

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	15 February 2022
Time	MWX-4: 14:30 MWX-6: 11:29
Monitoring Location	MWX-4, MWX-6
Parameter	Chemical Oxygen Demand (COD)
Limit Levels	MWX-4: >36 mg /L MWX-6: >46 mg /L
Measured Level	MWX-4: 43 mg /L MWX-6: 50 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 groundwater quality (ammoniacal-nitrogen) monitoring results at MWX-4 (7.29 mg/L) and MWX-6 (3.86 mg/L) and groundwater quality (COD) monitoring results of the groundwater monitoring wells adjacent to MWX-4 and MWX-6 (MWX-3: 16 mg/L, MWX-5: 24 mg/L and MWX-7: 14 mg/L) are well within the respective limit levels. Hence, there is a low possibility of the elevation of COD levels at MWX-4 and MWX-6 are due to leachate contamination from SENTX operation or at least it is 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&A Manual, repeat measurement was conducted on 15 March 2022 to confirm findings. Exceedance of COD Limit Level was recorded at MWX-4 (38 mg/L) but no exceedance of COD concentration at MWX-6 (46 mg/L) was measured during the sampling event. MWX-4 show 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 COD concentration measured at MWX-4 (with detection of elevated levels of methane (up to 11.6% v/v)) and MWX-6 (with detection of elevated levels of methane (up to 12.2% v/v) and in close proximity to LFG13, which shows elevated methane levels continuous) on 15 February 2022 could be due to localised organic matters within or around the monitoring wells.</p>

	Due to the presence of influencing factor from non-project source and the COD levels at all other groundwater monitoring wells are within the respective limit level, there is no adequate evidence showing that the COD level exceedances measured at MWX-4 and MWX-6 on 15 February 2022 were deemed to Project-related activities.
Action Taken / Action to be Taken	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&A Manual to avoid any exceedance of the Action and Limit Levels. ET will continue to closely monitor the groundwater quality monitoring results and collect additional data for investigation and further review, if necessary.
Remarks	-

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Designation: Environmental Team
Date: 21 April 2022

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	15 March 2022
Time	13:04
Monitoring Location	MWX-4
Parameter	Chemical Oxygen Demand (COD)
Limit Levels	>36 mg /L
Measured Level	38 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 groundwater quality (ammoniacal-nitrogen) monitoring result at MWX-4 (5.91 mg/L) and groundwater quality (COD) monitoring results of the groundwater monitoring wells adjacent to MWX-4 (MWX-3: 17 mg/L and MWX-5: 28 mg/L) are well within the respective limit levels. Hence, there is a low possibility of the elevation of COD level at MWX-4 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&A Manual, repeat measurement was conducted on 11 April 2022 to confirm findings. Exceedance of COD Limit Level was recorded at MWX-4 (40 mg/L) during the sampling event. MWX-4 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 COD concentration measured at MWX-4 (with detection of elevated levels of methane (up to 11.6% v/v)) on 15 March 2022 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 and the COD levels at all other groundwater monitoring wells are within the respective limit level, there is no adequate evidence showing that the COD level exceedance measured at MWX-4 on 15 March 2022 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&A programme, it is still well within the</p>

	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). The slight exceedance of COD at MWX-4 on 15 March 2022 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&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: 17 May 2022