

Report to Council



Date: February 25, 2019
File: 1845-05
To: City Manager
From: Rod MacLean, Utility Planning Manager
Subject: Landfill Design Operations and Closure Plan (DOCP)

Recommendation:

THAT Council receives for information, the report from the Utility Planning Manager dated February 25, 2019, regarding the Landfill Design Operations and Closure Plan;

AND THAT Council adopt the Landfill Design Operations and Closure Plan provided by GHD Consultants Ltd as summarized in, and attached to, the report from the Utility Planning Manager, dated February 25, 2019;

AND THAT Council direct staff to submit the Landfill Design Operations and Closure Plan to the Province as required to maintain the Glenmore Landfill Operational Certificate 12218.

Purpose:

The purpose of this report is to present Council with the new Landfill Design Operations and Closure Plan report, and request approval to submit this report to the Province to meet the conditions in Operational Certificate 12218.

Background:

The Glenmore Landfill is owned by the City of Kelowna and is authorized to landfill 170,000 tonnes of waste per year. The Glenmore Landfill is the only solid waste disposal facility serving the Regional District of Central Okanagan (RDCO) and the Big White area.

Landfills of this size are a significant asset, and form an integral part of the economy for both the City of Kelowna and the other municipalities in the RDCO. The Landfill operation manages excess material from a variety of activities and systems, including disposal from development activities, commercial operations, industrial practice, residential systems, natural wastes, emergency waste and helps coordinate recycling opportunities. Sustainably operated landfill practices reduce the threat of illegal dumping and ensure safe waste management.

The Landfill operates pursuant to the RDCO Solid Waste Management Plan and Operational Certificate 12218 issued by the Province of British Columbia. The Province requires, as part of this permit, to complete, submit, maintain and regularly update a Design, Operation and Closure Plan (DOCP).

The City engaged a consultant, GHD Ltd., to compile, coordinate and complete the plan. The DOCP Final Report was submitted on November 30, 2018, following a significant review by City staff, and is submitted to Council for final approval. Once approved by Council, the Plan will be submitted to the Province for approval.

What is a Design, Operations and Closure Plan?

The DOCP is a comprehensive look at the planned life of the Glenmore Landfill in compliance with the Ministry Operational Certificate. The Plan presents the current status, regulatory framework, infrastructure needs, environmental practices, monitoring needs, design concepts, and operational practices, as well as a long-term plan to progressively and ultimately close the landfill.

Rationale for Closure

The purpose of closing a landfill or landfill cell properly is to minimize the potential for contamination, leachate generation, fire, or environmental release of landfill gas. In the long term, the closed area will cease to produce leachate and landfill gas, becoming effectively inert, and the cell or landfill would no longer require any further monitoring or post-closure care. Ultimately, the area can be naturalized as it will no longer generate any contamination from snow, rain or other temporal events.

Instead of closing the entire facility at once when full, the DOCP strategy follows the Provincial guidance of “Progressive Closure” for the landfill. Once a Fill Area within the landfill footprint has achieved capacity, that Area shall be “closed” within 365 days. Such closure activities will include the construction of a final cover, extending surface water ditches and access roads, planting vegetation, erecting or relocating signage. The actual timing of the progressive closure activities will be based on the filling plan. The goal of Progressive Closure is to reduce any environmental liability of allowing contamination to continue unmitigated.

The Province requires the City to monitor and control all activities within and around a “closed” landfill for a contaminating lifespan, also known as the “Post-Closure” period. Post-Closure operation and maintenance (O&M), as well as an environmental monitoring program, is currently estimated at 80 years and shall be done in accordance with the Closure Plan.

Report Scope

In June 2016, the Province updated the *Landfill Criteria for Municipal Solid Waste* (Guidelines). In 2017, GHD Limited of Richmond BC was retained to perform a Gap Analysis, to assess what additional information was required to meet the updated Guidelines. City personnel presented an updated Fill Plan to Council in October of 2017 and the updated DOCP was then completed in late 2018.

The scope of the work and final report includes:

- A description of the facility and the physical setting of the Site.
- The latest 10-year conceptual design of the Landfill including the base liner system, leachate collection system, and final cover.

- A Surface Water Management Plan and Leachate Management Plan for the Site.
- Identification of the major capital components and costs required to implement the Landfill Development Plan and a more detailed 10-year capital plan.
- Demonstrating that the Landfill Criteria design objectives and minimal requirements for the Landfill and environmental control systems are met.
- Operational procedures for waste acceptance and landfilling.
- Environmental monitoring and Landfill monitoring plans.
- The closure and post-closure requirements for the Landfill.

Report Recommendations

Much of the DOCP produced is consistent with the historical 2008 Comprehensive Site Development Plan, with some updates in design to reflect the current requirements of the Guidelines. The following are some key recommendations from the planning effort and report:

1. Develop a long term Nuisance monitoring and mitigation program. – The landfill currently receives few complaints about common nuisances such as noise, odour, dust or litter. This is largely due to the efforts of Landfill operations as well as the location and setback from potentially impacted groups. In the early development stages of the DOCP, the nuisance criteria were brought into question, resulting in a study being conducted by GHD on behalf of the City. In 2018, a Council Report was presented on the topic, with recommendations for a more detailed Nuisance Study and analysis (Council Resolution R266/18/03/19) to be completed. Further to this, it is recommended that the Official Community Plan be updated to reflect the zoning limitations near the landfill and the future operational plan.
2. Surface Water Management – Historically, storm water management at the landfill has been handled internally. This includes the collection and storage of rain, runoff, snowmelt and groundwater during the winter and spring, and applying it as irrigation on the neighboring farms, or allowing it to evaporate during the dry summer months. The flooding events of 2017 and 2018 and the observed rise in valley groundwater levels over the last five years have identified concerns that additional measures are required to increase the resiliency of the landfill against the impacts of Climate Change on the storm water system. As such, the DOCP includes a conceptual storm system design to capture more surface water north of the site, and diverting this uncontaminated water past the landfill and beyond Robert Lake to the south. This plan will require integrating the Surface Water Management Plan into the Glenmore Master Drainage Plans and requires a Downstream Impact Assessment as part of the planning.
3. A revised 10-year Capital Plan for the Landfill – The existing 10-year Capital Plan will be updated to include the revised capital program in the DOCP. The new Fill Plan stages the sequence and timing of Capital Costs over the life of the landfill (Note that the DOCP does not include long term work required for the compost site, and that this will be coordinated at a later time). The infrastructure required includes liners, leachate systems, landfill gas systems, roads, civil works, pump stations and the storm water diversion system. As the DOCP is required to be updated every five years, better forecasting should be available in future 10-year Capital Plans.

4. **Financial Security** – A requirement of the Landfill Operational Certificate and the Guidelines is a landfill Post Closure Financial Security Plan. This Plan allows for ongoing Operations and Maintenance of the Landfill for a defined period of time (80 years) after the landfill is closed. This Financial Security Plan calculation uses the methodology provided by the Guidelines, and conservatively considers both planned and emergency closure of the Landfill and includes a 20% contingency allowance. This fund is currently calculated at \$81,080,000. Utility Services will work with the Financial Services Group to ensure that this fund is reflected in City accounting as per the requirements of Section PS 3270 of the Public Sector Accounting Board's (PSAB) financial reporting model for annual financial reporting purposes.

Next Steps

- Submit the final DOCP report to the Province.
- Staff will review and update operational, capital and financial plans to implement the recommendations in the DOCP Report.
- Complete the detailed design and construction process for projects.
- Apply for two minor Operational Certificate Amendments. The new plan identifies minor variations in annual volumes, and secondly may require a clarification in contaminated soil acceptance levels and definitions to better align operations with the BC Contaminated Sites Regulations. The City may present an update to the Province in the coming year.

Internal Circulation:

Development Engineering Manager
Infrastructure Engineering Manager
Utility Services Manager
Financial Planning Manager
Planning and Development Manager
Communications Manager
Solid Waste Supervisor
Divisional Director, Financial Services

Considerations not applicable to this report:

Legal/Statutory Authority:
Legal/Statutory Procedural Requirements:
Existing Policy:
Financial/Budgetary Considerations:
Personnel Implications:
External Agency/Public Comments:
Communications Comments:
Alternate Recommendation:

Submitted by:

Rod MacLean, P. Eng., Utilities Planning Manager

Approved for inclusion:



A. Newcombe, P. Eng., Divisional Director, Infrastructure

Attachment 1 - Landfill Design Operations and Closure Plan Presentation

Attachment 2 – Landfill Design Operations and Closure Plan

cc: Deputy City Manager
Divisional Director, Corporate Strategic Services
Divisional Director, Financial Services
Divisional Director, Infrastructure