



ANNEX F6

INVESTIGATION REPORTS OF  
ENVIRONMENTAL QUALITY LIMIT  
EXCEEDANCE

## Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	8 January 2024
Time	11:27
Monitoring Location	MWX-6
Parameter	Chemical Oxygen Demand (COD)
Limit Level	>46 mg /L
Measured Level	49 mg /L
Possible reason	<p>Groundwater contaminated with leachate is commonly characterized by high COD and ammoniacal-nitrogen levels as a result of degradation of organic matters in the waste. The ammoniacal-nitrogen monitoring result at groundwater monitoring wells MWX-6 (3.86 mg/L) and the COD monitoring results of the groundwater monitoring wells adjacent to MWX-6 (MWX-5: 28 mg/L and MWX-7: 15 mg/L) are well within the respective limit levels. Hence, there is a low possibility of the elevation of COD level at MWX-6 is due to leachate contamination from SENTX operation or at least it is not conclusive to base on these results to demonstrate exceedance was due to leachate contamination.</p> <p>In accordance with Table 4.5b of the updated EM&amp;A Manual, repeat measurement was conducted on 1 February 2024 to confirm findings. COD concentration of 53 mg/L was measured at MWX-6 during the sampling event. MWX-6 showed consecutive exceedance of groundwater quality limit.</p> <p>According to the findings of the desktop review commissioned by GVL and EPD (the Employer) in May 2021 to investigate the potential sources of the elevated methane levels at the perimeter landfill gas monitoring wells at SENTX, pockets of organic matters are identified in the fill materials of the SENTX site upon review of the historical site investigation borehole logs at the Project Site area. It is possible that the elevated COD concentration measured at MWX-6 on 8 January 2024 could be due to localised organic matters within or around the monitoring well and background fluctuation.</p> <p>Due to the presence of influencing factor from non-project source, there is no adequate evidence showing that the COD level exceedance measured at MWX-6 on 8 January 2024 was deemed to Project-related activities.</p> <p>It should also be noted that although the COD level exceeded the limit level of the EM&amp;A programme, it is still well within the WPCO effluent discharge limit of COD (80 mg/L) and the standard for effluents discharged into the inshore waters of the Junk Bay</p>

	Water Control Zone as stipulated under Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (80 mg/L). The slight exceedance of COD at MWX-6 on 8 January 2024 will not cause adverse water quality impact to the Junk Bay Water Control Zone.
Action Taken / Action to be Taken	<p>Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&amp;A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>ET will continue to closely monitor the groundwater quality monitoring results and collect additional data for investigation and further review, if necessary.</p>
Remarks	-

Prepared by: Abbey Lau  
 Designation: Environmental Team  
 Date: 27 February 2024

## Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	1 February 2024
Time	11:32
Monitoring Location	MWX-6
Parameter	Chemical Oxygen Demand (COD)
Limit Level	>46 mg /L
Measured Level	53 mg /L
Possible reason	<p>Groundwater contaminated with leachate is commonly characterized by high COD and ammoniacal-nitrogen levels as a result of degradation of organic matters in the waste. The ammoniacal-nitrogen monitoring result at groundwater monitoring wells MWX-6 (4.58 mg/L) and the COD monitoring results of the groundwater monitoring wells adjacent to MWX-6 (MWX-5: 28 mg/L and MWX-7: 10 mg/L) are well within the respective limit levels. Hence, there is a low possibility of the elevation of COD level at MWX-6 is due to leachate contamination from SENTX operation or at least it is not conclusive to base on these results to demonstrate exceedance was due to leachate contamination.</p> <p>In accordance with Table 4.5b of the updated EM&amp;A Manual, repeat measurement was conducted on 6 March 2024 to confirm findings. COD concentration of 53 mg/L was measured at MWX-6 during the sampling event. MWX-6 showed consecutive exceedance of groundwater quality limit.</p> <p>According to the findings of the desktop review commissioned by GVL and EPD (the Employer) in May 2021 to investigate the potential sources of the elevated methane levels at the perimeter landfill gas monitoring wells at SENTX, pockets of organic matters are identified in the fill materials of the SENTX site upon review of the historical site investigation borehole logs at the Project Site area. It is possible that the elevated COD concentration measured at MWX-6 on 1 February 2024 could be due to localised organic matters within or around the monitoring well and background fluctuation.</p> <p>Due to the presence of influencing factor from non-project source, there is no adequate evidence showing that the COD level exceedance measured at MWX-6 on 1 February 2024 was deemed to Project-related activities.</p> <p>It should also be noted that although the COD level exceeded the limit level of the EM&amp;A programme, it is still well within the WPCO effluent discharge limit of COD (80 mg/L) and the standard for effluents discharged into the inshore waters of the Junk Bay</p>

	Water Control Zone as stipulated under Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (80 mg/L). The slight exceedance of COD at MWX-6 on 1 February 2024 will not cause adverse water quality impact to the Junk Bay Water Control Zone.
Action Taken / Action to be Taken	<p>Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&amp;A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>ET will continue to closely monitor the groundwater quality monitoring results and collect additional data for investigation and further review, if necessary.</p>
Remarks	-

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Designation: Environmental Team  
Date: 21 March 2024

## Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	6 March 2024
Time	MWX-6: 11:03 MWX-8: 10:37
Monitoring Location	MWX-6, MWX-8
Parameter	MWX-6: Ammoniacal-nitrogen and Chemical Oxygen Demand (COD) MWX-8: COD
Limit Level	Ammoniacal-nitrogen: MWX-6: >5 mg/L COD: MWX-6: >46 mg/L MWX-8: >50 mg/L
Measured Level	Ammoniacal-nitrogen: MWX-6: 5.74 mg/L COD: MWX-6: 53 mg/L MWX-8: 51 mg/L
Possible reason	<p>Groundwater contaminated with leachate is commonly characterized by high COD and ammoniacal-nitrogen levels as a result of degradation of organic matters in the waste. The ammoniacal-nitrogen monitoring result at groundwater monitoring well MWX-8 (15.6 mg/L) and at groundwater monitoring wells adjacent to MWX-6 (MWX-5: 2.82 mg/L, MWX-7: 5.72 mg/L) are well within the respective limit levels. The COD monitoring results of the groundwater monitoring wells adjacent to MWX-6 and MWX-8 (MWX-5: 21 mg/L, MWX-7: 14 mg/L and MWX-9: 24 mg/L) are well within the respective limit levels. Hence, there are a low possibility of the elevation of ammoniacal-nitrogen level at MWX-6 and the elevation of COD level at MWX-6 and MWX-8 are due to leachate contamination from SENTX operation or at least they are not conclusive to base on these results to demonstrate exceedances were due to leachate contamination.</p> <p>In accordance with Table 4.5b of the updated EM&amp;A Manual, repeat measurement was conducted on 10 April 2024 to confirm findings. Ammoniacal-nitrogen concentration of 4.86 mg/L (below the Limit Level) was measured at MWX-6 and COD concentration of 46 mg/L (below the Limit Level) was measured at MWX-8 during the sampling event. However, COD concentration of 47 mg/L was measured at MWX-6 during the sampling event. MWX-6 showed consecutive exceedance of the groundwater quality limit.</p> <p>According to the findings of the desktop review commissioned by GVL and EPD (the Employer) in May 2021 to investigate the potential sources of the elevated methane levels at the perimeter landfill gas monitoring wells at SENTX, pockets of organic matters are identified in the fill materials of the SENTX site upon review of the historical site investigation borehole logs at the Project Site area. It is possible that the elevated ammoniacal-nitrogen and COD concentration measured</p>

	<p>at MWX-6 and elevated COD concentration measured at MWX-8 on 6 March 2024 could be due to localised organic matters within or around the monitoring wells and background fluctuation.</p> <p>Due to the presence of influencing factor from non-project source, there is no adequate evidence showing that the ammoniacal-nitrogen and COD level exceedances measured at MWX-6 and COD level exceedance measured at MWX-8 on 6 March 2024 were deemed to Project-related activities.</p> <p>It should also be noted that although the COD level exceeded the limit level of the EM&amp;A programme, it is still well within the WPCO effluent discharge limit of COD (80 mg/L) and the standard for effluents discharged into the inshore waters of the Junk Bay Water Control Zone as stipulated under Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (80 mg/L).</p> <p>The slight exceedance of ammoniacal-nitrogen and COD at MWX-6 and COD at MWX-8 on 6 March 2024 will not cause adverse water quality impact to the Junk Bay Water Control Zone.</p>
Action Taken / Action to be Taken	<p>Examination of environmental performance of the Project will be continued during the weekly inspections. The Contractor is reminded to implement relevant and appropriate mitigation measures according to the updated EM&amp;A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>ET will continue to closely monitor the groundwater quality monitoring results and collect additional data for investigation and further review, if necessary.</p>
Remarks	-

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 Date: 2 May 2024