Executive Summary

This report includes a summary and analysis of the site operational activities and environmental monitoring program for the Glen Tay Waste Disposal Site (WDS) during the period from January 1 to December 31, 2022.

Site Operations

Tay Valley Township currently operates three WDS. Two of the sites (Stanleyville WDS and Maberly WDS) operate as Waste Transfer Stations, where domestic waste is collected and compacted prior to being transported to the Glen Tay WDS for disposal. The Township collects waste disposal data in the form of bag counts for each of the three sites. The amount of waste brought to the Glen Tay WDS in 2022 was 90,470 bags from the residents of Bathurst Ward. This is an increase of approximately 6.40% in comparison to last year's bag count. In 2022, a total of 130,476 bags were disposed of at the Glen Tay WDS, including 15,352 bags from the Maberly WDS and 24,654 bags from the Stanleyville WDS.

In early 2021, in addition to bag counts, the Township also started tracking waste received from all three active sites in the form of waste bins (compacted and uncompacted). A comparison of available data in the same timeframe for both years indicates a 4.6% increase in uncompacted waste volume, and a 24.4% increase in compacted waste volume for 2022 when compared to 2021.

Topographic surveys of the Glen Tay WDS were completed on November 30, 2021, and again November 11, 2022, by McIntosh Perry Surveying Inc. The volume change at the Glen Tay WDS between surveys in the Phase 1 area was calculated to be approximately 4,389.02 m^3. This value represents the volume of both waste and any other imported materials at the active waste filling area.

The remaining Phase 1 site capacity, when including the total volume change, is approximately 165,109 m^3 (as of November 2022). A fill generation rate of 0.5750 m^3/cap/year was calculated for 2022. The site life of the Phase I portion of the property is estimated to exceed 35 years.

Recyclable waste quantities were combined for the three waste disposal sites (Glen Tay WDS, Maberly WDS, and Stanleyville WDS). The total mass of recyclable or diverted materials accumulated at the three Tay Valley Township WDS was approximately 450 metric tonnes. This represents a 4.33% increase from what was reported in 2021 when using a comparable analysis.

There were no reported site inspections reports available by the Ministry of the Environment, Conservation and Parks (MECP) at Glen Tay WDS during 2022. No reports of complaints from the public or agencies were recorded for 2022. An amended Environmental Compliance Approval (ECA) was received from the MECP in March of 2022, which replaced the 2008 Certificate of Approval under which the facility was operating. The amended ECA better reflect the facility's current Operation and Development practices, while also formalizing the environmental monitoring plan previously agreed upon with the MECP in a single approval document.

Environmental Monitoring

A review of the current surface water and groundwater monitoring networks and parameter lists was conducted by McIntosh Perry in late 2013. An action plan providing a rationale for changes to the network was approved by the MECP in February 2014 and formalized in the Amended Environmental Compliance Approval

(ECA) (No. A450601) dated March 15, 2022. The environmental monitoring plan established by McIntosh Perry follows the MECP-approved action plan, outlined in the ECA.

There is limited evidence to suggest WDS-related impacts to surface water. While down-gradient sampling locations have exceedances of Provincial Water Quality Objectives (PWQO) for various parameters, background data show similar concentrations of most parameters. Elevated concentrations of iron have been observed at SW6-99 in recent years, which are partly attributed to high turbidity in samples due to low flow.

There is limited evidence to suggest WDS-related impacts to overburden groundwater. Groundwater impacts in the overburden unit appear isolated and are present in both upgradient and downgradient locations.

There are some data that suggest WDS-related impacts to bedrock groundwater. Groundwater impacts in the bedrock unit include exceedances of Ontario Drinking Water Quality Standards (ODWS) and/or Reasonable Use Limits (RUL) for several leachate-indicator parameters at all down-gradient monitoring wells.

Sampling of three private off-site water supply wells was conducted. Short term trends and individual 2022 sampling results suggest rising sodium concentrations in two well locations (PW-2 and PW-3). However, no analytical evidence indicates WDS-related impacts to the private water supply wells.

It is recommended that the Township continues with the surface water and groundwater monitoring and sampling programs, as defined in the action plan that was approved by MECP in February 2014 and the Amended Environmental Compliance Approval (no. A450601) dated March 15, 2022.

Executive Summary

This report includes a summary and analysis of the site operational activities and environmental monitoring program for the Maberly Waste Disposal Site (WDS) during the period from January 1 to December 31, 2022.

Site Operations

Tay Valley Township currently operates three WDS; Glen Tay WDS, Stanleyville WDS and the Maberly WDS. The Maberly WDS currently operates only as a Waste Transfer Station, where domestic waste is collected and compacted prior to being transported to the Glen Tay WDS for disposal. The Township collects waste disposal data in the form of bag counts for each site. In 2022, a total of 15,362 bags were transferred from the Maberly WDS to the Glen Tay WDS, a decrease of approximately 9.09% from the previous year.

In early 2021, in addition to bag counts, the Township also started tracking waste generated at the Maberly WDS in the form of compacted waste bins, which is transferred to the Glen Tay WDS. A comparison of available data in the same timeframe for both years indicates a 65% increase in compacted waste volume at the Maberly WDS for 2022 when compared to 2021.

While the Maberly WDS has been capped, there is approximately 5,860 cubic metres of capacity remaining. If waste disposal operations were to resume at the Maberly WDS, the projected site life would be approximately five (5) years.

Recyclable waste quantities were combined for the three waste disposal sites (Glen Tay WDS, Maberly WDS, and Stanleyville WDS).

The total mass of recyclable or diverted materials accumulated at the three Tay Valley Township WDS was approximately 450 metric tonnes. This represents a 4.33% increase from what was reported in 2021 when using a comparable analysis.

There were no reported site inspections carried out by the Ministry of the Environment, Conservation and Parks (MECP) at Maberly WDS during 2022. No reports of complaints from the public or agencies were recorded for 2022.

Environmental Monitoring

A review of the current surface water and groundwater monitoring networks and parameter lists was conducted by McIntosh Perry in late 2013. An action plan providing a rationale for changes to the network was approved by the MECP in February 2014. The environmental monitoring plan established by McIntosh Perry follows the MECP-approved action plan.

There are limited data to indicate surface water impacts associated with the WDS. Most parameters that exceed Provincial Water Quality Objectives (PWQO) at downgradient surface water sampling locations also exceed criteria at up-gradient locations.

Possible WDS-related impacts to the overburden groundwater appear to be correlated with proximity to the WDS. Several down-gradient monitoring wells exhibited exceedances of Ontario Drinking Water Standards (ODWS) and the Reasonable Use Limits (RUL) for leachate-indicator parameters.

Executive Summary

The addition of two new bedrock monitoring wells (BR1-19 and BR2-19), installed on September 26, 2019, allow for new suitable monitoring wells to collect background data on groundwater in the bedrock unit. Analytical results from BR1-19 indicate ODWS and RUL exceedances for multiple parameters during the fall and spring sampling events (including duplicates). Analytical Results from BR2-19 (up-gradient) did not indicate any ODWS or RUL exceedances.

There are no nearby off-site water supply wells down-gradient from the Site.

The following recommendations are made:

- Continue with the surface water and groundwater monitoring and sampling programs, as defined in the action plan that was approved by MECP in February 2014.
- Assess the appropriate background well(s) and derivation of trigger levels for RUL assessments.
- Regularly monitor the Site for evidence of seeps
- Continue to monitor bedrock unit to assess concentration trends and exceedances

Executive Summary

This report includes a summary and analysis of the site operational activities and environmental monitoring program for at the Stanleyville Waste Disposal Site (WDS) during the period from January 1 to December 31, 2022.

Site Operations

Tay Valley Township currently operates three WDS, Glen Tay WDS, Maberly WDS and Stanleyville WDS. The Stanleyville WDS currently operates only as a Waste Transfer Station, where domestic waste is collected and compacted prior to being transported to the Glen Tay WDS for disposal.

The Township collects waste disposal data in the form of bag counts for each of the three Sites. In 2022, 24,654 bags were transferred from the Stanleyville WDS to the Glen Tay WDS, a decrease of approximately 21% from the previous year.

In early 2021, in addition to bag counts, the Township also started tracking waste generated at the Stanleyville WDS in the form of compacted waste bins, which is transferred to the Glen Tay WDS. A comparison of available data in the same timeframe for both years indicates a 29% increase in compacted waste volume at the Stanleyville WDS for 2022 when compared to 2021.

While the Stanleyville WDS has been capped, there is approximately 153,800 cubic metres of capacity remaining. If waste disposal operations were to resume at the Stanleyville WDS, the projected Site life would be in excess of 20 years, premised on the resumption of fill at a rate similar to what was being imported in 2007 prior to capping.

Recyclable waste quantities were combined for the three waste disposal sites (Glen Tay WDS, Maberly WDS, and Stanleyville WDS).

The total mass of recyclable or diverted materials accumulated at the three Tay Valley Township WDS was approximately 450 metric tonnes. This represents a 4.33% increase from what was reported in 2021 when using a comparable analysis.

There were no reported site inspections carried out by the Ministry of the Environment, Conservation and Parks (MECP) at Stanleyville WDS during 2022. No reports of complaints from the public or agencies were recorded for 2022.

Environmental Monitoring

A review of the current surface water and groundwater monitoring networks and parameter lists was conducted by McIntosh Perry in late 2013. An action plan providing a rationale for changes to the network was approved by the MECP in February 2014. The environmental monitoring for 2022 was conducted according to the Action Plan approved by the MECP.

Possible WDS-related impacts are observed in surface water data; downgradient surface water sampling locations had exceedances of PWQO for alkalinity, phosphorous, iron and phenols, which were not observed at the background location (SW-4). Surface water sampling location SW-3 and SW-2 exceeded PWQO for

parameters including total phosphorus, iron (leachate-indicator parameters), as well as phenols, unionized ammonia and alkalinity.

There are data to indicate WDS-related impacts on the overburden groundwater unit. Analytical results for downgradient wells indicate RUL and/or ODWS exceedances for alkalinity, dissolved organic carbon, total dissolved solids, sulphate, chloride, and/or iron. Additionally, RUL and ODWS exceedances are seen in downgradient wells (OB-A, OB-1 and OB-2) of parameters including alkalinity, total dissolved solids and iron.

There are data to suggest WDS-related impacts to the bedrock groundwater unit. The background bedrock monitoring well (BR-3) indicate RUL and ODWS exceedances of sulphate, iron and total dissolved solids.

There is one nearby off-site water supply well (PW1) downgradient from the Site. There are data to suggest potential drinking water impacts associated with the WDS as RUL exceedances of nitrate are evident as discovered during the 2018 spring sampling event. However, no exceedances of RUL or ODWS were detected at PW1 in the 2022 spring and fall sampling events.

It is recommended that the Township continues with the surface water and groundwater monitoring and sampling programs, as defined in an action plan that was approved by the MECP in February 2014.

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