

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	25 February 2021
Time	14:40 and 14:53 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	Action level: >11.7 mg/L Limit level: >12.7 mg/L
Measured Level	DP4T: 13.0 mg/L DP4T (Duplicate): 12.7 mg/L
Possible reason	<p>No works which may lead to potential SS increase (e.g. active stockpiling and excavation works) was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. Surface runoff collected at DP4T channel (solely from the vehicle washing facilities) was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly during the sampling event. Environmental deficiency in related to DP4T was not observed during the weekly site inspection in the morning. The Contractor has taken the necessary control / mitigation measures outlined in the updated EM&A Manual.</p> <p>During the sampling event, no raining was recorded and no other sources (e.g. Clearwater Bay Country Park, other project sites) was identified in the vicinity of surface water channel leading to DP4T which might cause the SS exceedance at DP4T. Contaminated wastewater from the vehicle washing facilities could be the potential source of SS contributing to the exceedance. The SS exceedance at DP4T was therefore deemed to Project-related activities.</p> <p>It should be noted that although the measured SS level exceeded the limit level of the EM&A programme, it is still well within the WPCO effluent discharge limit of SS for the Junk Bay Water Control Zone (30 mg/L). The discharge of surface water with this SS level from DP4T 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&A Manual to avoid any exceedance of the Action and Limit Level.</p> <p>In addition, the Contractor is reminded to check and monitor the Wetsep operation and maintain the system regularly to ensure it is</p>

	functioning properly at all times.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 5 May 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	3 June 2021
Time	14:23 and 14:35 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	Action level: >8.39 Limit level: >8.40
Measured Level	DP4T: 8.84 & 8.82 DP4T (Duplicate): 8.82 & 8.82
Possible reason	<p>From the on-site rainfall record of May and June 2021, heavy rainfall events were recorded on 31 May and 1 June 2021 before the sampling event. Red and amber rainstorm warning signal was also issued by the Hong Kong Observatory on 1 June 2021. On 1 June 2021, muddy surface water discharge and overflow from other project sites to the sediment trap leading to DP4T was observed.</p> <p>No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. Site surface runoff collected at DP4T channel was treated by the Wetsep prior to discharge. Wetsep near DP4T was functioning properly during the sampling event.</p> <p>Environmental deficiency was not observed during the weekly site inspection on 3 June 2021 morning before the surface water monitoring. The Contractor has implemented the surface water control and mitigation measures recommended in the updated EM&A Manual.</p> <p>During the sampling event, no raining was recorded and no other sources (e.g. Clearwater Bay Country Park, other project sites) was identified in the vicinity of surface water channel leading to DP4T which might cause the pH exceedance at DP4T. There is no adequate evidence showing that the muddy surface water discharge and overflow from other project sites to the sediment trap leading to DP4T on 1 June 2021 could have contributed to the level of pH during the sampling event. The pH exceedance at DP4T was therefore deemed to Project-related activities.</p> <p>It is noted that the Water Pollution Control Ordinance (WPCO) water discharge licence was obtained by the Contractor for the operation of the Wetsep near DP4T and the allowable discharge limit for pH is 6 to 9. The treated water from the Wetsep did not exceed the WPCO discharge limit and cause any adverse water</p>

	quality impact.
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>In addition, the Contractor was reminded to review the efficiency of the Wetsep near sediment trap and monitor the Wetsep operation regularly to ensure it is functioning properly at all times.</p>
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 12 July 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	3 June 2021
Time	14:23 and 14:35 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	Action level: >11.7 mg/L Limit level: >12.7 mg/L
Measured Level	DP4T: 32.3 mg/L DP4T (Duplicate): 32.0 mg/L
Possible reason	<p>From the on-site rainfall record of May and June 2021, heavy rainfall events were recorded on 31 May and 1 June 2021 before the sampling event. Red and amber rainstorm warning signal was also issued by the Hong Kong Observatory on 1 June 2021. On 1 June 2021, muddy surface water discharge and overflow from other project sites to the sediment trap leading to DP4T was observed.</p> <p>No works which may lead to potential SS increase (e.g. active stockpiling and excavation works) was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. Site surface runoff collected at DP4T channel was treated by the Wetsep prior to discharge.</p> <p>Environmental deficiency was not observed during the weekly site inspection on 3 June 2021 morning. The Contractor has implemented the surface water control and mitigation measures recommended in the updated EM&A Manual.</p> <p>During the sampling event, no raining was recorded and no other sources (e.g. Clearwater Bay Country Park, other project sites) was identified in the vicinity of surface water channel leading to DP4T which might cause the SS exceedance at DP4T. There is no adequate evidence showing that the muddy surface water discharge and overflow from other project sites to the sediment trap leading to DP4T on 1 June 2021 could have contributed to the level of SS during the sampling event. The SS exceedance at DP4T was therefore deemed to Project-related activities.</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&A Manual to avoid any exceedance of the Action and Limit Level.</p> <p>In addition, the Contractor was reminded to review the efficiency</p>

	of the Wetsep near sediment trap and monitor the Wetsep operation regularly to ensure it is functioning properly at all times.
Remarks	-

Prepared by: Abbey Lau
Designation: Environmental Team
Date: 12 July 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	10 June 2021
Time	14:29 and 14:37 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39 Limit level: >8.40
Measured Level	DP4T: 8.61 & 8.61 DP4T (Duplicate): 8.58 & 8.56
Possible reason	<p>From the on-site rainfall record of June 2021, rainfall event was recorded on 9 June 2021 before the sampling event. No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no raining was recorded and no other sources (e.g. Clearwater Bay Country Park, other project sites) was identified in the vicinity of surface water channel leading to DP4T which might cause the pH exceedance at DP4T.</p> <p>Surface runoff collected at DP4T channel was treated by the Wetsep prior to discharge. Yet during the sampling event, it was observed that the Wetsep near sediment trap was not functioning properly with reference to the on-site checking of the treated water at the outlet of the processing chamber of the Wetsep. The pH of the treated water collected at the outlet of the Wetsep (i.e. 8.81) exceeded the Action and Limit Level.</p> <p>Based on the above, the pH exceedance at DP4T was deemed to Project-related activities. However, it is noted that the Water Pollution Control Ordinance (WPCO) water discharge licence was obtained by the Contractor for the operation of the Wetsep near DP4T and the allowable discharge limit for pH is 6 to 9. The treated water from the Wetsep did not exceed the WPCO discharge limit and cause any adverse water quality impact.</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&A Manual to avoid any exceedance of the Action and Limit Level.</p> <p>In addition, the Contractor shall review the efficiency of the Wetsep near sediment trap and monitor the Wetsep operation regularly to ensure it is functioning properly at all times.</p>

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Prepared by: Abbey Lau
Designation: Environmental Team
Date: 8 July 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	17 June 2021
Time	14:46 and 14:45 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	DP4T: Action level: >8.39 Limit level: >8.40
Measured Level	DP4T: 8.48 & 8.50 DP4T (Duplicate): 8.50 & 8.47
Possible reason	<p>No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP4T on the sampling day based on on-site observations and construction activities described by the Contractor. During the sampling event, no raining was recorded and no other sources (e.g. Clearwater Bay Country Park, other project sites) was identified in the vicinity of surface water channel leading to DP4T which might cause the pH exceedance at DP4T.</p> <p>Surface runoff collected at DP4T channel was treated by the Wetsep prior to discharge. Yet during the sampling event, it was observed that the Wetsep near sediment trap was not functioning properly with reference to the on-site checking of the treated water at the outlet of the processing chamber of the Wetsep. The pH of the treated water collected at the outlet of the Wetsep (i.e. 8.55) exceeded the Action and Limit Level.</p> <p>Based on the above, the pH exceedance at DP4T was deemed to Project-related activities. However, it is noted that the Water Pollution Control Ordinance (WPCO) water discharge licence was obtained by the Contractor for the operation of the Wetsep near DP4T and the allowable discharge limit for pH is 6 to 9. The treated water from the Wetsep did not exceed the WPCO discharge limit and cause any adverse water quality impact.</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&A Manual to avoid any exceedance of the Action and Limit Level.</p> <p>In addition, the Contractor shall review the efficiency of the Wetsep near sediment trap and monitor the Wetsep operation regularly to ensure it is functioning properly at all times.</p>

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Prepared by: Abbey Lau

Designation: Environmental Team

Date: 8 July 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	24 June 2021
Time	15:14 and 15:24 (Duplicate)
Monitoring Location	DP6
Parameter	Surface Water (pH)
Action / Limit Levels	Action level: >8.39 Limit level: >8.40
Measured Level	DP6: 9.17 & 9.17 DP6 (Duplicate): 9.17 & 9.15
Possible reason	<p>From the on-site rainfall record of June 2021, heavy rainfall events were recorded on 21 to 24 June 2021 before the sampling event. Amber rainstorm warning signals were also issued by the Hong Kong Observatory on 22, 23 and 24 June 2021.</p> <p>No works which may lead to potential pH increase (e.g. concreting works) was conducted in the vicinity of surface water channel leading to DP6 on the sampling day based on on-site observations and construction activities described by the Contractor.</p> <p>Environmental deficiency was observed during the weekly site inspection on 24 June 2021 morning. Surface water collected at DP6 channel was not treated by the Wetsep prior to discharge. The untreated surface water discharged at DP6 could be the potential source of pH contributing to the exceedance. Based on the above, the pH exceedance at DP6 was deemed to Project-related activities.</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&A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>In addition, the Contractor shall ensure that all surface water at DP6 is treated before discharge and the Wetsep is functioning properly at all times.</p>
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Prepared by: Abbey Lau
 Designation: Environmental Team
 Date: 9 July 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	24 June 2021
Time	15:14 and 15:24 (Duplicate)
Monitoring Location	DP6
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	Action level: >11.7 mg/L Limit level: >12.7 mg/L
Measured Level	DP6: 83.6 mg/L DP6 (Duplicate): 79.8 mg/L
Possible reason	<p>From the on-site rainfall record of June 2021, heavy rainfall events were recorded on 21 to 24 June 2021 before the sampling event. Amber rainstorm warning signals were also issued by the Hong Kong Observatory on 22, 23 and 24 June 2021.</p> <p>No works which may lead to potential SS increase (e.g. active stockpiling and excavation works) was conducted in the vicinity of surface water channel leading to DP6 on the sampling day based on on-site observations and construction activities described by the Contractor.</p> <p>Environmental deficiency was observed during the weekly site inspection on 24 June 2021 morning. Surface water collected at DP6 was not treated by the Wetsep prior to discharge.</p> <p>Based on the above, the SS exceedance at DP6 was deemed to Project-related activities.</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&A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>In addition, the Contractor shall ensure that all surface water at DP6 is treated before discharge and the Wetsep is functioning properly at all times.</p>
Remarks	-

Prepared by: Abbey Lau
 Designation: Environmental Team
 Date: 9 July 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	15 July 2021
Time	14:39 and 14:48 (Duplicate)
Monitoring Location	DP4T
Parameter	Surface Water (pH)
Action / Limit Levels	Action level: >8.39 Limit level: >8.40
Measured Level	DP4T: 8.54 & 8.52 DP4T (Duplicate): 8.54 & 8.62
Possible reason	<p>From the on-site rainfall record of July 2021, no heavy rainfall events were recorded before the sampling event. Environmental deficiency was not observed during the weekly site inspection on 15 July 2021 morning before the surface water monitoring.</p> <p>During the sampling event, no raining was recorded and no other sources (e.g. Clearwater Bay Country Park, other project sites) was identified in the vicinity of surface water channel leading to DP4T which might cause the pH exceedance at DP4T. It was observed that the surface water collected at DP4T channel was not treated by the Wetsep prior to discharge. The untreated surface water discharged at DP4T could be the potential source of pH contributing to the exceedance. Based on the above, the pH exceedance at DP4T was deemed to Project-related activities.</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&A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>In addition, the Contractor shall ensure that all surface water at DP4T is treated before discharge and the Wetsep is functioning properly at all times.</p>
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 23 July 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	29 July 2021
Time	14:24 and 14:45 (Duplicate)
Monitoring Location	DP6
Parameter	Surface Water (Dissolved Oxygen (DO))
Action / Limit Levels	Action level: <5.80 mg/L Limit level: <5.42 mg/L
Measured Level	DP6: 5.01 mg/L & 5.35 mg/L DP6 (Duplicate): 5.57 mg/L & 5.50 mg/L
Possible reason	<p>From the on-site rainfall record of July 2021, heavy rainfall event was recorded on 25 July 2021 before the sampling event. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 25 July 2021.</p> <p>During the sampling event, excessive algae growth was observed at DP6 channel. The slow-moving water at DP6 and the untreated muddy surface water discharged at DP6 could be the potential source of DO contributing to the exceedance.</p> <p>Based on the above, the DO exceedance at DP6 was deemed to Project-related activities.</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&A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>In addition, the Contractor shall remove the algae accumulated at DP6 channel regularly and avoid accumulation of stagnant water at the surface water channels.</p>
Remarks	-

Prepared by: Abbey Lau
 Designation: Environmental Team
 Date: 6 August 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	29 July 2021
Time	14:24 and 14:45 (Duplicate)
Monitoring Location	DP6
Parameter	Surface Water (Suspended Solids (SS))
Action / Limit Levels	Action level: >11.7 mg/L Limit level: >12.7 mg/L
Measured Level	DP6: 123 mg/L DP6 (Duplicate): 120 mg/L
Possible reason	<p>From the on-site rainfall record of July 2021, heavy rainfall event was recorded on 25 July 2021 before the sampling event. Amber rainstorm warning signal was also issued by the Hong Kong Observatory on 25 July 2021.</p> <p>No works which may lead to potential SS increase (e.g. active stockpiling and excavation works) was conducted in the vicinity of surface water channel leading to DP6 on the sampling day based on on-site observations and construction activities described by the Contractor.</p> <p>Environmental deficiency was observed during the sampling event. It was observed that the muddy surface water collected at DP6 channel was not treated by the Wetsep prior to discharge. The untreated surface water discharged at DP6 could be the potential source of SS contributing to the exceedance.</p> <p>Based on the above, the SS exceedance at DP6 was deemed to Project-related activities.</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&A Manual to avoid any exceedance of the Action and Limit Levels.</p> <p>In addition, the Contractor shall ensure that all surface water at DP6 is treated before discharge and the Wetsep is functioning properly at all times.</p>
Remarks	-

Prepared by: Abbey Lau
 Designation: Environmental Team
 Date: 6 August 2021

Investigation Report of Environmental Quality Limit Exceedance

Project	South East New Territories (SENT) Landfill Extension
Date	8 December 2021
Time	10:15
Monitoring Location	MWX-6
Parameter	Chemical Oxygen Demand (COD)
Action / Limit Levels	>46 mg /L
Measured Level	56 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-6 (3.52mg/L) and groundwater quality (COD) monitoring results of the groundwater monitoring wells adjacent to MWX-6 (MWX-5: 28 mg/L and MWX-7: 23 mg/L) are well within the respective limit levels. In addition, no exceedance of COD Limit Levels for groundwater monitoring at other monitoring wells was recorded in the sampling event. Hence, there is a low possibility of the slight 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 this result to demonstrate exceedance is due to leachate contamination.</p> <p>In accordance with Table 4.5b of the updated EM&A Manual, repeat measurement was conducted on 4 January 2022 to confirm findings. COD concentration of 44 mg/L (below Limit Level) was measured during the sampling event, which demonstrates no consecutive groundwater quality impact at MWX-6.</p> <p>In addition, in accordance with 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 (in close proximity to LFG13, which shows elevated methane levels continuous) on 8 December 2021 could be due to localised organic matters within or around the monitoring well.</p> <p>Due to the presence of influencing factor from non-project source; the COD levels at all other groundwater monitoring wells are within the respective limit level, and the subsequent month monitoring results at MWX-6 did not show exceedance, there is no adequate evidence showing that the COD level exceedance measured at MWX-6 on 8 December 2021 was deemed to Project-</p>

	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.
Remarks	-

Prepared by: Abbey Lau

Designation: Environmental Team

Date: 26 January 2022