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Audit Report

**Review of the Financial Report on
Postponement of Water Treatment Plant 4**

September 21, 2011

Office of the City Auditor
Austin, Texas

Audit Team

Robert Elizondo, CIA, CGAP, CICA, Auditor in Charge
Neha Sharma, CIA, Chartered Accountant
Charles Holder, CPA

Assistant City Auditor

Russell Needler, CPA, CIA, CGAP

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oca_auditor@austintexas.gov.
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City of Austin



Office of the City Auditor

301 W. 2nd Street, Suite 2130

Austin, Texas 78767-8808

(512) 974-2805, Fax: (512) 974-2078

email: oca_auditor@austintexas.gov

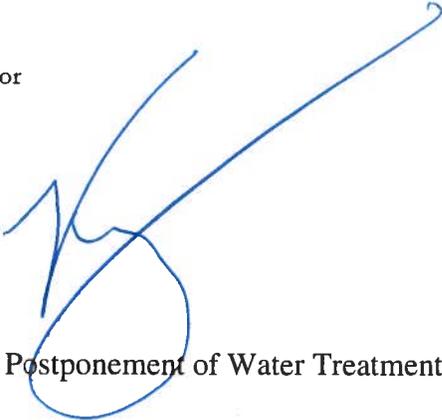
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Date: September 21, 2011

To: Mayor and Council

From: Kenneth J. Mory, City Auditor

Subject: Review of Financial Report on Postponement of Water Treatment Plant 4



I am pleased to present this audit report on our review of Camp, Dresser, & McKee's (CDM) Financial Report on Postponement of Water Treatment Plant 4 (Report). The objective of our review is to provide Council with information on whether the methodologies, assumptions and estimated costs included in the Report are reasonable. Our review focused specifically on the assumptions, methodologies, and cost estimates used in the CDM Financial Report delivered to City officials on August 26, 2011.

This review was limited to cost categories 1 through 4 from the CDM report. Cost categories 5 and 6 will be addressed in subsequent reviews if Council directs OCA to do so.

Based on our analysis of the CDM cost study, we have determined that CDM is a recognized engineering services firm with the required expertise to complete the financial report and found no evidence that any related party issues exist. Additionally, we determined that, based on sufficient independent evidence, \$100 million of the costs identified for a 5-year deferral, and \$155 million of the costs identified for a 10-year deferral, net of labor savings, are reasonable.

We appreciate the cooperation and assistance we received from staff at the Austin Water Utility and Camp, Dresser & McKee during this audit.

cc: City Manager
Assistant City Managers
Austin Water Utility Director
Public Information Officer

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BACKGROUND

Water Treatment Plant 4 (WTP 4) is currently under construction. According to the schedule now in place, the plant would be online and operational in 2014. The Austin City Council is currently considering whether to continue under this schedule, or to defer completion of the plant for a period of either 5 or 10 years.

On July 28, 2011 Council approved a resolution directing the City Manager to determine the costs of postponing completion of WTP 4 for 5 years and 10 years, relative to the costs of on-time completion.

In response, the City Manager directed Camp, Dresser and McKee (CDM), the consulting, engineering, construction and operations firm that is currently acting as an executive advisor to the City on completion of WTP 4, to complete a financial report on postponement of WTP 4. CDM delivered the report to City officials on August 26, 2011.

OBJECTIVES, SCOPE, AND METHODOLOGY

In response to a request from the City Council's Audit and Finance Committee, the Office of the City Auditor conducted this review of the Financial Report on Postponement of WTP 4 completed by CDM Engineering ("Report").

Objectives

The objective of our review is to provide Council with information on whether the methodologies, assumptions and estimated costs included in the Report are reasonable.

Scope

Our review focused specifically on the CDM Financial Report on Postponement of WTP 4 delivered to City officials on August 26, 2011, including:

- Assumptions
- Methodologies
- Cost estimates

This review was limited to cost categories 1 through 4 from the CDM report. Cost categories 5 and 6 will be addressed in subsequent reviews if Council directs OCA to do so.

Methodology

To accomplish our audit objectives, we performed the following steps:

- Reviewed the Financial Report on Postponement of WTP 4
- Reviewed engineering services and construction management contracts and other documents related to the project
- Conducted analytical procedures to evaluate Report assumptions, methodologies and estimates
- Interviewed City employees, CDM staff, and citizens regarding the WTP 4 project and evaluated responses

- Recalculated relevant data provided in the Report and supporting documents
- Researched construction industry information and interviewed construction industry personnel to determine if certain assumptions contained in the Report were consistent with industry practice

We conducted this performance audit in accordance with Generally Accepted Government Auditing Standards (GAGAS) with the following exceptions:

- We did not review internal controls relevant to the audit objective
- We did not issue recommendations related to our findings

GAGAS requires that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Limitations and Constraints:

- For purposes of this review OCA has assumed that the current City Council approved WTP 4 plan at a cost to complete of \$508 million is the base line for the Report.
- Our review was limited in scope to cost categories listed below and did not consider alternative scenarios outside the scope except for certain operational cost avoidance savings provided by CDM/City Management.
- This review covers only the findings in Cost Categories 1 through 4: Shutdown, Settlement/Litigation, Protection, and Restart. Categories 5 and 6, Interim CIP and Operating Costs, may be reviewed at a later date if requested by the Council's Audit and Finance Committee.
- OCA concurs with the concept of using an orderly/prudent shut down rather than an aggressive shutdown.
- OCA staff has no expertise in water engineering and construction and therefore did not evaluate the report from an engineering perspective but relied on other appropriate and substantive evidence where available.

AUDIT RESULTS

OCA analyzed CDM and the WTP 4 Contractors to determine if there were any related-party issues that could present a conflict of interest with regard to this project. OCA found no evidence of any related party issues. OCA also determined that CDM is a recognized engineering services firm with the required expertise to complete the financial report.

OCA believes the Report addresses the major cost components related to deferral of WTP 4 construction. However, the Report did not include some cost savings information related to deferring operation of WTP 4 (e. g., labor, operation and maintenance costs), which OCA believes should have been incorporated into the review.

Exhibit 1 below summarizes the costs of deferral contained in the Report.

Exhibit 1
Costs of Deferral for WTP 4 per CDM Report
 (\$ millions¹)

	Current Plan	5-year Deferral	10-year Deferral
Costs incurred through 8/3/11	\$141	\$141	\$141
Shutdown	0	79	79
Settlement / Litigation	0	12	12
Protection	0	3	4
Restart/Completion	367	411	478
Total project cost	\$508	\$645	\$714
Differential		\$138	\$ 206

Source: Financial Report on Postponement of Water Treatment Plant 4, Executive Summary p.1.

¹ Totals may not sum due to rounding.

Exhibit 2 below is a summary of those costs from Exhibit 1 that will only be incurred if WTP 4 construction is deferred. The difference between the two exhibits is that the original cost of completion of \$508 million is removed in Exhibit 2. Those costs will be incurred under any scenario, and are therefore not relevant to an analysis of deferral cost.

Exhibit 2
Costs Incurred Only in Case of Deferral for WTP 4
(\$ millions¹)

	5-year Deferral	10-year Deferral
Shutdown costs ²	\$ 11	\$ 11
Settlement / Litigation costs	12	12
Protection costs	3	4
Restart / Completion costs ³		
Restart costs	22	25
Restart factor	23	23
Inflation factor	67	132
Total deferral cost	\$138	\$206

Source: OCA analysis of Financial Report on Postponement of Water Treatment Plant 4.

¹ Totals may not sum due to rounding.

² Shutdown costs include \$6.6 million for termination of contracts.

³ CDM presented Restart & Completion Costs combined. OCA split those costs out into three separate categories: Re-start Costs, Re-start Factor Costs, and Inflation Factor Costs.

Based on our analysis of the CDM cost study, we have summarized our findings on the reasonableness of the cost estimates for deferring WTP 4 for five years and ten years respectively, in Exhibits 3 and 4 below. We discuss each of the cost categories in more detail following the exhibits.

The column titled "Reasonable Costs" represents the amounts for which OCA found sufficient independent evidence to support both the type of cost and a range of reasonableness for the amount of the cost. However, OCA is not representing that costs for which we did not find sufficient independent evidence may not be incurred.

Exhibit 3
Reasonable Costs Under 5-Year Deferral for WTP 4
(\$ millions¹)

	Costs per CDM Report	Reasonable Costs
Shutdown costs	\$ 11	\$ 7
Settlement / Litigation costs ²	12	12
Protection costs	3	3
Restart / Completion costs ³		
Re-start costs	22	11
Re-start factor ⁴	23	12
Inflation factor	67	67
Total Costs	\$138	\$112
Less: Labor savings ⁵		(12)
Net Costs	\$138	\$100

Source: OCA analysis of Financial Report on Postponement of Water Treatment Plant 4.

Exhibit 4
Reasonable Costs Under 10-Year Deferral for WTP 4
(\$ millions¹)

	Costs per CDM Report	Reasonable Costs
Shutdown costs	\$ 11	\$ 7
Settlement / Litigation costs ²	12	12
Protection costs	4	4
Restart / Completion costs ³		
Re-start costs	25	13
Re-start factor ⁴	23	12
Inflation factor	132	132
Total Costs	\$206	\$180
Less: Labor savings ⁵		(25)
Net Costs	\$206	\$155

Source: OCA analysis of Financial Report on Postponement of Water Treatment Plant 4.

¹ Totals may not sum due to rounding.

² Outside counsel for the project provided a possible range for litigation and termination settlement of \$12.7 to \$25.7 million.

³ CDM presented Restart & Completion Costs combined. OCA split those costs out into three separate categories: Re-start Costs, Re-start Factor Costs, and Inflation Factor Costs.

⁴ CDM applied startup factors of 5% for general work and 10% for raw water work and the Jollyville transmission main. OCA considers factors of 4% and 6% to be supported by the evidence provided.

⁵ Labor savings were provided as part of a 2009 AWU analysis of the rate impact of operating WTP 4.

Shutdown costs - \$10.5 million:

The shutdown costs are comprised of the following:

- Engineering services - \$3.7 million
- Termination of contracts - \$6.6 million – see discussion of litigation costs below
- Easements - \$200,000

The engineering services include the following:¹

- Preparing change order documents to depict stop work points
- Preparing record drawings depicting all construction completed
- Preparing legacy documents including summary of work completed to point of shutdown

Based on a review of the project requirements, it is reasonable to expect these types of activities would need to be performed. However, OCA was unable to verify, based on the documentation provided, whether the amount estimated by CDM for these services is reasonable.

Settlement/Litigation costs - \$11.6 million (plus \$6.6 million in contract termination cost included by CDM as shutdown costs)

Outside independent counsel and the City Law Department stated to OCA that it is reasonable to expect termination and litigation costs if contracts are terminated. The outside independent counsel estimated termination costs, defined as the cost to terminate the contract plus the costs to reinstate that same contract in one year, in a possible range from \$12.7 million (no restart) to \$25.7 million (restart after 1 year).² In financial reporting audits, legal counsel's opinions on contingent liabilities are the basis for recognizing those potential liabilities. OCA therefore considers the combined CDM estimate of \$18.2 million for termination and litigation costs to be reasonable.

Protection costs - \$2.5 million for 5 years and \$4.4 million for 10 years

These costs include:³

- A storage facility for equipment to be stored on site
- A security system for monitoring the work site
- Ongoing security monitoring of the work site
- Ongoing routine maintenance
- Annual maintenance cost of five percent of capital costs to reconstitute and secure the warranty after the deferral period

OCA agrees that it is prudent to protect the facilities and equipment during any deferral period and believes these costs appear reasonable based on the security requirements and an analysis of the costs.

¹ Financial Report on Postponement of Water Treatment Plant 4 Section 3.2.1.1

² Financial Report on Postponement of Water Treatment Plant 4, Appendix O.2

³ Ibid, Section 3.2.3, Appendix N

Restart costs - \$22.4 million for 5 years and \$24.8 million for 10 years:

These costs include:⁴

- Engineering services - \$11.5 million
- Other costs - \$10.9 million for 5 years and \$13.3 million for 10 years

Engineering services costs include the costs for resuming work after a deferral period:

- Review of historic and shutdown legacy documents - \$1.2 million
- Code and permit review and document revisions - \$3.1 million
- Restart design - \$5 million
- Environmental permitting - \$2.2 million

Based on a review of the project requirements, it is reasonable to expect these types of activities to be performed. However, OCA was unable to determine, based on the documentation provided, whether the amount estimated by CDM for these services is reasonable.

Other costs include general administrative costs:

- Payments for City Administration to the Public Works Department (PWD) - \$5.5 million
- Payments to CDM as Executive Advisor - \$4.8 million for 5 years, \$7.2 million for 10 years
- Payments for outside counsel - \$600,000

The basis for this additional cost is that these groups will be providing services for a longer period of time under a deferral scenario than they would if construction was completed on schedule in 2014.

Based on a review of the historical charges from PWD and CDM, these costs appear to be reasonable. While OCA did not review historical charges for outside counsel, OCA did confirm these services are being provided and saw no evidence that the costs were unreasonable.

Restart factor – \$23.4 million

CDM has assumed a restart factor cost of 10% of the remaining contract at restart for raw water work and completing the Jollyville transmission tunnel, and 5% of the remaining contract at restart for all other work.

CDM referenced four components of the restart factor:

- Mobilization/start-up costs
- Market conditions
- Front loaded schedule of values
- Restart risk

⁴ Financial Report on Postponement of Water Treatment Plant 4., Section 3.2.4; Appendix D p. 5; Appendix E p. 4

The concept of mobilization and start-up costs is that money has to be expended for items such as labor, equipment and materials to prepare to produce the first unit of output before that output is actually received. This can also include costs for surety bonds or insurance, for example.

CDM has applied a 5% for general mobilization costs and startup costs. These types of startup costs were incurred by the contractors at the beginning of this project. Based on our analysis of those costs, shown in Exhibit 5 below, a 4% mobilization and startup factor appears reasonable.

Exhibit 5
Startup Costs Incurred at Beginning of WTP 4 Construction
(\$ 000)

Work Package	Total Contract Amount	Mobilization and Startup Cost	Mobilization and Startup Percentage
S204 Retaining Wall-Ranger	\$ 763	\$ 15	2.0%
S301 Clarifiers	6,270	308	4.9%
S302 Clearwells	5,818	200	3.4%
S303 Filter Bldg/Clarifier	12,413	497	4.0%
S304 Mass Excavation	2,263	101	4.5%
S305 Walls Conveyances	4,748	189	4.0%
S306 Washwater Recovery	4,812	224	4.7%
Total	\$37,087	\$1,534	4.1%

Source: CDM response to OCA information request supported by billing documents.

As stated above, CDM has applied a 10% restart factor for raw water work and the Jollyville transmission main. However, this number is not entirely supported by the restart costs incurred for raw water work at the beginning of the project, as shown below.

Exhibit 6
Specialized Startup Costs Incurred at Beginning of WTP 4 Construction
(\$ millions)

Work Package	Total Contract Amount	Mobilization and Startup Cost	Mobilization and Startup Percentage
S101 Raw Water Intake	\$19.7	\$1.1	5.7%
S101 Raw Water Tunnel and Shafts	62.0	3.9	6.4%
Total	\$81.7	\$5.0	6.2%

Source: CDM response to OCA information request supported by billing documents

Based on these historical costs, OCA believes it would be more appropriate to use estimated mobilization and startup factors of 6% for the remaining raw water work and the Jollyville transmission tunnel, and 4% for all other work.

A second component of the restart factor relates to market conditions. In response to a request for information, CDM stated:

Until the recent economic downturn construction costs were rising much faster than general levels of inflation, driven in large part by construction related commodities – steel, cement, diesel oil, etc.

As a result of the downturn, owners are currently experiencing significant cost savings, 15-25%, that have not been seen prior to the last couple of years and are not likely to continue...

OCA was unable to find appropriate substantive support for these claims. Therefore, OCA considers adding any amount to the restart factor for market conditions to be speculative at this point in time and does not support considering it as part of the cost estimate.

The third component of the restart factor is the front loaded schedule of values. According to CDM:

Contractors will typically “front load” their schedule of values to assist them with cash flow and to avoid unnecessary financing of the project. As such, if an owner has paid a contractor 20% of the contract value, there is likely a lower percentage of the work actually complete (e.g., 15%). Accordingly, if contracts are terminated early, the actual amount of work completed at the point of termination would need to be carefully examined by the COA prior to moving these dollars forward on the restart and completion effort.

However, this would not apply to the contracts at restart, since it is assumed that once construction begins it will be completed. To the extent that the schedule of values is front loaded, it would be expected that the City would catch up as the contract proceeded and by the end of the contract one-hundred percent of the money would be expended and one-hundred percent of the services would have been received. Therefore, it would not be appropriate to add any amount to the restart factor for the front loaded schedule of values.

The final component of the restart factor is restart risk. According to CDM:

...the work required to be completed would have to tie into the current work in place. Given the inherent risk with “assuming responsibility” for the partially complete work, though difficult to quantify, it is likely that the bidding contractors will increase their price to offset these risks.

As CDM has stated, this risk is difficult to quantify. OCA found support for the concept of restart risk from the Associated General Contractors of Texas (AGC), a construction trade association. According to AGC, deferral of the project will increase the perceived risk for contractors who plan to bid on the restart. This could result in higher surety bond costs, as well as risk based contingencies being a part of the bid proposals.

The issue of higher surety bond costs has been at least partially addressed in the mobilization and restart costs. As for the addition of risk based contingencies in bid proposals, OCA considers

that to be speculative at this point in time and does not support considering it as part of the cost estimate.

Inflation factor (3%) - \$67 million for 5 years and \$132 million for 10 years

CDM has assumed that general construction cost inflation will cause the City’s costs to increase three percent annually from 2011 base costs. The rate is based on the ten-year rolling average cost construction index for Dallas.⁵ The shutdown, settlement, protection and restart costs included in Exhibit 2 are stated in 2011 dollars and do not include an inflation component.

OCA believes that inflation should be part of this cost analysis. Based on the price indexes reviewed, the three percent inflation factor used appears to be reasonable.

Estimated cost savings from deferring operation of WTP 4

As stated at the beginning of this report, the CDM financial report does not include cost savings information related to deferring operation of WTP 4. According to a 2009 study developed by AWU to illustrate the rate impact of operating WTP 4, the total operating costs for the plant would be:

- Five years 2014-19 - \$26.6 million
- Ten years 2014-24 - \$60.6 million

AWU indicated that the labor costs for WTP 4 would be exclusive to the plant, but that the other operation and maintenance costs would be incurred at the Davis and Ullrich plants if they were not incurred at WTP 4. According to AWU, the labor costs for the plant would be:

- Five years 2014-19 - \$12.3 million
- Ten years 2014-24 - \$24.6 million

Based on the documentation provided, OCA accepted that only labor costs are incremental. Additional work would be needed to review the other operations and maintenance costs to determine if additional savings or costs should be recognized.

Other Risks

OCA also reviewed the Risks Section 1.5 of the CDM Report and concur that other non-quantifiable risks exist and could result in additional costs or savings. However, since no cost estimates were provided by CDM, OCA has been unable to address any likely costs or savings related to these risks.

⁵ Financial Report on Postponement of Water Treatment Plant 4, Section 5.2