

TO: Public Works, Parks and Environment Committee

REPORT DATE: May 17, 2017

TARGET DECISION DATE: June 28, 2017

FROM: Director of Engineering and Operations

RE: Water Resource Centre Review

RECOMMENDATION(S)

- 1. That the report from the Director of Engineering and Operations dated May 17, 2017 regarding the Water Resource Centre Review be received for information.**

PURPOSE

To provide a review of the DeLoitte Report and Maple Reinders response regarding the operation of the Water Resource Centre.

DISCUSSION**Context/Background**

Construction of the Water Resource Centre (WRC) was completed in 2015. Completion of the facility triggered a two year maintenance period which ended on March 31, 2017.

During the two year maintenance period some design and operational concerns were noted along with other minor deficiencies.

DeLoitte Inc. was commissioned to review the entire Design Build process along with the operational concerns. A report on their findings was provided to the District in November 2016.

The DeLoitte report was then provided to Maple Reinders Inc. (MRI) for comment. The District received their response in a report on March 23, 2017.

Analysis/Application of Recommended Course of Action

The DeLoitte report is an in depth review of the entire Design Build process including construction, commissioning and performance of the WRC. This report will focus on wastewater treatment processes, plant performance and deficiencies. This review will not be addressing the Design Build process.

Maple Reinders Inc. had the opportunity to review and respond to the comments in the DeLoitte report. Their comments, along with their supporting documents have been reviewed by staff and will be addressed in this report.

MRI was granted Substantial Performance on March 31, 2015. They were provided with a Certificate of Completion. The Certificate of Completion triggered the commencement of the two year maintenance period.

Following the two year maintenance period, a Final Inspection took place. There was also an inspection held on September 1, 2016. At that time the Building Inspection division issued a "Safe to Occupy" order.

The Final Inspection identified deficiencies that needed to be addressed. Once identified, MRI commenced work to eliminate the deficiencies that remained.

There are only a few very minor deficiencies of very little monetary value that remain. MRI has requested that the District complete the deficiencies and invoice them directly for this work. District staff are dealing with these deficiencies and will be invoicing MRI accordingly. Staff have every confidence that MRI will reimburse the District.

To date the Building Inspection department has not issued an Occupancy Permit for the WRC. An Occupancy Permit was not issued because process chemicals are being stored in the workshop area. This space was not designed for chemical storage. It appears that during the design-build process chemical storage was not considered until the building was completed.

With no permanent chemical storage facility in place, Substantial Performance was issued along with full payment to MRI and the warranty period commenced. This should not have taken place. The Deloitte report also agrees with that statement.

From this review, Staff concludes that MRI constructed what was agreed to. However once chemical storage became an issue, the District requested that MRI provide a quote for an outdoor chemical storage facility. This option was turned down by the District and a Change Order issued instructing MRI to review building and other associated codes pertaining to chemical storage.

CHL Code Consultants undertook the task and determined that several chemicals can be stored in the workshop area.

Staff reviewed the District's project files containing emails and other correspondence in hopes of determining if MRI was notified about the need for chemical storage earlier on in the process. There is nothing in the files that indicates that the District informed MRI that chemical storage was a design requirement.

The District elected to use the Design-Build (DB) concept for this project. The DB method does not allow the owner any control over the design itself but uses a means of control or acceptance through performance criteria.

For the completed project the District requested performance guarantees on the following:

- Electrical consumption
- Chemical consumption
- Effluent quality
- Odor control performance
- Dewatering performance

However, it is my understanding that the District does not hold any security to enforce these requirements.

With regards to treated effluent quality, the Deloitte report states that the WRC meets the governing federal standards for discharge to the ocean except for total suspended solids, (TSS). The Deloitte report also says that the plant does not meet the Provincial Municipal Wastewater Regulations-Indirect Potable Reuse standards (MWR).

The Provincial MWR reuse standards are more stringent than other governing federal standards. At the time of commissioning, the plant did meet the higher provincial MWR directives.

MRI has provided documentation showing that during the required twenty eight (28) day test period the WRC met or exceeded the testing requirements of the Provincial MWR Indirect Potable Reuse standards.

This data was presented to the District project team and at that time it was deemed that the results met the requirement of the design-build contract. WRC operators have confirmed that the sewage treatment facility continues to produce treated effluent to Provincial standards.

As per the DB contract with MRI, the WRC is producing biosolids with a dryness of at least 18%. WRC staff has full control of the centrifuge that reduces moisture content in the biosolids. Moisture content can be increased or decreased, however it's kept at constant 18%.

The DB Request for Proposal (RFP) required processing of biosolids to the Organic Matter Recycling Regulation (OMRR) with the end product being a Class A compost.

The WRC does produce biosolids to the DB required standard but the WRC does not process biosolids to a Class A compost. I believe it was never the intention of the DB RFP to require the contractor to construct a biosolids composting facility but to produce a treatment byproduct that can be composted to a Class A product. The WRC does

produce this byproduct to that standard. District staff are working with others to secure a long term commitment for the removal, disposal and treatment of all biosolids produced at the WRC.

The Deloitte report referenced that the noise testing and verification was not available for their review. MRI has supplied supporting data to substantiate their claim that the WRC meets the noise requirements. Staff have reviewed the supporting documentation and agree with MRI's claim. Further the District has never received a noise complaint from surrounding residences.

Regarding odor, the Deloitte report states that no odor measurement data was made available for their review so they could not comment further. However submitted MRI commissioning reports show that the odor standards were met. The District has never received an odor complaint created by the WRC operation.

There are only two instances when odor can become an issue; these are when septic haulers are allowed to dispose of their load in a manhole located at the back of the WRC and when biosolids are physically removed from the facility and are transported to the Dusty Road site.

Staff is working on creating policies and procedures in order to eliminate or lessen the impact of the odor concerns.

LEED Gold certification was one of the requirements in the RFP. There are still outstanding issues that need to be addressed, i.e. MRI was to provide pictures of regulating meters, solar panels and other monitoring devices. They have provided this documentation.

One of the remaining issues to receiving LEED Gold certification is obtaining an Occupancy Permit from the Building Inspection division. However, obtaining an occupancy permit brings us back to securing a permanent chemical storage area.

There are two ways to resolve this issue, the District can build a separate chemical storage facility on site or the existing shop area can be modified to store chemicals. Staff feels that modifying the shop area will meet the needs of the WRC operators, regulatory bodies and be more economical to construct and operate.

Ms. Shasta McCoy, Landscape Architect, Urban Systems is also working on their requirements for the LEED certification. Ms. McCoy has contacted staff requesting that two letters be sent to the Canada Green Building Council to address their concerns regarding the Car Pool Management Plan and to confirm that Landscaping is being maintained as presented in the LEED Application. These letters were provided.

Staff also had to approve the landscape maintenance plan prepared by Urban Systems that will be submitted with their package to the Green Building Council.

The Deloitte report speaks about power and chemical consumption being higher than what the LEED Gold Certification allows. The Deloitte report states that WRC is using 13% more power per unit of wastewater treated than the design value in the MRI proposal. However, the RFP did not define specific energy requirements.

The DB agreement stated “actual consumption of electricity and chemical for the facility shall not exceed projected power and chemical consumption for the facility by more than 15% as detailed in the design-build proposal.”

The DB agreement clause reads as follows:

“16.3.3 The Design Builder agrees that for a two year period following Substantial Performance of the Work, actual consumption of electricity and chemicals for the Facility shall not exceed projected power and chemical consumption for the Facility by more than 15% as detailed in the Design-Builders Proposal and the supporting Contract Documents including the power and chemical consumption spread sheets, provided the Facilities are operated in accordance with guidelines indicated by the Design-Builder. If any claims are raised from any breach of this section GC 16.3, The Design Builder shall be entitled to undertake a comprehensive audit of the Facilities operations at its own expense and in a timely manner before the claims are settled.”

It should be noted that staff did not review the MRI proposal but focused on the Deloitte report and the MRI response and their supporting documents.

MRI states that it was agreed with MHPM, Tera Tech and the District of Sechelt's project team at project closeout that the interpretation of the DB agreement clause would be that the chemical and power consumption combined could not exceed 15%.

MRI's cost table was provided in their predesign report at the beginning of the project. MRI projected power and chemical consumption of \$217,976 for a flow rate of 2100m³/day. During their March 2017 visit plant flows had increased to 2200m³/day.

MRI states that total power and chemical consumption now is \$220,666 per year for a 2200m³/day flow. Their data shows that based on these increased flows power and chemical consumption is actually 3.4% below original projections.

Several years have passed since the design, construction and the two year maintenance period were completed. During that time chemical prices have risen as well as power costs. During my short time here I have observed that the WRC operators change operating parameters on a daily or weekly basis as they attempt to increase the efficiency of the plant. These slight modifications sometimes are beneficial but sometimes create issues. It is interesting to see that the incoming effluent can change and that could create the need for more chemicals.

With the operating dynamics being so fluid it's very difficult to determine if the chemical consumption is actually exceeding or meeting set limits.

CONCLUSION

After reviewing the Deloitte report and the report provided by Maple Reinders it is clear that Maple Reinders has fulfilled their contract commitments.

There are three remaining issues that the District must focus on:

- Obtaining final occupancy
- Securing some type of permanent chemical storage facility
- Obtaining LEED certification

WRC staff will continue trying to optimize plant efficiency in an attempt to reduce operating costs.

Staff will continue trying to work on the minor deficiencies and invoice Maple Reinders accordingly.

Working with Mr. John Hardt, Building Inspection, staff has come up with a very creative solution to the chemical storage issue. Staff are also working with our Occupational Health and Safety Advisors to ensure this concept meets all OH&S requirements before providing a budget for discussion.

Respectfully submitted;

Darwyn Kutney
Director of Engineering and Operations

REVIEWED

By Aaron Thompson (athompson@sechelt.ca) at 10:50 am, Jun 19, 2017

REVIEWED

By Andrew Yeates (ayeates@sechelt.ca) at 1:24 pm, Jun 15, 2017