

# Environmental Monitoring Report

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1<sup>st</sup> Semestral Report  
September 2020

## CAM: Second Greater Mekong Subregion Corridor Towns Development Project

Prepared by the Ministry of Public Works and Transport for the Kingdom of Cambodia and the Asian Development Bank.

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# **Semi-Annual Environmental Monitoring Report**

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**KINGDOM OF CAMBODIA**

**Ministry of Public Work and Transport**

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Project Number: 46443-001

## **Second Greater Mekong Subregion Corridor Towns Development Project (CTDP2)**

**Sub-Project**

## **Wastewater Collection & Treatment and Urban Drainage in Kampot Town**

**Reporting Period:** October 2019 to June 2020

**Date:** 01-09-2020

**SEMR Report Number:** 1

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## 1 ENVIRONMENTAL SAFEGUARDS SUMMARY

1. The first Semi-annual Environment Monitoring Report (SEMR) covers the period of (October – June 2020) for Second Greater Mekong Subregion Corridor Towns Development (CTDP 2). The SEMR has been prepared to fulfil the safeguard policy requirement of ADB.
2. The SEMR is prepared by support consultant and checked by PMU.

### 1.1 Summary of Project Progress

3. The following table gives a brief summary of the project progress for contract award, construction and key activities in this reporting period:

**Table 1 Project Progress Summary**

Safeguards Category	Environment	B	
Reporting Period:	October 2019 to June 2020	Date Last Report Issued:	Not Applicable
Contracts Awarded to Date:	SBPH ENGINEERING AND CONSTRUCTION CO., LTD (CW01) Contract awarded: 21 <sup>st</sup> October 2019 Starting date: 25 <sup>th</sup> October 2019 Contract duration: 720 days		
Construction Progress to Date:	As of June 2020, the physical construction progress is 5.54 % construction completed		
Key Sub-project Activities in this Reporting Period:	<p>Construction Activities</p> <ol style="list-style-type: none"> <li>1. Site clearances</li> <li>2. Site levelling</li> <li>3. Establishment of Contractor's temporary site facilities</li> <li>4. Provide complete facilities for the Engineer including all Engineer's requirements all as included in the Specification</li> <li>5. Maintenance and cleaning of the Engineer's office and equipment</li> <li>6. Provision of mobile phones for the Engineer as included in the Specification</li> <li>7. Main Project signboard at Contractors Compound</li> <li>8. Main Safety signboard, all other safety and directional signboards</li> <li>9. Contractor's topographic, setting out and all other land surveys including a pre-construction survey of the drainage/sewer routes</li> <li>10. Field Engineering for checking of all existing sewer pipelines including all existing discharges into main drain within the project area</li> <li>11. Provide temporary access to properties during construction</li> <li>12. Provisional Sum for survey and clearance of mines/UXO</li> <li>13. Contractor's implementation of the Environmental Management Plan (EMP) in complete compliance with all environmental laws, regulations, and sub-decree of the Royal Government of Cambodia (RGC). Any failure will result in non-payment for that particular month. This item is to include for full and complete attendance of MoE staff during their visits to the Works.</li> <li>14. Provision of the following suitably qualified and experienced fulltime staff to work exclusively for the Engineer. All proposed staff to be approved by the Engineer</li> <li>15. Concrete Pile 300x300x18m</li> <li>16. Complete environmental quality monitoring</li> <li>17. EIA approval</li> </ol>		

## **1.2 Summary of EMP Implementation**

4. EMP implementation is summarised in the following points, for this reporting period:
- The clearance of mines/UXO was conducted before the project started, except mines and UXO clearance at WWTP site and Line 4 b is on-going.
  - Project signboards and main safety sign boards are installed.
  - PPE is inadequate on the construction site.
  - No issues affecting project environmental performance are observed.
  - No GRM cards have been prepared by the contractor

## **1.3 Summary of EMP Monitoring**

5. EMP monitoring is summarised in the following points, for this reporting period:
- Number of Monitoring Visits to Construction Site and wider area:
    - Every week visits by PIU
    - Every day visits by CSC
    - Monthly visit by PISCB (national environment specialist)
  - Number of Environmental Samples Tested:
    - Four locations for water quality test
    - Two locations for air, noise and vibration test (see annex one)

## **1.4 Summary of Complaints, Issues and Corrective Action**

6. Any complaints, issues and corrective action that has been identified or implemented is summarised in the following points, for this reporting period:
- Issues Raised: No issues raise on construction sites
  - Grievances Raised with GRM: None
  - Corrective Action issued by project to Contractor:
    - Everyone must wear appropriate PPE on the construction site

## 2 SAFEGUARDS STAFF, TRAINING AND DOCUMENTATION

### 2.1 Implementation Arrangements

7. The EMP defines the Environmental Safeguards roles and responsibilities. The roles are required to be filled in order to meet the EMP requirements. The following table gives the status of the key roles for EMP implementation:

Table 2. Status of Environmental Safeguard Roles

Safeguards Role	Status & Comment		
	Date Started:	February 2018	Full Time/ Part Time [PT]
<b>PISCB N/IES</b> <ul style="list-style-type: none"> <li>• Provide technical advice/assistance, e.g., preparation of Semi-Annual EMR for ADB, review of results of environmental effects monitoring,</li> <li>• Environmental related training for PMU, PIU, contractors and other stakeholders</li> <li>• Support PMU/PIU with appropriate consultation</li> <li>• Site visits to check on construction, EMP implementation and affected people, in collaboration with PMU</li> </ul>	<b>Comment</b>	Ms. Rachel Wildblood (International) and Mr. Chea Mong (National)	
<b>PMU-ESO</b> <ul style="list-style-type: none"> <li>• PMU- Environmental Safeguard Officer (ESO)</li> <li>• Conduct inspections and spot checks to monitor the performance of the Contractor in implementing the C-EMP/EMP</li> <li>• Review &amp; verify (through site visits) Monthly Environmental Progress Reports of Contractor</li> <li>• EMP implementation site visits</li> <li>• Review environmental quality monitoring results.</li> <li>• Prepare the Project's Semi-Annual environmental Monitoring Reports for submission to ADB.</li> <li>• Implement the Grievance Redress Mechanism (GRM) for environmental issues</li> <li>• Conduct appropriate consultation and monitoring of effect of construction on affected people</li> <li>• Participate in training provided by PISCB</li> </ul>	<b>Date Started:</b>	11 <sup>th</sup> May 2020	[PT]
	<b>Comment</b>	Mr Penh Socheat	
<b>PIU Environmental And Social Safeguards Staff</b>	<b>Date Started:</b>	December-2019	[PT]



<ul style="list-style-type: none"> <li>Collate monthly EMRs of Contractor, and submit to the PMU.</li> <li>If a licensed laboratory will be engaged to do independent environmental quality monitoring, oversee &amp; manage the quarterly conduct of the environmental effects monitoring</li> <li>Prepare the draft Semi-Annual EMR and submit to the PMU for finalization and incorporation to the Project's Semi-Annual EMR.</li> <li>Implement the GRM for environmental issues</li> <li>Conduct appropriate consultation and monitoring of effect of construction on affected people</li> <li>Participate in training provided by PISCB</li> </ul>	<b>Comment</b>	Mr. Kong Rasmey	
	<b>Date Started:</b>	12 – 02 - 2020	Full Time/ Part Time [FT]
	<b>Comment</b>	Mr. Morm Chandaro	
<b>CSC</b> <ul style="list-style-type: none"> <li>EMP monitoring during construction</li> <li>Preparing monthly monitoring report</li> </ul>	<b>Date Started:</b>	01-11-2019	Full Time/ Part Time [FT]
	<b>Comment</b>	Mr. Sreng Kreasna	
	<b>Date Started:</b>		
<b>Contractor Environment Health &amp; safety Staff</b> <ul style="list-style-type: none"> <li>Appoint a qualified Environment Health and Safety (C-EHS) staff member to be responsible for EMP implementation and reporting</li> <li>Implement mitigation measures &amp; conduct internal EMP implementation monitoring.</li> <li>Conduct environmental quality monitoring as prescribed in SPS-compliant EMP. (If an independent Licensed Laboratory will not be engaged.)</li> <li>Prepare Monthly EMRs.</li> </ul>	<b>Comment</b>		
	<b>Date Started:</b>		
	<b>Comment</b>		

8. The project concludes that the environmental safeguards roles are enough to mitigate the impact from the project but there is not enough budget and time to be involved in detail in the project.

## 2.2 Training & Capacity Building

9. The following table gives the environmental safeguards training courses that have been completed during this reporting period and the planned training courses for the next six months:

Table 3. Environmental Safeguards Training Provided and Planned

Training Course Title	Training Date	Participants	Training Provider
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EMP development and implementation (CW 01) <sup>1</sup>	02-05-2019	PIU=7 persons; PMU=0	NJS/KCC
CEMP development and implementation (CW 01)	13-01-2020	PMU=2; NJS/KCC=9; PIU=2; SBPH=4	NJS/KCC
GRM (CW 01)	14-01-2020	PMU=2; NJS/KCC=6; PIU=2; Local Authority=19; SBPH=2	NJS/KCC
Consultation with affected people	To be confirmed		
Environmental protection	To be confirmed		
Environmental monitoring	To be confirmed		

Note: future training is required but dates will be confirmed in compliance with any requirements for protection against COVID-19

## 2.3 ADB Approvals

10. The following table gives information on the status of the safeguards documents.

**Table 4. Status of Environmental Safeguard Documents**

Safeguards Documents	Update Issued (Latest Version)	Submitted to PMU	Submitted to ADB
IEE	12-02-2020		
EMP for drainage and Sewerage system	09-01-2020	15 -08-2018	N/A
EMP for Kampot landfill (CW02)	N/A – awaiting DED report	N/A	N/A

## 2.4 National Approvals

11. The following table gives an update on the necessary national approvals required for the project to proceed.

<sup>1</sup> Waste water collection & Treatment and Urban drainage in Kampot town  
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**Table 5. Status of National Approvals for Environmental Documents**

Documents	Submitted to MoE	Approved By MoE:	Status – if not approved	Comment
Initial Environmental and Social Impact Assessment (IESIA) (Drainage and Sewerage system)	Final submission 04-09-2019	21-06-2019		
IESIA (Landfill)	First submission: 08-04-2020	N/A	In process	

## 2.5 Construction Environmental Management Plan (CEMP) Approvals

12. The following table confirms the status of the Construction Environmental Management Plan (CEMP) for each Civil Works package:

**Table 6. Status of CEMP Approvals**

Civil Works Package/ Subproject	CEMP Given to PMU	Approved By PMU:	Comment:
Waste water collection & Treatment and Urban drainage (CW 01)	30 days after contract award	Yes	Easy to monitor, generally complies with ADB.
Landfill (CW 02)	N/A	N/A	

## 3 EMP IMPLEMENTATION

### 3.1 Environmental Performance

13. The following table gives the environmental impact mitigation measures in the Borrower (Project) EMP and the corresponding CEMP and how the project is progressing with implementing the mitigation measures, for each subproject.

14. The evidence for the compliance is through a combination of:

- Site visits to observe site practices;
- Regular environmental monitoring/reporting from CSC, Contractor.

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Table 7. Status of EMP Compliance for CW 01

No	EMP Requirement (Mitigation Measure)	Compliance & Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
1	Flora	Yes	- No unnecessary flora damage	
2	Water Quality	Yes	- Water sampling started on four location see annex 1	
3	Noise and Dust Management	Yes	- The heavy construction and work near community has not yet started.	
4	Spoil Management Plan implementation	Not Applicable	- Excavation didn't start	-
5	Waste Management Plan implementation	Yes	- The contractor provides bins and waste is collected by waste collection company.	-
6	Camp Management Plan implementation	Yes	- Camp includes septic tank which is installed	-
7	Community Health, Safety and Urban Access Plan implementation	Not Applicable	- Works near community has not yet started.	-
8	Traffic Management Plan implementation	Not Applicable	- The construction work is only in camp areas.	-
9	Transport, Storage and Use of Construction Materials	Yes	- Trucks all covered during transport of materials	-
10	Machinery & Equipment	Yes	- Machinery well maintained	-
11	Storage and Use of chemicals and fuels	No	- The contractor needs to prepare the concrete bund around the fuel tank	-
12	GRM Contact Card for Workers	No	- Contractor to have GRM Contact Card to give Affected People as first point of contact with project.	-

15. For all 'Partial' or 'No' compliance issues in the table above, the actions needed to solve the compliance issues are in the table below:

**Table 8. EMP– Actions Needed for Compliance for CW 01**

No.	EMP Requirement	Further Action to Take	Date for Action	Who will Implement Action	Resolution?
11	Fuel storage on impermeable surface with bund	Contractor needs to prepare fuel storage area.	Contractor – 31 <sup>st</sup> JULY 2020	Contractor	<b>Not yet complete</b>
12	GRM card	The contractor needs to preparing the GRM card	26 April 2020	Contractor	<b>Completed</b> – The CSC told the contractor to make GRM cards on 28 <sup>th</sup> February 2020

16. The following table gives information on environmental performance issues from previous Environmental Monitoring Reports. This table confirms that the action was completed or that the action is outstanding.

**Table 9. EMP Compliance Outstanding Issues from SEMR Previous Report(s) for CW 01**

EMP Requirement	Further Action to Take	Responsibility and Timing	Resolution	Required Action
Not applicable – 1 <sup>st</sup> SEMR				

### 3.2 Health and Safety Performance

17. The following table gives the Health and Safety impact mitigation measures in the Borrower EMP and how the project is progressing with implementing the mitigation measures, for all subprojects.

**Table 10. Status of Health and Safety Compliance - ALL subprojects**

No	Health and Safety Requirement	Compliance & Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
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1	Occupational H&S Plan Workers Need to wear protective clothing, boot, helmet and gloves	<b>Partial</b>	<b>Subproject: Drainage and Sewerage system</b> Six Workers are not all wearing hard hats and high visibility Two Workers seen without safety boots Note: Total 10 workers without appropriate PPE	- Re-issue safety clothing to those without - Training on staff to remind them to wear it
2	First Aid kit needed on site	No	<b>Subproject: Drainage and Sewerage system</b> First Aid Kit not available in site offices	For fire fighting / emergency procedures are not in place - Work has started (e.g. site clearance) but no First Aid kits are on the active site.
3	Emergency Procedures	No	The fire fighting equipment not available on site	- There is only temporary camp site for pre-cast concrete work.

18. For all 'Partial' or 'No' compliance issues in the table above, the actions needed to solve the compliance issues are in the table below:

**Table 11. Status of Health and Safety Actions Needed for Compliance - ALL subprojects**

No	Health and Safety Requirement	Further Action to Take	Date for Action	Who will Implement Action
1	Workers Need to wear protective clothing, boot, helmet and gloves	All workers to be given and wear safety clothing	31st July 2020	Contractor
2	First Aid kit needed on site	Providing first aid kit in worker camps site	31st July 2020	Contractor
3	Emergency procedures and equipment is needed	Provide fire fighting equipment at camps and offices	31st July 2020	Contractor
4	COVID-19 response required by Contractor. Since the EMP/CEMP was written the contractor is required to ensure COVID-19 mitigation measures are established and followed. PISCB will support the contractor in establishing appropriate measures if required or the contractor will provide his/her own measures for implementation.			Contractor / PISCB

## 4 EMP MONITORING

### 4.1 Environmental Quality Monitoring

19. Environmental quality monitoring requirements are defined in the Monitoring Plan section of the EMP. The following table gives a summary of the environmental quality monitoring requirements for each subproject

**Table 12. EMP Environmental Quality Monitoring Requirements**

Subproject	Environmental Issue Monitored	Location	Parameters	Responsible Organisation	Frequency
CW01	Ambient air quality	Main pumping station (MPS)	As per EMP	PISCB / Contractor	Pre-Construction / every 6 months during construction
CW01	Ambient noise and Vibration	Main pumping station	As per EMP	PISCB / contractor	Pre-Construction / every 6 months during construction
CW01	Surface water quality and wastewater	Kbal Romeas river Prek Kampong Bay Sample x2	As per EMP	PISCB / Contractor	Pre-Construction / every 6 months during construction

20. The following table gives information on the environmental quality monitoring implemented, during this reporting period.

**Table 13. EMP Environmental Quality Monitoring implemented**

Subproject	Environmental Issue Monitored	Location	Monitoring Date
CW01	Ambient air quality	Main pumping station; (x=411050, Y=1172290);	completed
CW01	Ambient noise and Vibration	Main pumping station; (X=413914, Y=1176221)	completed
CW01	Surface water quality and wastewater	Kbal Romeas river: 1=(X=414377, Y=1176433); Prek Kampong Bay Sample. 1= (X=410301, Y=1172212), 2 = (X=409296, Y=1173844) ; 3=(X=409862, Y=1173289)	completed

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21. Annex 1 gives the monitoring results. The results show Surface Water quality the samples (locations SW01 and SW02 and SW 03) met the national standard at all locations. The wastewater sample (WW01) Total Suspended Solids, Biological Oxygen Demand, and Chemical Oxygen Demand tests did not meet the national standards.

22. Air quality was sampled for 24 hour in location AQ1 and AQ21 and met the national standards. Noise was measures for 24 hours 9:30 am to 9:30 am the following day at location AQ1 and was measured 10:20am to 10:20 am the following day at location AQ2. Location AQ1 or AQ2 did not meet the standard for night time noise, approximately 5 to 8 dB(A) Laeq over the standard.

#### 4.2 Construction Phase Affected People Consultation

23. During the construction phase, the following table gives information on the consultations that were undertaken in order to understand the impact of the project on Affected People and how effective the EMP Mitigation measures are for residents, businesses and other affected people around the construction sites.

24. No consultation has taken place so far. This will happen from May, when COVID-19 restrictions allow.

Table 14. Construction Phase Affected People Consultation

Subproject	Consultation Date	Person Consulted / Location	Outcome / Issues	Corrective Action Needed	Action Implemented by (person/date)
No consultation to date					

## 5 COMPLAINTS, ISSUES, CORRECTIVE ACTION

### 5.1 Information Disclosure

25. The following table gives information on any information disclosure activities undertaken.

Table 15. Information Disclosure

Topic / Reason for Information	Disclosure Date	Method of Disclosure	Outcome / Results



Project Contact Details Displayed	31 January 2020	The project sign board	Contractor prepared and installed the sign board.	Completed – Action was taken and confirmed by CSC visit 3rd February 2020
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## 5.2 Grievance Redress Mechanism

26. The Grievance Redress Committee (GRC) was established in 2017. The member of GRC include: deputy governor, director of PDPWT, director of PDE&F, director of PDLMUP&C, director of MoE, director of provincial military police, Teuk Chhou district governor, provincial town governor, Kg Trach district vice-governor, related chiefs of Sangkat/commune and chiefs of villages.
27. The GRM dissemination to Local Authorities took place through training on 14th January 2020.
28. The following table gives information on complaints about the project the Project Team is aware of, during this reporting period. The table includes:
- Complaints made thorough GRM entry points
  - Issues raised in consultation;
  - Issues raised any other way that the project team is aware of.
29. For issues that have already been solved, this is confirmed in the final column of the table. Where possible the project tries to solve all issues as quickly as possible through informal discussions between the affected people and the contractor.

**Table 16. Project Complaints or Issues**

Details of Complaint / Issue Raised	Detail of Person (Date, Name, Contact Details)	Action Needed & Date	Comment / Resolved?
No Complaints Raised			

30. The following table gives information on all issues raised in previous SEMRs which are not yet resolved:

Table 17. Project Complaints or Issues – Not resolved from previous reports

Details of Complaint	Detail of Person (Date, Name, Contact Details)	Action Needed & Date	Reason this is still not resolved
Not Applicable			

### 5.3 Corrective Action

31. The following table gives information on any formal corrective action that has been issued to the contractor in order to improve environmental performance. This does not include any informal corrective action that the CSC issues on site when immediate issues are presented:

Table 18. Corrective Action Issued

Reason for Corrective Action	Date Issued	Outcome	Comment / Follow Up
Not Applicable			

## 6 CONCLUSION & RECOMMENDATION

### Conclusion:

32. The construction activities focused on site clearance at WWTP, UXO clearance for the whole sub-project, installing project sign board and pre-cast concrete site has been established.
33. On site activities have not started yet so there are no impacts on community health and safety regarding works in the urban centre.
34. The team recognise that additional training in required with PIU to ensure consultation takes place and adequate monitoring of EMP is recorded during consultation. The recent COVID-19 concerns have meant the team is reticent to travel between provinces and hold enclosed training events.

### Recommendations:

1. The contractor should follow the recommendation from CSC and NJS/KCC consultant as follow
  - Providing PPE to all workers during working in construction site
  - Enforce all workers to wear PPE during working
  - Re-training on safety to all workers
  - Complete Environmental Monitoring required by Borrower EMP and National EIA
  - The first aid kit, firefighting, construction concrete under the fuel tank need to complete by 31<sup>st</sup> JULY 2020.
2. The PIU and PISCB will deliver training on consultation in adherence with any COVID-19 requirements as set out by the Ministry of Health.
3. PIU will begin consultation as the construction works begin.
4. PISCB and MPWT will update IEE and EMP for Kampot Landfill site when the information is available.
5. PISCB will ensure the Contractor has a plan or follows a provided plan for adequately following any COVID-19 protection measures.







## Waste Water Quality Results Location WW01

**ព្រះរាជាណាចក្រកម្ពុជា**  
**ជាតិ សាសនា ព្រះមហាក្សត្រ**

**ក្រសួងបរិស្ថាន**  
**អគ្គនាយកដ្ឋានគាំពារបរិស្ថាន**  
**មន្ទីរពិសោធន៍**  
**LABORATORY**  
លេខអត្តសញ្ញាណ: ២៣៣-៥...០.២

**ព្រឹត្តិប័ត្រវិភាគ**  
**ANALYSIS REPORT**

ប្រភពសំណាក/ Sample Source: <b>ក្រុមហ៊ុន SBPH ENGINEERING &amp; CONSTRUCTION CO., LTD</b>						
ថ្ងៃ ខែ ឆ្នាំទទួលសំណាក/ Date: <b>June 01, 2020</b>						
ប្រភេទសំណាក/ Sample Type: <b>WW, Waste Water កម្រិតអគ្គិសនីប្រុងប្រយ័ត្នបណ្តោះអាសន្នបំបែកប្រភេទសំណាក ADB (PPA B425) ស្ថិតនៅក្នុងភូមិកំណែប្រែសង្កាត់កំណែប្រែ ក្រុងកំពង់ចាម ខេត្តកំពង់ចាម, UTM 48 P 0409862 / 1173289</b>						
No	ឈ្មោះប៉ារ៉ាម៉ែត្រ Parameter	ឯកតា Unit	លទ្ធផល Result	ស្តង់ដារ I Standard I	ស្តង់ដារ II Standard II	វិធីសាស្ត្រសំណាក Reference Method
1	Dissolved Oxygen(DO)	mg/L	2.09	>2.0	>1.0	Method DO Meter
2	Turbidity	NTU	140.00	NV	NV	Method Digital Turbidimeter
3	Total Suspended Solid(TSS)	mg/L	180.00	<80	<120	Method 2540 D
4	Biochemical Oxygen Demand(BOD)5	mg/L	115.80	<30	<60	Method 5210 B
5	Chemical Oxygen Demand(COD)Cr	mg/L	358.00	<50	<100	Method 5220.B
6	Oil and Grease	mg/L	11.96	<5.0	<15	Method 5620 D
7	Arsenic(As)	mg/L	0.03	<0.1	<1.0	Method 3500-As D
8	Cadmium(Cd)	mg/L	0.003	<0.1	<0.5	Method 3500-Cd C
9	Copper(Cu)	mg/L	0.004	<0.2	<1.0	Method 3500-Cu C
10	Lead(Pb)	mg/L	0.002	<0.1	<1.0	Method 3500-Pb C
11	Mercury(Total)	mg/L	0.0004	<0.002	<0.05	Method ICP-MS
12	Total Coli form	MPN/100ml	9.3K10 <sup>3</sup>	<1000	<1000	Method NF T90-413

**សំគាល់:** 1- ការយកសំណាក តាមក្របខ័ណ្ឌ និងការប្រើប្រាស់សំណាកតាមប្រព័ន្ធគ្រប់គ្រង និងការអនុវត្តដោយប្រព័ន្ធគ្រប់គ្រង  
2- Standard: គិតតាម ប្រព័ន្ធគ្រប់គ្រង និងការប្រើប្រាស់សំណាកតាមប្រព័ន្ធគ្រប់គ្រង និងការអនុវត្តដោយប្រព័ន្ធគ្រប់គ្រង  
3- LDL mean Lowest Detection Limit, ND Mean Not Detected(Lower than LDL), NV Mean No Value.  
4- គោលបំណងនៃការវិភាគ តាមដានគុណភាពបរិស្ថាន

បានឃើញនៅថ្ងៃទី ០១ ខែ មិថុនា ឆ្នាំ ២០២០  
អគ្គនាយក  
Was seen on date:  
Director General

បានឃើញនៅថ្ងៃទី ០១ ខែ មិថុនា ឆ្នាំ ២០២០  
ប្រធានមន្ទីរពិសោធន៍  
Date of issue:  
Director

បានឃើញនៅថ្ងៃទី ០១ ខែ មិថុនា ឆ្នាំ ២០២០  
អ្នកវិភាគ  
Analyzer

**ហត្ថលេខា**
















Vibration – Location AQ2



**ព្រះរាជាណាចក្រកម្ពុជា**  
**ជាតិ សាសនា ព្រះមហាក្សត្រ**

**ក្រសួងបរិស្ថាន**  
**អគ្គនាយកដ្ឋានគាំពារបរិស្ថាន**  
**មជ្ឈមណ្ឌលសាមី**  
**LABORATORY**

លេខកូដ: ១០៣-៧១.៣.២១

**ព្រឹត្តិប័ត្រវិភាគ**  
**ANALYSIS REPORT**

ប្រភពសំណាក/Sample Source: **ក្រុមហ៊ុន SBPH ENGINEERING & CONSTRUCTION CO., LTD**  
 កន្លែងយកសំណាក/Survey Point: កម្រិតជ្រៅបំផុតនៃប្រព័ន្ធគ្រប់គ្រងទឹកក្នុងតំបន់ស្រែចម្ការ សង្កាត់អូរព្រែកចាស់ ខណ្ឌបឹងកេងកង រាជធានីភ្នំពេញ  
 របស់ក្រុមហ៊ុនសាមី/ឈ្មោះ: **ស្ថិតនៅក្នុងភូមិត្រពាំង សង្កាត់ត្រពាំងស្រី ក្រុងកំពង់ ខេត្តកំពង់ចាម, UTM 48 P ០411050 / 1172903**  
 ថ្ងៃយកសំណាក/Sampling date: **May 31, 2020**  
 រយៈពេល/Sampling Period: **10:20 AM to 10:20 AM next day**



Time	Survey Period	Vibration Level dB				Remarks		
		Leq	Standard( Leq)	Lmax	Lmin			
Day	6:00 - 7:00	27.2	65	43.6	10.4			
	7:00 - 8:00	26.7		42.8	10.2			
	8:00 - 9:00	28.0		45.0	10.5			
	9:00 - 10:00	27.7		44.0	10.9			
	10:00 - 11:00	24.6		36.9	11.9			
	11:00 - 12:00	18.9		26.1	11.3			
	12:00 - 13:00	21.1		30.0	11.7			
	13:00 - 14:00	27.0		41.6	12.0			
	14:00 - 15:00	25.3		37.9	12.3			
	15:00 - 16:00	30.5		44.7	15.8			
	16:00 - 17:00	28.1		42.6	13.0			
	17:00 - 18:00	23.9		33.1	14.2			
	18:00 - 19:00	23.1		32.1	13.6			
	Night	19:00 - 20:00		18.2	60	23.9	12.1	
20:00 - 21:00		15.2	18.5	11.4				
21:00 - 22:00		18.9	26.1	11.3				
22:00 - 23:00		16.3	20.2	12.0				
23:00 - 00:00		16.0	20.3	11.2				
00:00 - 1:00		17.7	24.0	11.0				
1:00 - 2:00		21.0	30.5	11.1				
2:00 - 3:00		17.4	23.3	11.0				
3:00 - 4:00		15.0	18.8	10.8				
4:00 - 5:00		13.8	17.2	10.0				
5:00 - 6:00		18.5	25.3	11.2				
24 hours Average		21.2		31.2		11.7		

ឯកសារ: ថ្នាក់ប្រឹក្សា និងស្ថាប័នប្រកាសឱ្យប្រើប្រាស់ប្រព័ន្ធគ្រប់គ្រងទឹកក្នុងតំបន់ស្រែចម្ការ និងសេចក្តីណែនាំប្រើប្រាស់របស់ ១២០ ប្រភេទ ចុះថ្ងៃទី ១១ ខែ កញ្ញា ឆ្នាំ២០១៨, Vibration Level Meter VM - 53A

ចេញរបាយនៅ ថ្ងៃទី ២០ ខែ មិថុនា ឆ្នាំ២០២០


បានឃើញនៅ ថ្ងៃទី ២០ ខែ មិថុនា ឆ្នាំ២០២០

អគ្គនាយក  
New seen on date:  
Director General

ចេញរបាយនៅ ថ្ងៃទី ២០ ខែ មិថុនា ឆ្នាំ២០២០

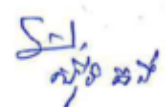
ថ្នាក់ប្រឹក្សា  
Date of Issue:  
Director



**ឆែក ជ័យ**

ចេញរបាយនៅ ថ្ងៃទី ២០ ខែ មិថុនា ឆ្នាំ២០២០

អ្នកវិភាគ  
Analyzer















មាតិកាសំណាក: ប្រព័ន្ធគ្រប់គ្រងទឹកក្នុងតំបន់ស្រែចម្ការ សង្កាត់អូរព្រែកចាស់ ខណ្ឌបឹងកេងកង រាជធានីភ្នំពេញ

The Heritao Techo Building, Lot 503, Torle Bassac, Chamkarnom, Phnom Penh, ផ្ទះលេខ ០២៣-២១២៩០៨



Annex 2 Photo Record – Visits, Monitoring, Consultation

Site Camp of WWTP			
			
Establish of Project Signboards for WWTP and MPS			
			
Clearing of WWTP			
			








Photographs of Site Visits

			
Site visit by CSC in January 2020 at WWTP			
			
Site visit by csc in February 2020 at WWTP and main pumping station			



 Apr 13, 2020 4:46:03 PM 48P 413814 1176210	 Apr 13, 2020 4:43:05 PM 48P 413932 1176094	 Mar 3, 2020 at 2:25:23 PM	 Mar 3, 2020 at 2:17:56 PM
Site visit by PMIS (national consultant) in March 2020 at precast concrete site			
 Apr 13, 2020 4:46:03 PM 48P 413814 1176210	 Apr 13, 2020 4:43:05 PM 48P 413932 1176094	 Apr 13, 2020 4:45:39 PM 48P 413813 117621	 Apr 13, 2020 at 2:17:56 PM
Site visit by csc in April 2020 at WWTP			
 Apr 13, 2020 4:46:03 PM 48P 413814 1176210	 Apr 13, 2020 4:43:05 PM 48P 413932 1176094	 Apr 13, 2020 4:45:39 PM 48P 413813 117621	 Apr 13, 2020 at 2:17:56 PM
Site visit by csc in April 2020 at Pre-cast concrete site			