

CDM Executive Board

TÜV®

Our / Your Reference

Contact

Direct Dial

Date

Stefan Winter
E-Mail: swinter@tuev-nord.de

Phone: -2392
Fax: -2139

~~21.06.21~~
19.05.2021

Response to the Request for Review of the Programme of Activities (PoA) "Impact Carbon Global Safe Water Programme of Activities (PoA)" (UNFCCC Ref. no. PoA9948)

Dear Honourable Members of the CDM Executive Board,

Please find attached the response of TÜV NORD to the review of the above mentioned the Programme of Activities, UNFCCC Ref. no. PoA9948.

The PP has authorized us to submit their review response in the attached consolidated document. The content of this response remains in the sole responsibility of the PP.

In so far as actions from the PP were to be taken the TÜV NORD response has taken those actions into account.

If you have any questions do not hesitate to contact us.

Yours sincerely,



Kunal Rami
Deputy Head TÜV NORD JI/CDM Certification Program



Review Issue # 1

Original text of the issue raised:	Refer to paragraph: VVS-PoA ver. 02 paragraph 340(a) The baseline water source is mentioned as piped/ borewell/others etc in the emission reduction sheet. The included CPA-DDs and the monitoring report. indicate that UltraFlo WPS and Multi-barrier UV will be fixed and applicable for piped. However, it is not clear from verification report how the DOE confirmed whether the implementation of the WPS is in accordance with the description provided in the included CPA-DDs and whether the installed WPS is compatible with the available water source. Therefore, the DOE shall verify how it determined that the WPS is implemented in accordance with description contained in the included CPA-DDs and the installed WPS is compatible with the available water source. Please refer to paragraph340(a) of VVS for PoA version 02.
------------------------------------	--

CME's Response

The "Piped Water" cited as the application in Section A.3 of the CPA-DDs for both Multi-Barrier UV and UltraFLO Chlorination systems refers to pressurized piped water connection that is a pre-requisite for these two types of systems by virtue of their design. Thus, Both Multi-Barrier UV and UltraFLO systems can only be installed on piped applications.

In the revised emission reduction spreadsheet, tab "MP3 Sales Database" column R indicates the primary water source from where the water is extracted in a given school. In case of Multi-Barrier UV and UltraFLO Chlorination WPS, primary water sources like the surface water, well/borehole, rainwater etc. have a piping connection installed to transport water from these primary sources to the point of installation of Multi-Barrier UV and UltraFLO device.

Please note that schools having Primary Water Source marked as "Piped" in Column R, refers to only City Council / Government / Municipal Water Piped Connection in the school as the Primary Water Source.

For further detail, please refer to the table below:

Source of Water	# Multi Barrier UV Schools	# UltraFLO Schools	Comments
Well/Borehole	79	3	These wells/boreholes are connected to drinking water storage tanks via pipes. The water is pumped from wells/boreholes to these water storage tanks. The Multi-Barrier UV or UltraFLO Chlorination WPS is fitted in the tanks at the inlet to ensure that any water flowing in the tank is treated and rendered safe for drinking. The outlet of the tank is connected to the taps to facilitate the drinking of water by the school students and staff.
Surface Water	23	3	There is a private piped connection used for transporting water from the nearest surface water body source like nearby pond, canal etc. to the drinking water storage tank in the school premises. Multi-Barrier UV or UltraFLO Chlorination systems are fitted onto these piping connections same as that explained above
Rainwater	33	4	The rainwater is collected in a sump from where it is pumped via pipes to the drinking water storage tank, to which the Multi-Barrier UV or UltraFLO Chlorination systems are fitted same as that explained above.
Trucked Water	2	-	The trucked water is collected in a sump from where it is pumped, or otherwise, directly pumped to the drinking water storage tank, to which the Multi-Barrier UV or UltraFLO Chlorination systems are fitted, same as that explained above.

Others	3	-	Similar to above, these schools have a combination of aforesaid water sources (wells, surface water or rainwater sump), depending on the ease of access to the school to which Multi-Barrier UV or UltraFLO Chlorination systems are connected as explained above.
--------	---	---	--

Therefore, both the project devices have been implemented in line with the description provided in the CPA-DD / MR.

DOE's Response

As mentioned in the CPA-DDs and MR, Multi-Barrier UV and UltraFLO Chlorination water purification systems (WPS) are fixed type water purification systems requiring pressurized piping connection to operate. The VT has reviewed the relevant information / specifications of these WPS (given below) to confirm that they require a piping connection to operate.

Table 1: System Specification

WPS Type	Model	Port size inlet	Pressure (psi)	Rated capacity (l)	Lifespan (year)	Reference
Multi Barrier UV	Small UV (1 GPM)	¼ inch	125	2,044,116	7	Technical Specification from Supplier (Rotek) for Large and Small UV
Multi Barrier UV	Large UV (2 GPM)	¼ inch	125	4,088,232	7	Multi-Barrier UV Lifespan confirmation from Supplier (Rotek)
UltraFlo	UltraFlo	20mm	As per line pressure	340,0000	5	Technical specification / expiry of UltraFlo by Medentech (technology supplier) UltraFLO Installation Manual

The Port size inlet rating and pressure rating mentioned in the manufacturer specifications / installation manual confirm that these systems require piping connection at their inlet ports for water purification. Thus, it is confirmed that a water connection is pre-requisite for these two types of systems by virtue of their design.

The Verification Team assessed the ER worksheet column R, and corresponding sampled end user forms to verify that "Piped" in column R refers only to the City Council / Government / Municipal Water Piped Connection in the school as the Primary Water Source.

Sample Snapshot:

5.1. What is the Source of your water (tick any one. In case of 'Others', please specify).

<input checked="" type="checkbox"/> Piped (city council / municipal water/ public distribution network)
<input type="checkbox"/> Well/Borehole
<input type="checkbox"/> Rainwater
<input type="checkbox"/> Surface Water (directly taken from pond, river or piped connection with pond, river)
<input type="checkbox"/> Trucked Water
<input type="checkbox"/> Others.....

Additionally, the VT secured photographs of the WPS installations during the physical site visits conducted previously, reviewed CME installation logs and monitoring survey records and observations made during remote site visit interviews to confirm that these WPS are installed on pressurized piping connection and are designed to operate exclusively for piped applications only. Please refer below:

Sample photographs:

The photographs confirm these systems being installed on piped applications only:



Picture 1: Multi-Barrier UV Installation



Picture 2: UltraFlo Installation

Installation Logs:

The Installation Logs of both Multi Barrier UV and UltraFlo systems were reviewed by the VT for each sample monitored by the CME. The installation logs were confirmed reporting length of ppr (poly-propylene random copolymer plastic) pipe used to complete the installations, further confirming that these systems can be and were installed on piped applications only.

Observations made during remote audit:

The list of samples (according to source) audited by the VT during the recent audits is as below:

Table 2: List of samples audited (Acceptance sampling)

MP#	WPS Type	Source	# Samples observed via acceptance sampling	Installation confirmed as piped application
MP2 MS1	Multi Barrier UV	Piped	6	Yes
MP2 MS1	Multi Barrier UV	Surface Water	1	Yes
MP2 MS1	Multi Barrier UV	Others	1	Yes
MP2 MS2	Multi Barrier UV	Piped	4	Yes
MP2 MS2	UltraFlo	Piped	2	Yes
MP2 MS2	Multi Barrier UV	Surface Water	1	Yes
MP2 MS2	Multi Barrier UV	Well/Borehole	1	Yes
MP3	Multi Barrier UV	Piped	6	Yes

MP3	UltraFlo	Piped	2	Yes
<p>Thus, all Multi-Barrier UV and UltraFlo systems are confirmed to have been installed on piped applications (connecting the primary water source to the drinking water storage tank) in all cases (including those where the primary water source is other than the City Council / Government / Municipal Water).</p> <p>Thus, the statements under the included CPA-DDs (section A.3) and the monitoring report (section C.1) are verified and deemed correct and both WPS types have been implemented in line with the description provided in the CPA-DD / MR. This, assessment is also included under the FVR section E.3.1, to enhance the clarity of reporting.</p>				
Review Issue # 2				
Original text of the issue raised:	<p>Refer to paragraph: VVS-PoA, version 2, paragraph 344, Paragraph 15 of AMS-III.AV version 4</p> <p>The DOE shall further substantiate how it has verified the compliance of the monitoring plan with the applied methodology, in particular the monitoring frequency of parameter “operational units”, since the CPA-DDs states that the monitoring frequency for the parameter as “At least once per verification or biennially as per the monitoring requirements in the methodology”, which could lead to possibilities whereby the monitoring frequency not meeting methodology requirement (i.e. at least once every two years) when the verification / monitoring period is conducted with a time gap of more than two years.</p> <p>Please refer to Paragraph 15 of AMS-III.AV version 4 and VVS-PoA, version 2, paragraph 344</p>			
CME’s Response				
<p>CME would like to clarify that the term “at least” is deemed binding to both “once per verification” as well as “biennially as per the monitoring requirements in the methodology” and not to “once per verification” alone. Thus, under no circumstances, the monitoring frequency will extend beyond two years and shall remain compliant with the monitoring methodology requirement always. Further, please refer the PoA validation report, CAR 07, page 80 of 106 which states the following:</p> <p><i>The PP revised the monitoring frequency to be “At least once per verification or biennially as per the monitoring requirements in the methodology” to ensure that the methodological requirements are met (at least biennial) and that each verification is based on relevant monitoring results.</i></p> <p>Thus, this substantiates that “at least once per verification” was provisioned in the PoA-DD to prohibit the CME apply the value established in a given MP to the following MP (without monitoring it again) for cases where the combined length of two consecutive MPs is less than two years.</p> <p>Please refer all previous monitoring periods for different batches where dedicated monitoring for each monitoring period has been conducted despite them being even less than one year duration. For example, the monitoring in MP2 MS2 was conducted in Nov 2019 and the monitoring in MP3 was conducted in Feb 2020 whereas combined duration of these two monitoring events is less than two years.</p> <p>Also, for the first monitoring period, although the monitoring period was longer than 2 years (30/05/2014 – 22/05/2017) and was covered under single verification, the CME did not claim any ERs for the period 30/05/2014 – 21/05/2015 and followed the “at least biennially” monitoring frequency to ensure that methodology prevails over such cases. Hence, the CME affirms that in no case the methodology requirements with respect to monitoring frequency would be compromised.</p>				
DOE’s Response				
<p>The applied methodology AMS-III.AV. version 4.0, para 15, states</p> <p><i>“... Monitoring shall consist of checking of all appliances or a representative sample thereof, at least once every two years (biennial) to ensure that they are still operating or are replaced by an equivalent in service appliance as per the relevant sampling requirements of AMS-I.E....”</i></p> <p>In Particular, the monitoring Frequency cited in the registered monitoring Plan (PoA-DD) is the following:</p>				

“...At least once per verification or biennially as per the monitoring requirements in the methodology...”

The monitoring Frequency cited in the registered monitoring Plan (CPA-DD's under MR) is the following: *“...At least once per verification or biennially as per the monitoring requirements in the methodology...”*

The FVR under section D.4 Sampling Approach explains the appropriateness of the applied monitoring frequency. The concerned monitoring period is 23/05/2019 to 31/12/2019, which is less than one year. For the concerned monitoring period, the CME performed random sample identification from sales database on date 10/01/2020 and initiated the monitoring surveys on 03/02/2020. The applied monitoring frequency is deemed in line with the registered monitoring plan and the monitoring methodology as the monitoring frequency falls within the requirement of “at least once in two years” as well as “per verification” when compared with the monitoring conducted in previous MP.

Besides, a review of subsequent MR (9948-MP4-MRP5) webhosted by CME on UNFCCC website, also confirms that the CME is following a higher monitoring frequency (even better than annual monitoring frequency, which is within the methodology requirement of at least biennially).

The applied monitoring frequency is thus, accepted by Verification Team, for the current monitoring period.

However, to ensure that under no circumstances, the methodology requirement is compromised in future, a FAR has been raised. The DOE raised this issue under CL 01, DOE assessment dated 11/12/2020, point (c). the subsequent PP response has also been properly assessed.

However, FAR 01 was raised.

Review Issue # 3

Original text
of the issue
raised:

Refer to paragraph: VVS for PoA version 02, paragraph 304(.c)

The DOE cross-verified continuous availability of safe drinking water based on the interviews with the users and delivery notes, and further confirmed that the subsequent supplies are reported in the emission reduction spreadsheet. However, it is observed in the emission reduction spreadsheet that:

- a) There is no verification opinion on the implemented water purifier capacities (Tab "Assumptions" cells D9 and D10) of 340,000 L/unit (for UltraFlo WPS); Water Purification Capacity of one unit of Small UV (1GPM)- 2,044,116 L/unit and Water Purification Capacity of one unit of Large UV (2GPM)- 4,088,232 L/unit;
- b) The residual capacity (i.e. Tab "Sales Database" column AA) data is not traceable. The residual capacities from MP3 (i.e. column AC of tab "Sales Database") are given without any elaboration by CME.
- c) The residual capacity of some purification devices indicates system continuous running until year 2073 or more, which is even beyond the device lifespan as described (i.e. 5 years) in page 15 of the monitoring report;
- d) All the schools in the CPAs indicate zero continuous supplies during this monitoring period (i.e. column 'AD' of tab 'Sales Database').

Taking into account the above, the DOE is requested to;

- a) Substantiate how it has verified and concluded the installed water purifier capacities of 340,000 L/unit (for UltraFlo purifier); 2,044,116 L/unit for Capacity of one unit of Small UV (1GPM)- and 4,088,232 L/unit for Water Purification Capacity of one unit of Large UV (2GPM);
- b) Submit a traceable emission reduction spreadsheet for the calculation of the system residual capacities;
- c) Elaborate how a system's continuous running end date can be beyond its lifespan (5 years);
- d) Substantiate continuous availability of safe drinking water to schools considering some water purifiers had no residual capacity from the previous monitoring period and

received no supplies during the current monitoring period.
Please refer to paragraph 304(c) of VVS for PoA version 02.

CME's Response

Please refer the following in this regard:

- a) The capacity of 340,000L/unit (for UltraFLO) stated in worksheet "Assumptions" is consistent with latest version of CPAs 16-22 CPA-DDs page 4 and has already been validated during CPA PRC (PRC-9948-003, refer document "DOE clarification 8"), based on manufacturer technical specification, as mentioned in the CPA PRC validation report (Appendix 3, item /03/).

The capacity of 4,088,232 L/unit (for Multi-barrier UV Large (2GPM)) and 2,044,116L/unit (for Multi-barrier UV Small (1GPM)) is based on manufacturer technical specifications.

The CME accepts oversight in ER spreadsheet assumption tab where the reference for the Multi-Barrier UV system capacity is mentioned as CPA-DD. Revised ER sheet is being submitted.

The technical specification documents have also been cross verified by the verification team as listed in the verification report (Appendix 3, item /TS/).

- b) For MP3, the 'system's residual capacity from previous monitoring period' (MP3 Sales Database, column AC) has been sourced from MP2 Sales Database-MS2 of MP2 ER calculator ver 4.0 dated 19/03/2021 submitted to UNFCCC as part of RfR documentation (https://cdm.unfccc.int/PoAIssuance/iss_db/poais884778545/view).

The CME extracted the above information from MP2 ER calculator (tab MP2 Sales Database-MS2, Column BA) by applying the vlookup function, using institution SF ID as a unique identifier, to call this information in MP3 ER calculator, tab: MP3 Sales database, column AC. Given the vlookup function does not work externally, hence the CME had to remove the external links in the MP3 Sales Database, column AC, which otherwise would have returned #Ref error in excel, once shared with DoE / UNFCCC.

The CME has now presented MP2 MS2 Sales database under tab 'MP2 Sales Data MS2 ref only' in the revised MP3 ER calculator being submitted. The column AC of 'MP3 Sales database' has now been linked with column BA of 'MP2 Sales Data MS2 ref only' to establish full traceability of values for 'residual capacity from previous MP'. For systems that are newly installed in MP3, and don't have any residual capacity being carry forwarded from MP2 MS2, the column AC in tab 'MP3 Sales Database' now indicates, "**new installation, not applicable,**" to avoid any confusion.

- c) The "system's continuous running end date" was not depicting the lifetime/lifespan of the device. It was merely a determinant to check the compliance with the following requirement of the registered monitoring plan:

$(N_{y,i} * R_{y,i})$ should not exceed the maximum output capacity of the system installed.

The ER sheet tab, 'MP3 sales database' has been revised to determine the aforesaid in a better manner (refer column AN:AO). The revised functionality in the ER model ensures that $(N_{y,i} * R_{y,i})$ * operational school days in the monitoring period, does not exceed the available treatment capacity for any school and the total consumed capacity (column AN) is lower of the two as a conservative measure. Please refer below:

1. The treatment capacity of a unit (column AI) is the sum of residual capacity from the previous MP, if any, (column AC) and the supplies made during the monitoring period (column AD). For newly installed systems, it has been calculated as system's initial installation capacity

- (assumptions D9:D11) and the supplies made during the monitoring period (column AD), if any.
2. The total consumption of drinking water per day per unit has been calculated (column AH) and represents $(Ny_{,i} * Ry_{,i})$
 3. The start date of the WPS crediting (column AK) in the monitoring period is considered as the latest of start date of MP3 or first day of the next month of its installation (column G).
 4. The end date of WPS crediting (column AL) in the monitoring period is earliest of the end date of the monitoring period or the system breakdown date (column AJ), if any.
 5. In case treatment capacity of a unit (column AI) is 0, no CERs are claimed (given column AK and AL are "NA", and column AP is "0").
 6. Subsequently, the total number of available operational school days (column AM), falling between the start date (column AK) and end date (column AL) of crediting for a school, has been calculated weighted on the basis of boarding and non-boarding population (column M:P).
 7. If a WPS unit has treatment capacity (column AI) less than the capacity required to run the entire available operational days in the monitoring period (i.e. $Ny_{,i} * Ry_{,i} * \text{available operational days}$) the residual capacity at end of MP (column AO) is calculated as 0. Otherwise, the residual capacity is calculated as net of treatment capacity (column AI) and consumed capacity during the monitoring period (column AN).
 8. Limited by the treatment capacity consumed during the monitoring period (column AN), the credited school days for each system is calculated (column AP). Hence, the credited school days (column AP) is always less than or equal to available operational school days (column AM) for a given school.

The above approach is deemed better as it removes the confusion related to "continuous running end date" as well as calculates residual capacity at the end of MP3, based on operational school days during the monitoring period instead of the total duration of monitoring period.

In case of Multi-barrier UV, the expiry is 7 years with the earliest project device being installed in June 2014 hence no device shall end its lifetime before the end of the concerned monitoring period ending 31 Dec 2019. Besides, the UV bulb can be replaced to further extend the device lifetime further after 7 years.

Similarly, in case of UltraFLO, the expiry is 5 years with the earliest project device being installed in June 2018 hence no device shall end its lifetime before the end of the concerned monitoring period ending 31 Dec 2019. Besides, every-time a school receives a new supply of UltraFLO cartridge, the lifetime of the system is automatically deemed renewed, the supplies being a consumable.

- d) Please note that column AC in 'MP3 Sales Database' show a value of 0 if there is no residual capacity from the previous monitoring period and show **"new installation, not applicable"** in case of new installations in the concerned MP. Please refer the following in this regard:

Description	MP3 Sales Database
1) Schools with no residual capacity from the previous monitoring period	Select value "0" in column AC in MP3 Sales Database
2) Schools with no residual capacity from the previous monitoring period and received no supplies during the current monitoring period	Simultaneously Select value "0" in column AD in MP3 Sales Database
3) Total number of cases identified (Institutions)	134
4) Operational days for these schools	0 (refer column AP, MP3 Sales Database)

Thus, for the schools in (3) above, the operational days have been calculated as 0 because there is no residual capacity from the previous MP, neither continuous supplies have been made to the school in the current monitoring period and hence no ERs have been accounted.

On the other hand, “new installation, not applicable” cells in column AC in ‘MP3 Sales Database’ indicate that these systems are newly installed and did not have any residual capacity from previous MP. This is verifiable against their installation dates. These systems provide continuous safe drinking water in the monitoring period by virtue of their initial installed capacity, even if no subsequent supplies have been made in these schools. Thus, the ER sheet is correctly ensuring that only those schools are credited that either have residual capacity from previous MP and/or, have received supplies and/or have been newly installed in the monitoring period.

DOE’s Response

- a. The Verification Team has reviewed the below listed documentary evidence:
- Multi-Barrier UV - Technical Specification Supplier (Rotek) for Large and Small UV systems confirming treatment capacity and other parameters (inlet port size, pressure rating, wattage etc.)
 - Multi-Barrier UV - Lifespan confirmation from Supplier (Rotek)
 - Multi-Barrier UV - Certificate from Supplier (Rotek) on WHO compliance
 - UltraFlo - Technical specification confirming capacity / expiry by Medentech (Technology Supplier)
 - UltraFlo Installation Manual
 - UltraFlo - Device Dimensions Declaration by CME
 - UltraFlo cartridges are manufactured in a standardized size as per the dimensions specified in the CPA-DDs and MR (verified physically during previous site visits as well as from UltraFLO dimension declaration by CME) and pertains to the specifications issued by Medentech (Technology supplier)
 - The expiry of the UltraFlo was also found mentioned on the cartridge as 5 years (verified physically during previous site visits and photographs of UltraFlo units.
 - Installation Logs for Multi-Barrier UV and UltraFlo systems

Based on the aforesaid, and review of the concerned CPA-DDs, the validation report, the VT confirmed that the capacity of the systems has been correctly stated in the ER sheet and MR. The FVR is updated, and the assessment is included under section E.3.1 of FVR.

- b. The Verification Team has reviewed the revised ER sheet (version 04) and confirms that the values of ‘residual capacity from previous MP’ in column AC, are accurately linked with the MP2 ER worksheet values (PoA 9948_MP2_Uganda ER Sheet_ver 4.0_19032021, Tab MP2 Sales database-MS2 in particular) submitted against RfR response to MP2.

In the revised MP3 ER Calculator, the MP2-MS2 Sales database has been added (Tab: ‘MP2 Sales data MS2 ref only’) by the CME. The VT has verified that information in the revised MP3 ER Calculator, Tab: ‘MP2 Sales data MS2 ref only’ is fully consistent MP2 ER calculator version 4.0 dated 19032021, available at UN webpage:

(https://cdm.unfccc.int/PoAIssuance/iss_db/poaiss523838536/view).

The CME has utilized vlookup function of excel to call the residual capacity values under tab “MP3 Sales Database” column AC. The VT confirmed that the residual capacity from previous MP in column AC, in tab MP3 Sales database, is correctly linked with ‘MP2 Sales data MS2 ref only’, column BA, thus establishing complete traceability of these values.

It is further confirmed that the MP3 sales database, in column AC, correctly reflects, “new installation, not applicable” for systems that are not being carry forwarded from MP2.

- c. The Assessment Team noted the CME has updated the worksheet “MP3 Sales Database” while responding to the UNFCCC RfR review questions related to “continuous running end date”. The Assessment on the revised ‘MP3 Sales database’ tab is as below. The VT also confirms that the revision is attributed to induct further transparency in the calculation of determinants and there is no material change.

Table 3: Assessment of MP3 Sales database tab, ER calculator version 4.0

Parameter	Is there change in reporting approach	Assessment	Is the change material (Yes/ No)?
"Source"	There is no change	There is no material change in the input values except that the in earlier worksheet (Version 03, submitted for Rfl) it was presented in column 'Q' and now presented on column 'R' (Version 4.0).	No
Residual capacity from previous MP (Ltrs)	Yes, the reporting approach has been updated to respond to the RfR review response. To provide the traceability values in column AC are now linked with column BA of tab "MP2 Sales Data MS2 ref only" which has been newly inserted in the ER calculator.	There is no material change in the input values except that in earlier worksheet (Version 03, submitted for Rfl), the value was blank for new installations which is now clearly marked as "new installation, not applicable"	No
Treatment capacity of a unit (= residual or installation capacity + subsequent supplied capacity) (Ltrs)	<p>The logic is made more lucid though there is no material change on any of the reported value.</p> <p>The treatment capacity depends on summation of the "residual or installation capacity + subsequent supplied capacity". The parameter has been presented in column AI. The logic remains consistent to the Version 03 of the ER spreadsheet.</p>	<p>Existing WPS: The existing WPS are the one which are continuing from previous MP. Since no subsequent supplies have been made to the institutions in the concerned MP (column AD), the value of the parameter remains same as the "Residual capacity from previous MP (Ltrs)"</p> <p>New WPS: For new WPS, there is not residual capacity from previous MP. The treatment capacity for such systems is equivalent to the initial installed capacity as per technical specification of WPS, fetched from the worksheet 'Assumptions'</p>	No
"Start date of WPS crediting in the monitoring period" Column AK	The "start date WPS of crediting in the monitoring period" has been determined as the start date of MP3 or first day of the next month of WPS installation (column F)	The parameter "Start date of WPS crediting in the monitoring period" was also reported in earlier worksheet (Version 03, submitted for Rfl) of ER sheet, in column AP. The parameter is	No

	<p>whichever is later.</p> <p>Further, start date of WPS crediting has been calculated only for WPS that have non-zero value for Treatment capacity in column AI.</p>	<p>reproduced without any material change.</p>	
<p>"End date of WPS crediting in the monitoring period" Column AL</p>	<p>The "End date WPS of crediting in the monitoring period" is determined as the earlier cut-off date between the "System Breakdown Date reported by User" in column AJ and the end date of the applied monitoring period (31/12/2019).</p> <p>Further, End date of WPS crediting has been calculated only for WPS that have a valid start date of crediting reported in column AK.</p>	<p>The parameters "End date of WPS crediting in the monitoring period" Column AL is newly introduced to address the UNFCCC RfR questions.</p> <p>This parameter replaces the column "System's continuous running end date based on Monitoring Period duration" in earlier worksheet (Version 03, submitted for RfI).</p>	<p>No.</p> <p>The continuous running end date was merely a determinant to check compliance with the registered monitoring plan requirement and is not linked with the lifetime of the installed devices. The change in approach does not result in any material change.</p>
<p>"Available Operational School Days during the monitoring period (Days)" Column AM</p>	<p>The CME has listed the available operational school days in Cells AW3:BD227.</p> <p>The operational days and the holidays in AW3:AZ227 are verified from the submitted "School and Other Institutions Calendar-2019" issued by the Ministry of Education and Sports Embassy, Uganda. The reported operational days for boarding and non-boarding institutions are deemed as appropriate.</p> <p>The available operational School Days during the monitoring are calculated as weighted average operational school days (considering boarding and non-boarding school population) falling between the "Start date of WPS</p>	<p>Column AM is newly introduced in MP3 sales database to address the UNFCCC RfR questions.</p> <p>The VT noted that the schools are not operating for 365 days in a year.</p> <p>For non-boarding schools, the weekend and school holidays (public holidays, mid-term and end term holidays) have been excluded from available operational days as a conservative measure.</p> <p>For boarding schools, weekends and short public holidays have been included but the CME has excluded mid-term and end term holidays because the boarding students/staff would still consume water during weekends and short public holidays.</p> <p>The approach is deemed</p>	<p>T The Verification team confirms that the calculation of available operational school days, in column AM, in the ER sheet is correct and in accordance with the relevant academic calendars and results in conservative calculation of ERs.</p> <p>The consideration of operational school days instead of monitoring period duration results in reduction of ERs to 31,278 tCO₂e (former 46,324 tCO₂e).</p> <p>Please also refer to FAR 02.</p>

	crediting in the monitoring period" and "End date of WPS crediting in the monitoring period".	appropriate and conservative relative to considering the duration of monitoring period for crediting.	
Treatment Capacity consumed during the Monitoring Period (Ltrs) Column AN	<p>The determinant "Treatment Capacity consumed during the Monitoring Period (Ltrs)" Column AN is newly introduced to address the UNFCCC RfR questions and ensure compliance with monitoring plan requirement.</p> <p>This approach ensures that the consumed capacity (ltrs) remains lower of the following:</p> <ol style="list-style-type: none"> 1. Treatment capacity of a unit (= residual or installation capacity + subsequent supplied capacity) (Ltrs) 2. $N_{y,i} * R_{y,i} * \text{Operational school day}$ 	<p>The calculation of consumed capacity is appropriate and in line with the registered monitoring plan.</p> <p>The revised approach ensures that $(N_{y,i} * R_{y,i}) * \text{operational school days in the monitoring period}$, do not exceed the available treatment capacity for any unit (column AI).</p> <p>In case the treatment capacity (column AI) is enough to last for the available operational days (column AM), the consumed capacity (column AN) has been calculated as a product of Available operational school days (column AM) and Total daily water consumption per day (column AH). The surplus capacity would be left as residual capacity (column AO)</p> <p>However, in case the treatment capacity in column AI is not enough to last for the available operational days, then the consumed capacity is same as the treatment capacity (column AI) because the system will get fully consumed during the monitoring period and residual capacity (column AO) would be 0.</p>	Not applicable
Residual Capacity at the end of monitoring period (Ltrs)	Approach remains the same however, the residual capacity has been determined considering the credited operational school	The residual capacity at the end of the MP is based on the difference between the Treatment capacity of a unit (column AI) and the	No material change in the approach except the consideration of actual operational

	days instead of duration of the monitoring period	treatment capacity exhausted during the concerned MP.	school days applicable to the monitoring period.
--	---	---	--

The total consumed capacity during the monitoring period (column AN), residual capacity at the end of MP (column AO) and credited operational school days (column AP) have been correctly calculated. The verification team has checked all determinants (column AC:AP) and confirms them to be correctly and accurately calculated and conservative with respect to ER calculations.

d. The reported WPS can be categorized into 03 categories: Following the RfR review question, the CME has transparently reproduced the parameter “Residual capacity from previous MP (Ltrs)” under column AC of the ER worksheet, tab “MP3 Sales Database”.

- **The WPS with Zero residual capacity from previous MP** – These WPS are identified based on their 0 residual capacity at the end of previous MP (i.e. MP2-MS2). The number of such cases have been verified as 134 (column AC, tab “MP3 Sales Database”).
- **Subsequent supplies to installed WPS** – In the current MP, no systems were provided with additional supplies. Thus, the aforesaid 134 cases with 0 residual capacity from previous MP have received 0 supplies during the monitoring period.
- **Available treatment capacity** – for aforesaid 134 cases, Available treatment capacity (column AI) is therefore 0. Accordingly, values in column AM:AP have been calculated as 0, thus confirming that no ER have been claimed for such cases. This has been evaluated by the VT for all the 134 institutions and found correct. The column AP “Credited School Day during the monitoring period considering capacity consumed (Days)” is confirmed as 0 for each of these 134 cases.
- **The WPS with available Residual capacity at the end of MP2** – Total number of cases with some carry forwarded residual capacity from previous MP are 875 (875 cases with 896 WPS, refer Column AE). These WPS systems operated by virtue of their residual capacity, thus additional supplies were not availed during the applied MP.
- **New WPS Installations** – These WPS were new (75 cases) and operated by virtue of their initial installed capacity. Thus, even if no additional supplies were made, these systems were able to provide treated water to the school/institution in accordance with their installed capacity.

DOE Response to RFR Issue

Sr. No	RFR Issue	Assessment
a	Substantiate how it has verified and concluded the installed water purifier capacities of 340,000 L/unit (for UltraFlo purifier); 2,044,116 L/unit for Capacity of one unit of Small UV (1GPM)- and 4,088,232 L/unit for Water Purification Capacity of one unit of Large UV (2GPM);	The Assessment Team has verified the same based on the review of the technical specifications as specified above. The table under Appendix-3 of FVR has been updated. The response under the raised CL 02 is also updated with respect to the assessment of the technical specifications against the reported values.
b	Submit a traceable emission reduction spreadsheet for the calculation of the system residual capacities;	CL 02 was raised following the RFR issues. The CME has responded with the revised ER worksheet (version 04). The calculation of the residual capacity from previous MP is presented in a traceable manner as explained above. Please refer to the closure of raised CL 02.
c	Elaborate how a system's continuous running end date can be beyond its lifespan (5 years);	The system's continuous running date is re-evaluated under the updated ER worksheet version 04. Please refer the detailed assessment above for the revised approach adopted by CME. In case of Multi-barrier UV, the lifespan has been verified as 7 year by the VT as per supplier

		<p>certificates/specifications. Further, the review of MP3 sales database confirms that the earliest Multi-Barrier UV WPS was installed in June 2014. Thus, it is confirmed that no Multi-Barrier UV WPS shall exhaust its useful lifetime before the end of the concerned monitoring period ending 31 Dec 2019. Besides, the UV bulb can be replaced to further extend the device lifetime after 7 years, if desired</p> <p>Similarly, in case of UltraFLO, the 5-year lifespan/expiry has been verified by the VT. Further, the review of MP3 sales database confirms that the earliest UltraFlo was installed in June 2018. Thus, it is confirmed that no UltraFlo WPS shall exhaust its useful lifetime before the end of the concerned monitoring period ending 31 Dec 2019. Besides, every-time a school receives a new supply UltraFLO cartridge, the lifetime of the system is automatically deemed extended. Please refer the detailed assessment in CL 02.</p>
d	Substantiate continuous availability of safe drinking water to schools considering some water purifiers had no residual capacity from the previous monitoring period and received no supplies during the current monitoring period.	This issue is handled in detail under the CL 02.

Review Issue # 4

Original text of the issue raised:	<p>Refer to paragraph: VVS-PoA, version 2, paragraph 359 (d).</p> <p>The DOE shall further substantiate how it has verified the appropriateness of applying the entire days covered by the monitoring period when calculating parameter QPW_y (i.e. quantity of purified water for drinking during the year y), given the facts that the systems do not service the entire population (i.e. the students) during the school holidays. Further, the DOE should also check following clarifications issued by the Meth Panel in this regard.</p> <p>SSC_795: https://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/05721</p> <p>SSC_792: https://cdm.unfccc.int/methodologies/SSCmethodologies/clarifications/57226</p> <p>Please refer to VVS-PoA, version 2, paragraph 359 (d)</p>
------------------------------------	---

CME's Response

The number of school days in ERs Summary tab (refer row 6), has been adjusted to correspond to only operational school days instead of the complete duration of the monitoring period.

As a conservative measure, now the school academic calendar, as issued by the Federal Ministry of Education and Sports, Uganda has been used to determine the total available operational school days within the monitoring period weighted for non-boarding and boarding population for each school.

Subsequently, the CME has considered weekdays (excluding weekends, public holidays, and end term holidays) for non-boarding users and considered days (including weekends and public holidays but excluding end term holidays) for boarding users (as boarding students/staff will consume water during weekends and short public holidays) for determining the school days for which WPS should be credited. Please refer column AW:BD in "MP3 Sales Database" tab of ER Calculator where the school calendar for the monitoring period, school holidays list and start date and end date of school term have been presented.

The QPW_y value (row 8: ERs Summary tab) has been calculated accordingly considering credited school days in the monitoring period (row 6: ERs Summary tab).
This results in reduction of emission reduction to 31,278 tCO₂e from 46,324 tCO₂e earlier.

DOE's Response

The actual number of operational school days are now incorporated, CME has discounted the school holidays.

The Verification team confirms that the calculation of available operational school days, in column AM, in the ER sheet is correct and in accordance with the relevant academic calendars and results in conservative calculation of ERs.

The school term duration and corresponding term holidays are found to be correctly calculated as per the submitted academic school calendars for the concerned period.

Furthermore, the tab "ERs Summary" of ER under row 6, parameter "Days" evaluates the weighted average number of days which are applicable for the monitoring period incorporating operational school days instead of duration of the monitoring period. The Verification Team has verified the calculations and deems the same as appropriate and accurate.

By application of above corrections, the ER's have reduced from the existing value of 46,324 tCO₂ to 31,278 tCO₂. The achieved emission reductions in the current monitoring period thus are confirmed to be conservative, accurate and credible.

Please also refer to FAR 02.