



**Mackenzie Valley Land and Water Board**  
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**Staff Report**

<b>Applicant:</b> Town of Hay River	
<b>Location:</b> Hay River, NT	<b>Application:</b> MV2009L3-0005
<b>Date Prepared:</b> October 2, 2017	<b>Meeting Date:</b> October 12, 2017
<b>Subject:</b> 2016 Annual Water Licence Report	

**1. Purpose/Report Summary**

The purpose of this Report is to present to the Mackenzie Valley Land and Water Board (MVLWB/the Board) the 2016 Annual Water Licence Report (2016 Annual Report) submitted by the Town of Hay River (Town), as required by Part B, item 3 and Schedule 1, item 1 of municipal Water Licence (Licence) MV2009L3-0005.

**2. Background**

- May 31, 2010 – Issuance of Licence MV2009L3-0005;
- July 13, 2017 – 2016 Annual Report received;
- July 27, 2017 – Review commenced;
- August 17, 2017 – Reviewer comments and recommendations due and received;
- September 6, 2017 – Extension granted to Town to respond to comments;
- September 21, 2017 – Town’s responses received;
- **October 12, 2017 – 2016 Annual Report presented as an update to the Board, and**
- May 30, 2020 – Expiration of Licence MV2009L3-0005.

**3. Discussion**

The Town of Hay River submitted the 2016 Annual Water Licence Report (attached), to fulfill Part B, item 3 and Schedule 1, item 1 and the Surveillance Network Program (SNP) annexed to Licence MV2009L3-0005. This submission is not for Board approval; however, it is being presented as an update to the Board.

**4. Comments**

The Town of Hay River has submitted many outstanding Licence requirements over the past year, including a Water Monitoring Plan in February 2017 (attached). While not required by the Licence, this Water Monitoring Plan outlines the details of groundwater and surface water monitoring and sampling for all SNP stations associated with Licence MV2009L3-0005. It is intended to meet the requirements for groundwater and surface water monitoring under the Licence. On May 25, 2017,

the Board accepted the Water Monitoring Plan as an interim submission, and requested that the Town submit a revised version (Version 1.1) by December 31, 2017 (attached). Revisions requested included a number of details around groundwater monitoring which are relevant to this review.

## 5. Reviewer Comments

By August 17, 2017, comments and recommendations on the 2016 Annual Report were received from Environment and Climate Change Canada (ECCC) and the Government of the Northwest Territories Department of Environment and Natural Resources (GNWT-ENR).

The Town requested an extension to the initial September 6, 2017 response deadline, which was granted by Board staff; responses were provided on September 21, 2017. The Review Summary and Attachments (attached) present the concerns identified through the review of the 2016 Annual Report.

Reviewer comments focused on several aspects of the Town's municipal operations that have been discussed at length over the past year and in some cases, in previous annual reports, including the following:

### Groundwater Monitoring at the Solid Waste Disposal Facilities and Biotreatment Pad

#### *Groundwater Quality Analyses*

Reviewers (Comment ID ECCC 1 and 2 and GNWT-ENR 10) recommended the Town provide a discussion on the overall groundwater quality in the vicinity of the Solid Waste Facilities and the Biotreatment Pad, including comparison to background groundwater concentrations and mitigation measures to prevent further groundwater contamination. As per Schedule 1, item 1(o) of Licence MV2009L3-0005 the Town is required to include 'groundwater monitoring analyses' from the Solid Waste Disposal Facilities in the Annual Report; these review comments are in keeping with Schedule 1, item 1(o).

The lack of addressing groundwater monitoring results was previously identified during the review of the Town's 2015 Annual Report, which ultimately resulted in the Town submitting a Water Monitoring Plan in February 2017. As per the Water Monitoring Plan, if one or more of the monitored parameters exceed applicable guidelines, the Town is to implement corrective actions. In addition to comparing 2016 and 2017 groundwater monitoring results, the Town should compare results to background metals levels, if they are available; if they are not available, the Town should provide criteria for comparison, with rationale.

The Town responded to ECCC's comments that they will report and compare results in time for the 2017 Annual Report. GNWT-ENR identified that the Town is required to revise its Water Monitoring Plan as per the Board's May 25, 2017 letter, to include testing parameters and water quality criteria; action levels for groundwater quality which would trigger a response plan; and a response plan which outlines mitigative measures should groundwater quality action levels be exceeded, as soon as possible. Board staff note that this revised Water Management Plan (Version 1.1) is due December 31, 2017, as required in the Board's May 25, 2017 letter.

### *Further Groundwater Monitoring*

There was a further suggestion from the review that:

- the Town consider additional monitoring wells to delineate the extent of groundwater contamination (Comment ID ECCC 3). Board staff believe that the addition of wells is a lower priority than collecting, analyzing and coming up with a plan to deal with metal exceedances.
- the Town commence a groundwater quality trends analysis now with available data and add any results collected from 2017 (Comment ID GNWT-ENR 11).

Again, Board staff believe that analyzing the existing groundwater monitoring data and submitting results and analyses in the revised 2016 Annual Report is the highest priority at this time; should the need arise for either additional wells and/or conducting a trend analysis after existing results have been analyzed, Board staff suggest this can be discussed at a later date.

### Tracking of Waste Volumes at the Solid Waste Disposal Facilities and Biotreatment Pad

GNWT-ENR recommended that the Town use a more accurate system for tracking waste quantities entering the landfill, including contaminated soil (Comment IDs 1, 2, and 6). They suggested keeping up-to-date logs and records on site, and including tabular summaries of volumes in annual reporting. The Town responded that they will work to track waste more efficiently, will consider installing a scale, and consider implementing a waste tracking log for use by the site's contractor.

Transport manifests for hazardous wastes that are exported out of territory for final disposal were recommended to be made available on site for review by Inspectors (Comment ID GNWT-ENR 3). The Town responded that blank waste manifests will be made available. Board staff are of the opinion the Town should ensure staff and contractors are made aware of and trained in manifest tracking requirements.

### General Revisions to the 2016 Annual Report

A number of reviewer comments proposed additional general revisions to the 2016 Annual Report, including:

- Providing correct volumes and associated analytical results for treated soil removed from the Biotreatment Pad in 2016 (Comment ID GNWT-ENR 4 and 5);
- Identifying the acceptance criteria for hydrocarbon contaminated soil received at the Biotreatment Pad for ease of reference (Comment ID GNWT-ENR 7); and
- Including all 2016 correspondence between the GNWT-Inspector and the Town (Comment ID GNWT-ENR 8).

The Town also committed that surface water samples collected in 2017 from the Hay River, which is the nearest waterbody to these facilities, would be included in the 2017 Annual Report (ECCC Comment ID 3).

## **6. Security**

Not applicable.

## **7. Conclusion**

Board staff conclude that further information was provided by the Town in their responses to reviewer comments; however, some reviewers requested additional information be provided. As such, Board staff are of the opinion that the 2016 Annual Report should be revised and resubmitted to include the

information requested during this review, and to reflect the full requirements of Licence MV2009L3-0005; specifically, information regarding groundwater monitoring, tracking of wastes, and related correspondence.

## **8. Recommendation**

Board staff recommend the Board direct the Town to revise their 2016 Annual Report, in accordance with reviewer comments and recommendations, for resubmission by December 31, 2017, and subsequent public review. Version 2 should include the following:

1. Analytical results from groundwater monitoring at the Solid Waste Disposal Facilities should be in accordance with Schedule 1, item 1(o) of Licence MV2009L3-0005, and should also include but not be limited to:
  - a. A discussion on the overall groundwater quality in the vicinity of the Solid Waste Disposal Facilities and the Biotreatment Pad;
  - b. As per the interim-approved Water Monitoring Plan (Plan), the Town should compare groundwater results to the guidelines specified in the Plan. Alternatively, the Town could compare groundwater results to background groundwater data, if available; and
  - c. Mitigation measures planned or used if a Response Plan or Remedial Action Plan was to be activated to prevent further groundwater contamination (as per the Board's May 25, 2017 letter regarding revisions to the Water Monitoring Plan).
2. Correct volumes and associated analytical results for treated soil removed from the Biotreatment Pad in 2016;
3. Acceptance criteria for hydrocarbon contaminated soil received at the Biotreatment Pad; and
4. All 2016 correspondence between the GNWT-Inspector and the Town.

Board staff recommend the Board remind the Town of the following:

- The Board is anticipating the submission of a revised Water Monitoring Plan (Version 1.1) by December 31, 2017, which shall be in accordance with the Board's May 25, 2017 letter;
- As per the Town's Water Monitoring Plan, the Town is required to implement corrective actions if one or more of the monitored parameters exceeds the applicable guidelines; and
- Schedule 1, item 1(b) of the Licence requires monthly and annual quantities of each and all Waste discharged through the Solid Waste Disposal Facilities to be reported on in annual reports. The Board encourages the Town to develop and implement an accurate system to track and report in accordance with Licence requirements, and to ensure staff and contractors at the Solid Waste Disposal Facilities are made aware of and trained in manifest tracking requirements.

Board staff recommend including the following text in the decision letter:

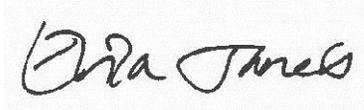
- The Board notes and appreciates the Town's efforts to remain in compliance with their Licence.
- The Town shall adhere to the commitments made in their responses to reviewer comments dated September 21, 2017. The Board looks forward to reviewing the Town's 2017 surface water sampling results from the Hay River, which will be included in the 2017 Annual Report.
- Board staff are available to discuss requirements and next steps related to groundwater monitoring results with the Town.

A draft letter is attached for the Board's consideration.

**9. Attachments**

- [2016 Annual Water Licence Report](#)
- [Water Monitoring Plan, Version 1.0](#)
- [May 25, 2017 Board letter requesting revisions to Water Monitoring Plan Version 1.0](#)
- Review Summary and Attachments
- Draft Letter from the Board

Respectfully submitted,

Handwritten signature of Erica Janes in black ink on a light grey background.

Erica Janes  
Regulatory Specialist

Handwritten signature of Heather Scott in black ink.

Heather Scott  
Technical Advisor

### Review Comment Table

<b>Board:</b>	MVLWB
<b>Review Item:</b>	Town of Hay River - 2016 Annual Water Licence Report (MV2009L3-0005)
<b>File(s):</b>	<a href="#">MV2009L3-0005</a>
<b>Proponent:</b>	Town of Hay River
<b>Document(s):</b>	<a href="#">MV2009L3-0005 - Town of HR - 2016 Annual Report - Jul13-17</a> (15.1MB)
<b>Item For Review Distributed On:</b>	July 27 at 11:12 <a href="#">Distribution List</a>
<b>Reviewer Comments Due By:</b>	Aug 17, 2017
<b>Proponent Responses Due By:</b>	Sep 21, 2017
<b>Item Description:</b>	<p><b>September 6, 2017 Update: the Town has requested an extension to respond to reviewer comments. The new response deadline is September 21, 2017.</b></p> <p>--</p> <p>The Town of Hay River has submitted their 2016 Annual Water Licence Report, in accordance with Part B, item 3 and Schedule 1, item 1 of their municipal Water Licence mV2009L3-0005. Although formal approval of Annual Progress Reports is not required under the Licence, the Board must be satisfied that the Town has reported in accordance with the requirements of their Licence.</p> <p>Reviewers are invited to submit questions, comments and recommendations on the 2016 Annual Water Licence Report by <b>August 17, 2017</b>.</p> <p>If you have questions or comments regarding this review or the Online Review System, please contact Erica Janes at (867)766-7466 or <a href="mailto:ejanes@mvlwb.com">ejanes@mvlwb.com</a>.</p>
<b>General Reviewer Information:</b>	<p>In addition to the email distribution list, the following organizations received review materials by fax:</p> <ul style="list-style-type: none"> <li>• Fort Liard Metis Local #67 - Ernie McLeod, President: (867)770-4573;</li> <li>• Fort Simpson Métis Local #52 - Marie Lafferty, President: (867)695-2040;</li> <li>• Hay River Metis Council - Trevor Beck, President: (867)874-4472;</li> <li>• Northwest Territory Métis Nation - Tim Heron, NWTMN IMA Coordinator: (867)872-3586.</li> </ul>
<b>Contact Information:</b>	<p>Erica Janes 867-766-7466  Heather Scott 867-766-7463  Jen Potten 867-766-7468</p>

## Comment Summary

Environment and Climate Change Canada: Gabriel Bernard-Lacaille				
ID	Topic	Reviewer Comment/Recommendation	Proponent Response	Board Staff Analysis
4	General File	<b>Comment</b> ( <a href="#">doc</a> ) ECCC Comments Cover Letter <b>Recommendation</b>	--	Noted.
1	ECCC 1 - Appendix B; Town of Hay River Solid Waste Facility; Section 5.0 - Analytical Results	<b>Comment</b> Groundwater analysis from monitoring wells around the solid waste facility indicate exceedances of the Canadian Council of the Ministers of Environment (CCME) interim groundwater guidelines for several totals metals including: aluminum, arsenic, barium, boron, cadmium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, titanium, uranium, and zinc. In addition, groundwater guidelines were exceeded for phenols. While these results are presented, there is no discussion as to the source of these high metal concentrations or mitigation measures to prevent further groundwater contamination. <b>Recommendation</b> Environment and Climate Change Canada (ECCC) recommends that the Town of Hay River (the Proponent) provide discussion on overall groundwater quality in the vicinity of the solid waste facility, including comparison to background groundwater concentrations and mitigation measures to prevent further groundwater contamination.	<b>Sep 21:</b> The TOHR has undertaken monthly sampling of GW wells during summer months in 2017 and will report and compare to previous results in time for the 2017 Annual Report.	Board staff note that this issue was identified in the review of the Town's 2015 Annual Report, which ultimately resulted in the Town producing their Water Monitoring Plan. As per that Plan, the Town should implement corrective actions if one or more of the monitored parameters exceed applicable guidelines. In addition to comparing 2016 and 2017 groundwater monitoring results, the Town should compare to background metals levels, if they are available; if they are not available, the Town should provide criteria for comparison, with rationale.

2	ECCC 2 - Appendix B; Town of Hay River biotreatment pad; Section 5.0 - Analytical Results	<p><b>Comment</b> Groundwater analysis from monitoring wells around the biotreatment pad indicate exceedances of CCME interim groundwater guidelines for aluminum, arsenic, beryllium, boron, cadmium, copper, iron, manganese, mercury, uranium, and zinc. No discussion is provided on these exceedances. These exceedances are noted to be consistent in the groundwater wells around the biotreatment pad.</p> <p><b>Recommendation</b> ECCC recommends that the Proponent provide discussion on overall groundwater quality in the vicinity of the biotreatment pad, including comparison to background groundwater concentrations and mitigation measures to prevent further groundwater contamination.</p>	<p><b>Sep 21:</b> Overall GW quality will be discussed in the 2017 Annual Report.</p>	<p>See Comment ID 1 above.</p> <p>The 2016 Annual Report should be revised to include a discussion on overall groundwater quality in the vicinity of the biotreatment pad, including comparison to background groundwater concentrations and mitigation measures to prevent further groundwater contamination.</p>
3	ECCC 3 - Delineation of Groundwater Contamination	<p><b>Comment</b> Due to the of elevated parameters in the groundwater near the solid waste facility and biotreatment plant, the extent of the groundwater contamination should be further delineated to ensure nearby water bodies are not at risk of contamination.</p> <p><b>Recommendation</b> ECCC recommends that the Proponent consider additional monitoring wells</p>	<p><b>Sep 21:</b> TOHR will consider additional monitoring locations. Surface water samples were collected from the Hay River (nearest waterbody) in 2017 and will be reported in the 2017 Annual Report.</p>	<p>See Comment ID 1 and 2 above.</p>

		to delineate the extent of the groundwater contamination and the potential implications for surrounding water bodies.		
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**GNWT - ENR: Central Email GNWT**

<b>ID</b>	<b>Topic</b>	<b>Reviewer Comment/Recommendation</b>	<b>Proponent Response</b>	<b>Board Staff Analysis</b>
12	General File	<b>Comment</b> ( <a href="#">doc</a> ) ENR Letter with Comments and Recommendations <b>Recommendation</b>	--	Noted.
1	Topic 1: Tracking Quantities of Solid Waste/Hazardous Waste at the Landfill	<b>Comment</b> In Part b) Item i) (Solid Waste) Table 2 of the report, the monthly and annual quantities of solid waste received at the landfill is estimated at 1,677 m <sup>3</sup> monthly and 20,131 m <sup>3</sup> annually. ENR would like to see more accurate tracking and measurement of volumes/quantities entering the landfill. The Town should consider using a weigh scale or other means to more accurately track these quantities. More accurate tracking of this waste would aid in determining a more realistic account of the remaining capacity at the landfill. With the incoming demolition waste from the arena and other projects last year it is erroneous to assume that waste volumes were the same each month. In addition, ENR would like to know how the 114% increase in waste volume from 2015 was determined.	<b>Sep 21:</b> TOHR acknowledges and will work to track waste more efficiently. Will look at installing scale.	As per Schedule 1, item 1(b), the Town should track and report on the monthly and annual quantities of each and all waste discharged through the waste disposal facilities; this should be done in the most accurate way possible.

		<p>In Part b) Item iv) (Other Waste Sources) Table 5 the hazardous waste quantities are estimated. Why are the figures reported Table 5 an estimate? The Town and KBL Ltd. should be tracking and recording accurate volumes of hazardous wastes shipped out for disposal, and including these figures in Annual Reports. This information should be included on hazardous waste manifests. Copies of these manifests and an updated list of hazardous waste shipped out annually should be kept at the site for review by Inspectors. In addition, how were the 36% decrease in paint cans and 50% decrease in batteries determined? Overall, as has been recommended in past reviews of Annual Reports, improved tracking of waste received at site by landfill contractors would yield more accurate volume figures than an estimate. Better tracking would aid in determining the remaining storage volume at the facility as well, also a requirement under Schedule 1 - Item 1.(d) of the Licence.</p> <p><b>Recommendation 1)</b> ENR recommends that the Town use a more accurate tracking and measurement system for waste quantities entering the landfill, especially for construction/ demolition and oversized waste (including end of life vehicles, appliances and tire waste).</p>		
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2	None	<p><b>Comment</b> None</p> <p><b>Recommendation 2)</b> ENR recommends improved tracking of waste streams received at the landfill to more accurately determine solid waste volumes. Up-to-date logs and records should be kept on site for review by Inspectors, and a tabular summary of these volumes by type should be included in future annual reporting.</p>	<p><b>Sep 21:</b> TOHR to look at implementing a waste tracking log for use by site contractor.</p>	<p>Board staff note that Schedule 1, item 1(b) of Licence MV2009L3-0005 requires the Town to report monthly and annual waste volumes. The Town should develop and implement a comprehensive system to track waste types and volumes, and to ensure annual reporting requirements are met moving forward.</p>
3	None	<p><b>Comment</b> None</p> <p><b>Recommendation 3)</b> ENR recommends that transport manifests for hazardous wastes exported for final disposal out of territory be made available on site for review by Inspectors.</p>	<p><b>Sep 21:</b> Blank Waste manifests will be left at gatehouse to ensure availability for when loads are transported off site. Generator copies to be left in gatehouse.</p>	<p>The Town should ensure staff and contractors are made aware of and trained in manifest tracking requirements.</p>
4	Topic 2: Accurate Tracking and Volume Reporting for Wastes at Biotreatment Pad.	<p><b>Comment</b> In part f) (Volume of treated soil removed from Biotreatment Pad and analytical results for soil chemistry and particle size analysis) it noted that approximately 800m3 of treated soil was removed from the Biotreatment Pad. This is not an accurate figure. The Inspector is aware of two treated soil piles (SPA 4 &amp; SPA 6)-of approximately 800 m3 each in size-that were removed from the Pad in 2016 (see September 2016 inspection report for details). This figure should be updated to ~1600 m3 in the report and tracking logs to more accurately reflect the</p>	<p><b>Sep 21:</b> The correct volume will be added to the 2016 Report.</p>	<p>Adequate response.</p> <p>The Town should revise the Report to include the correct volume of treated soil removed from the biotreatment pad in 2016.</p>

		<p>volume of soil removed from the facility. In addition, analytical results for the soil removed from the Biotreatment Pad were not included in the report.</p> <p><b>Recommendation 1)</b> ENR recommends that the 2016 Annual Report and other tracking logs be updated to more accurately reflect the actual volumes (~1600 m3) removed from the Biotreatment Pad to the landfill working face last year.</p>		
5	None	<p><b>Comment</b> None</p> <p><b>Recommendation 2)</b> ENR recommends that 2016 Annual Report be updated to include analytical results for the treated soil removed from the Biotreatment Pad in 2016.</p>	<p><b>Sep 21:</b> Analytical will be included on 2016 Annual Report.</p>	<p>Adequate response. The Town should revise the Report to include analytical results for the treated soil removed from the biotreatment pad in 2016.</p>
6	None	<p><b>Comment</b> None</p> <p><b>Recommendation 3)</b> ENR recommends better tracking of contaminated soil received at and removed from the Biotreatment Pad to more accurately determine volumes and remaining storage. Up-to-date logs and records-including transport manifests-should be kept on site, and a tabular summary of these volumes (incoming/outgoing) should be included in future annual reporting.</p>	<p><b>Sep 21:</b> Acknowledged.</p>	<p>The Town should ensure that up-to-date logs and records (including transport manifests) are kept on site, and should include a tabular summary of incoming and outgoing volumes in future annual reporting, as per Schedule 1, items 1b and 1c of MV2009L3-0005.</p>

7	None	<p><b>Comment</b> None</p> <p><b>Recommendation</b> 4) ENR recommends that acceptance criteria for HC contaminated soil received at the Biotreatment Pad be included in future annual reporting for ease of reference.</p>	<p><b>Sep 21:</b> Acknowledged.</p>	<p>The Town should include the acceptance criteria for hydrocarbon contaminated soil received at the biotreatment pad, in future annual reporting.</p>
8	<p>Topic 3: 2016 Correspondence between Town and Inspector not included in Annual Report.</p>	<p><b>Comment</b> Schedule 1 - Item 1.(s) of the licence requires the inclusion of all correspondence between the Inspector and the Licencee. Letters from the Inspector to the Town that highlight important non-compliance issues and outlines directions to correct non-compliance activities were not included in the 2016 annual report.</p> <p><b>Recommendation</b> 1) ENR recommends that 2016 Annual Report be updated to include all 2016 correspondence between the Inspector and the Town as required by the above noted section of the Water Licence.</p>	<p><b>Sep 21:</b> Acknowledged. Report to be updated.</p>	<p>Adequate response.</p> <p>The Town should revise the Report to include all 2016 correspondence between the Inspector and the Town, as per Schedule 1, item 1.s of MV2009L3-0005.</p>
9	<p>Topic 4: Groundwater Quality</p>	<p><b>Comment</b> Similarly to previous years, the 2016 Annual Report notes a number of groundwater samples that exceeded groundwater guidelines for metal concentrations at all four (4) SNP 0053-7 monitoring wells (MW010-A through D). Exceedances were reported for both the spring and fall sampling events. Of particular concern are the high concentrations</p>	<p><b>Sep 21:</b> Acknowledged. The Water Monitoring Plan will be reviewed and updated.</p>	<p>Adequate response.</p> <p>The Town should revise the Water Monitoring Plan to include testing parameters and water quality criteria; action levels for groundwater quality at which a response plan comes into effect; and a response plan which</p>

		<p>of heavy metals for both sampling events and phenols in the fall sampling event. ENR has commented previously on the 2014 Groundwater Monitoring Report and 2015 Water Quality Report, expressing concerns with the groundwater exceedances compared to Environment Canada's (2012) Guidance document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites, and, ESRD (2014) Alberta Groundwater Guidelines. Based on the review of the recent Groundwater Monitoring Plan (submitted as part of the Landfill Operations and Maintenance Plan, Version 1.3 and Water Monitoring Plan Version 1.0), the Board has since directed the Town to provide additional details in the Annual Water Licence Report on any mitigation measures planned or used and if a Response Plan or Remedial Action Plan was to be activated (Table 5 of May 25, 2017 MVLWB Staff Report). The 2016 Report does not provide any details on mitigation measures or any discussion on a response plan resulting from the groundwater exceedances. The Town is proposing to continue monitoring samples in 2017 to develop a trend analysis of all historical sampling data to examine the presence of historical metals. ENR notes that the</p>		<p>outlines the mitigative measures should groundwater quality action levels be exceeded, as per the Board's May 25, 2017 letter. The revised Water Monitoring Plan (Version 1.1) should be submitted by December 31, 2017.</p>
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		<p>Town has been collecting groundwater samples for this location since 2010, for which there have been continued high groundwater concentrations, such as metals. The Town has sufficient baseline data to complete a trends analysis. The Town should prepare a trend analysis with its existing data and add any data collected in 2017 to add to this assessment. All data used up to the end of 2017 should be used to develop an Action Response Plan for contaminated groundwater. ENR reminds the Town, as directed by the Board in its May 25, 2017 letter, to update the Water Monitoring Plan (WMP) to include testing parameters and water quality criteria; action levels for groundwater quality at which a Response Plan comes into effect; and a Response Plan which outlines the mitigative measures should groundwater quality action levels be exceeded. This Response Plan may include the baseline assessment that is currently being developed by the Town, but ENR requests that the Town update the response plan as soon as possible.</p> <p><b>Recommendation 1)</b> ENR recommends that the Town should, as directed by the Board in its May 25, 2017 letter, update the Water Monitoring Plan to include testing parameters and</p>		
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		water quality criteria; action levels for groundwater quality at which a response plan comes into effect; and a response plan which outlines the mitigative measures should groundwater quality action levels be exceeded, as soon as possible.		
10	None	<b>Comment</b> None <b>Recommendation 2)</b> Future Annual Reports should include more details and/or discussion on mitigation measures and Response Plan options resulting from the water quality exceedances. If no measures or Response Plans are developed, the Annual Report should clearly state this with rationale for its omission.	<b>Sep 21:</b> Acknowledged.	See Comment ID ECCC 1 above.  Board staff note that Schedule 1, item 1(o) requires groundwater monitoring analyses from the Solid Waste Disposal Facilities. Also the Board's May 25, 2017 letter required the Town to revise the Water Monitoring Plan to include specific requirements for including exceedances and mitigation measures in annual reporting.
11	None	<b>Comment</b> None <b>Recommendation 3)</b> ENR recommends the Town commence the groundwater quality trends analysis now with available data and add any results collected from 2017.	<b>Sep 21:</b> Acknowledged.	The Town should conduct groundwater monitoring analyses as required by the Licence (Schedule 1, item 1(o)) and the Town's Water Monitoring Plan, and submit results and analyses in the revised 2016 Annual Report.



August 17, 2017

Erica Janes  
Regulatory Officer  
Mackenzie Valley Land and Water Board  
7<sup>th</sup> Floor – 4910 50<sup>th</sup> Avenue  
P.O. Box 2130  
Yellowknife, NT  
X1A 2P6

Dear Ms. Janes,

**Re: Town of Hay River  
Water Licence – MV2009L3-0005  
2016 Water Licence Annual Report  
Request for Review and Comments**

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories (GNWT) has reviewed the report at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comments and recommendations for the consideration of the Board.

**Topic 1: Tracking Quantities of Solid Waste/Hazardous Waste at the Landfill**

**Comment(s):**

In Part b) Item i) (Solid Waste) Table 2 of the report, the monthly and annual quantities of solid waste received at the landfill is estimated at 1,677 m<sup>3</sup> monthly and 20,131 m<sup>3</sup> annually. ENR would like to see more accurate tracking and measurement of volumes/quantities entering the landfill. The Town should consider using a weigh scale or other means to more accurately track these quantities. More accurate tracking of this waste would aid in determining a more realistic account of the remaining capacity at the landfill. With the incoming demolition waste from the arena and other projects last year it is erroneous to assume that waste volumes were the same each month. In addition, ENR would like to know how the 114% increase in waste volume from 2015 was determined.

In Part b) Item iv) (Other Waste Sources) Table 5 the hazardous waste quantities are estimated. Why are the figures reported Table 5 an estimate? The Town and KBL Ltd. should be tracking and recording accurate volumes of hazardous wastes shipped out for disposal, and including these figures in Annual Reports. This information should be included on hazardous waste manifests. Copies of these manifests and an updated list of hazardous waste shipped out annually should be kept at the site for review by Inspectors. In addition, how were the 36% decrease in paint cans and 50% decrease in batteries determined?

Overall, as has been recommended in past reviews of Annual Reports, improved tracking of waste received at site by landfill contractors would yield more accurate volume figures than an estimate. Better tracking would aid in determining the remaining storage volume at the facility as well, also a requirement under Schedule 1 – Item 1.(d) of the Licence.

**Recommendation(s):**

- 1) ENR recommends that the Town use a more accurate tracking and measurement system for waste quantities entering the landfill, especially for construction/demolition and oversized waste (including end of life vehicles, appliances and tire waste).
- 2) ENR recommends improved tracking of waste streams received at the landfill to more accurately determine solid waste volumes. Up-to-date logs and records should be kept on site for review by Inspectors, and a tabular summary of these volumes by type should be included in future annual reporting.
- 3) ENR recommends that transport manifests for hazardous wastes exported for final disposal out of territory be made available on site for review by Inspectors.

**Topic 2: Accurate Tracking and Volume Reporting for Wastes at Biotreatment Pad.**

**Comment(s):**

In part f) (Volume of treated soil removed from Biotreatment Pad and analytical results for soil chemistry and particle size analysis) it noted that approximately 800m<sup>3</sup> of treated soil was removed from the Biotreatment Pad. This is not an accurate figure. The Inspector is aware of two treated soil piles (SPA 4 & SPA 6)-of approximately 800 m<sup>3</sup> each in size-that were removed from the Pad in 2016 (see September 2016 inspection report for details). This figure should be updated to ~1600 m<sup>3</sup> in the report and tracking logs to more accurately reflect the volume of soil removed from the facility.

In addition, analytical results for the soil removed from the Biotreatment Pad were not included in the report.

**Recommendation(s):**

- 1) ENR recommends that the 2016 Annual Report and other tracking logs be updated to more accurately reflect the actual volumes (~1600 m<sup>3</sup>) removed from the Biotreatment Pad to the landfill working face last year.
- 2) ENR recommends that 2016 Annual Report be updated to include analytical results for the treated soil removed from the Biotreatment Pad in 2016.
- 3) ENR recommends better tracking of contaminated soil received at and removed from the Biotreatment Pad to more accurately determine volumes and remaining storage. Up-to-date logs and records-including transport manifests-should be kept on site, and a tabular summary of these volumes (incoming/outgoing) should be included in future annual reporting.
- 4) ENR recommends that acceptance criteria for HC contaminated soil received at the Biotreatment Pad be included in future annual reporting for ease of reference.

**Topic 3: 2016 Correspondence between Town and Inspector not included in Annual Report.**

**Comment(s):**

Schedule 1 – Item 1.(s) of the licence requires the inclusion of all correspondence between the Inspector and the Licencee. Letters from the Inspector to the Town that highlight important non-compliance issues and outlines directions to correct non-compliance activities were not included in the 2016 annual report.

**Recommendation(s):**

- 1) ENR recommends that 2016 Annual Report be updated to include *all* 2016 correspondence between the Inspector and the Town as required by the above noted section of the Water Licence.

## **Topic 4: Groundwater Quality**

### **Comment(s):**

Similarly to previous years, the 2016 Annual Report notes a number of groundwater samples that exceeded groundwater guidelines for metal concentrations at all four (4) SNP 0053-7 monitoring wells (MW010-A through D). Exceedances were reported for both the spring and fall sampling events. Of particular concern are the high concentrations of heavy metals for both sampling events and phenols in the fall sampling event. ENR has commented previously on the 2014 Groundwater Monitoring Report and 2015 Water Quality Report, expressing concerns with the groundwater exceedances compared to Environment Canada's (2012) Guidance document on Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites, and, ESRD (2014) Alberta Groundwater Guidelines.

Based on the review of the recent Groundwater Monitoring Plan (submitted as part of the Landfill Operations and Maintenance Plan, Version 1.3 and Water Monitoring Plan Version 1.0), the Board has since directed the Town to provide additional details in the Annual Water Licence Report on any mitigation measures planned or used and if a Response Plan or Remedial Action Plan was to be activated ([Table 5 of May 25, 2017 MVLWB Staff Report](#)). The 2016 Report does not provide any details on mitigation measures or any discussion on a response plan resulting from the groundwater exceedances.

The Town is proposing to continue monitoring samples in 2017 to develop a trend analysis of all historical sampling data to examine the presence of historical metals. ENR notes that the Town has been collecting groundwater samples for this location since 2010, for which there have been continued high groundwater concentrations, such as metals. The Town has sufficient baseline data to complete a trends analysis. The Town should prepare a trend analysis with its existing data and add any data collected in 2017 to add to this assessment. All data used up to the end of 2017 should be used to develop an Action Response Plan for contaminated groundwater.

ENR reminds the Town, as directed by the Board in its May 25, 2017 letter, to update the Water Monitoring Plan (WMP) to include testing parameters and water quality criteria; action levels for groundwater quality at which a Response Plan comes into effect; and a Response Plan which outlines the mitigative measures should groundwater quality action levels be exceeded. This Response Plan may include the baseline assessment that is currently being developed by the Town, but ENR requests that the Town update the response plan as soon as possible.

### **Recommendation(s):**

- 1) ENR recommends that the Town should, as directed by the Board in its May 25, 2017 letter, update the Water Monitoring Plan to include testing parameters and

water quality criteria; action levels for groundwater quality at which a response plan comes into effect; and a response plan which outlines the mitigative measures should groundwater quality action levels be exceeded, as soon as possible.

- 2) Future Annual Reports should include more details and/or discussion on mitigation measures and Response Plan options resulting from the water quality exceedances. If no measures or Response Plans are developed, the Annual Report should clearly state this with rationale for its omission.
- 3) ENR recommends the Town commence the groundwater quality trends analysis now with available data and add any results collected from 2017.

Comments and recommendations were provided by ENR technical experts in the Water Resources Division and the South Slave Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Conservation, Assessment and Monitoring Division.

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email [patrick.clancy@gov.nt.ca](mailto:patrick.clancy@gov.nt.ca).

Sincerely,



Patrick Clancy  
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August 17, 2017

ECCC File: 5200 000 002 /005  
MVLWB File: MV2009L3-0005

Jen Potten  
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Yellowknife, NT X1A 2P6

Via online submission

**RE: MV2009L3-0005 – Town of Hay River – Municipal Water Licence – 2016 Annual Water Licence Report**

Attention: Jen Potten

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Mackenzie Valley Land and Water Board regarding the above-mentioned 2016 Annual Water Licence Report application. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

Should you require further information, please do not hesitate to contact me at (867) 669-4746 or [Gabriel.Bernard-Lacaille@canada.ca](mailto:Gabriel.Bernard-Lacaille@canada.ca).

Sincerely,

Gabriel Bernard-Lacaille  
Environmental Assessment Coordinator

Attachment(s): ECCC Comments Excel Sheet

cc: Melissa Pinto, Senior Environmental Assessment Coordinator  
Emily Nichol, Environmental Assessment Coordinator  
Georgina Williston, Head, Environmental Assessment North (NT and NU)

Canada

[www.ec.gc.ca](http://www.ec.gc.ca)