. The City will be subject to these requirements with any of the DWSD blending options, just as they will be responsible for them if supplied by KWA. Some compliance costs may actually be less with the higher quality Lake Huron water rather than Flint River water as the source.
2. State Goals
 - a. The TYJT presentation indicates that creation of a new raw water supply is contrary to the governor's goals as suggested. However, the development of a new raw water supply provides new opportunities. Communities in Sanilac, St. Clair, and Lapeer counties will have the option to join a regional water supply and replace their small local supplies where limited supplies and high concentrations of arsenic have been a concern. The new water supply also provides great economic development opportunities. The raw water supplied by KWA will make a new commodity, raw water, available to the region. A large, low-cost supply of raw water can be a valuable resource for industries and agribusinesses. The development of a new water supply will also create construction jobs through the short term period of building the new water supply and subsequently over a longer period as new businesses and industries are developed in the area.
 - b. The City of Flint and area communities will benefit as permanent jobs are created for operating and maintaining the local treatment facilities.
3. Redundancy
 - a. We agree that the KWA and DWSD options are similar with respect to redundancy. Both provide the primary water supply; customers are responsible for their backup supply.

Other Considerations – Cost Slide 34

1. TYJT indicates that the DWSD 8 mgd supply option is the least cost alternative.
 - a. The TYJT analysis does not include the cost of needed upgrades to the City's WTP or increased operating costs in their analysis. During summer months, water from the river will need to be softened before blending. More than half of the water supplied will be provided from the river. When the cost of upgrades to the WTP and the increased operating costs (for softening) are added to the TYJT analysis, the KWA option is less than the DWSD 8 mgd option.
2. For any of the DWSD "blending" options, upgrades will need to be made at the WTP to provide for continuous, reliable operation and compliance with new surface water treatment rules. Increased capital and operating costs for treating water from the river should be added to the TYJT costs for comparison with the other options.
3. Water from the river will require greater effort to treat than water from Lake Huron (more chemicals, power, and residuals). The TYJT analysis shows about the same O&M costs for the Flint WTP, regardless of water source. It seems that the WTP O&M costs for the KWA options should be reduced to reflect the savings from treating Lake Huron water.

4. The TYJT presentation noted that the KWA analysis did not include allowances for mechanical and process improvements within the planning period. The KWA will supply raw water. The facilities consist of pipe, pumps, and a tank. There are no treatment facilities which would be susceptible to future regulatory changes. The only improvements that seem likely would be the need to provide additional capacity. Capacity expansion is planned to be financed through capacity charges to new users.
5. The provision for redundant connections between the City's water system and the GCDC system was included in the most recent water supply agreement between the two, in 2011. Although not a KWA cost, the cost of the redundant connections should be considered with all options.
6. The \$2.3 million budgeted for land by KWA was intended to cover all land requirements. Since the October update, options have been obtained on all land to be purchased and the locations of easements needed has been finalized. Total land costs are now estimated to be about \$1.5 million.
7. The 2004 study included a 47% allowance for engineering, legal, administration, and contingencies (ELAC). The 2009 study reduced the allowance for ELAC to 37% because many of the details since the 2004 conceptual study had been better defined. For the October 2012 update, the allowance for ELAC was reduced to 25% because continued planning and preliminary engineering further addressed details from the earlier concepts.
 - a. The detailed design (plans and specifications) and permitting have been completed.
 - b. The transmission main route has been finalized. Meetings with road agencies have established requirements for construction and restoration within road rights-of-way. Environmental permitting is in process. The primary remaining unknown is pipe sizing, which is largely dependent on Flint's participation.

It is our experience that the 25% ELAC allowance is appropriate for a project of this magnitude at this stage in the planning / design stage. The 43% ELAC allowance recommended by TYJT is excessive for a project in the design phase.

8. Flint's WTP as a backup to the KWA will be less difficult to provide for than the current arrangement as a backup to DWSD. We believe there is potential for challenges with chemistry and treatment for the proposed DWSD blending options, too.
9. It doesn't seem that oversizing the KWA capacity is a good solution for the city's water loss problems, if that is what is being suggested.
10. Yes, it would be nice if the KWA system could be constructed to firmly determine its cost and time to complete before making a decision about water supply alternatives. However, a decision is needed regarding Flint's participation so that the sizing and design can be completed, before it can be built.

Project Costs - TYJT Slides 26 through 30

	KWA	TYJT
Intake and Crib		
Construction	\$22,076,850	\$22,076,850
ELAC	\$5,519,213	\$5,519,213
Property	\$2,300,000	\$2,300,000
Pumping Stations		
Construction	\$24,618,080	\$54,573,314
Land		\$75,000
ELAC	\$6,154,520	\$16,394,494
Transmission Mains		
Construction	\$166,202,316	\$167,419,530
ELAC	\$41,550,579	\$50,225,859
Easements		\$1,166,170
Engineering		
Design Engineering		\$16,939,581
Construction Management		\$14,434,609
Administration		\$349,440
Legal / Easements / Contracts		\$831,000
Power	\$4,000,000	\$4,000,000
Redundant Power		\$1,273,200
Total Construction	\$212,897,246	\$244,069,694
Total ELAC	\$53,224,312	\$104,694,196
Total Land / Property / Easements	\$2,300,000	\$3,541,170
Total Power	\$4,000,000	\$4,000,000
Total Redundant Power	\$0	\$1,273,200
Total	\$272,421,558	\$357,578,260
ELAC as % of Construction	25.0%	42.9%

Option	TYJT Total Cost	TYJT minus additional costs of river treatment	TYJT minus additional costs of river treatment plus redundant Flint-GCDC connections	TYJT minus additional costs of river treatment plus redundant connections less KWA reserve	TYJT minus additional costs of river treatment plus redundant connections less TYJT financing	TYJT plus Flint WTP	Adjusted Total Cost	Ranking
1 Flint WTP Only	\$590,441,893						\$590,441,893	3
2 DWSD 8 MGD Max Day at Inlay	\$621,211,298					\$771,289,948	\$771,289,948	5
3 KWA 10/31/12 Update	\$649,775,166	\$534,615,996	\$554,555,960				\$554,555,960	1
4 DWSD 8 MGD Max Day at P&B	\$657,167,877					\$807,246,527	\$807,246,527	6
5 KWA-1	\$707,279,715	\$592,120,545	\$612,060,509		\$572,731,459		\$572,731,459	2
6 DWSD 12 MGD Max Day at Inlay	\$707,994,386					\$858,073,036	\$858,073,036	8
7 DWSD 12 MGD Max Day at P&B	\$742,168,081					\$892,246,731	\$892,246,731	9
8 KWA - 2	\$766,784,313	\$651,625,143	\$671,565,107	\$654,706,341			\$654,706,341	4
9 DWSD 18 MGD Max Day at P&B	\$791,202,885					\$812,337,848	\$812,337,848	7

Option for River Segments	TYJT Projected 30 Year Total Cost	30 Year O&M Reduction for Treating Lake Huron Water	25 Year Bond Cost for Redundant Connections	Eliminate KWA Reserve	Use KWA 25 Year Capital Charge	25 Year Bond Cost for Flint WTP Upgrades	Adjusted 30 Year Total Cost	Rank Closest to Highest Cost
1 Flint WTP Only	\$590,441,893		Included				\$590,441,893	3
2 DWSD 8 MGD Max Day at Inlay	\$621,211,298		Note 1			\$150,078,650	\$771,289,948	5
3 KWA 10/31/12 Update	\$649,775,166	-\$115,159,170	\$21,134,963				\$555,750,960	1
4 DWSD 8 MGD Max Day at P&B	\$657,167,877		Note 1			\$150,078,650	\$807,246,527	6
5 KWA-1	\$707,279,715	-\$115,159,170	\$21,134,963		-\$39,329,050		\$573,926,459	2
6 DWSD 12 MGD Max Day at Inlay	\$707,994,386		Note 1			\$150,078,650	\$858,073,036	8
7 DWSD 12 MGD Max Day at P&B	\$742,168,081		Note 1			\$150,078,650	\$892,246,731	9
8 KWA - 2	\$766,784,313	-\$115,159,170	\$21,134,963	-\$16,858,766			\$655,901,341	4
9 DWSD 18 MGD Max Day at P&B	\$791,202,885		\$21,134,963				\$812,337,848	7