Verification Report for

Project : Bundled ETP Wastewater Recycling by SIIPL, Pune, India.

UCR Project ID : 362

Name of Verifier	SQAC Certification Pvt. Ltd.
Date of Issue	September 15, 2023
Project Proponent	M/s Serum Institute of India Pvt Ltd. (SIIPL), Pune, Maharashtra.
UCR Project Aggregator	Egis India Consulting Engineers Pvt Ltd.
Work carried by	Mr. Santosh Nair & Ms. Sheetal Wader
Work reviewed by	Mr. Praful Shinganapurkar

Summary:
SQAC Certification Pvt. Ltd. has performed verification of the "Bundled ETP Wastewater Recycling by SIIPL, Pune, India". The project activity involves the bundling of 2 (two) effluent treatment plants (ETPs) owned and operated by Project Proponent involving similar wastewater recycling treatment technologies and gainful end use of the treated effluent.

The project activity meets the following UN SDG's:

Verification for the period: **: 01/01/2014 to 31/12/2022 (09 years, 00 months)**

In our opinion, the total RoU's over the crediting / verification period stated in the Project Concept Note and Monitoring Report, PCNMR submitted to SQAC are found to be correct and in line with

the UCR guidelines.

The verification was done onsite by way of site visit, interviews, document verification and submission through emails.

SQAC is able to certify that the RoU's from the Bundled ETP Wastewater Recycling by SIIPL, Pune, India, (UCR ID – 362) for the period 01/01/2014 to 31/12/2022 amounts to **49,83,000** RoUs

Detailed Verification Report:

The project activity is pre-approved under the UCR RoU program for the following scope:

- Scope 5 (Conservation measures taken to recycle and/or reuse water, spent wash, wastewater etc across or within specific industrial processes and systems, including wastewater recycled/ reused in a different process, but within the same site or location of the project activity. Recycled wastewater used in off-site landscaping, gardening or tree plantations/forests activity are also eligible under this Scope.)

Purpose:

The project activity recycles wastewater from 2 (two) ETPs and reuses the same for captive gainful industrial use (e.g., cooling towers, boilers and gardening purposes). The wastewater from both ETPs are further purified to generate water quality equivalent to safe drinking water standards and complies with all national and international standards like USEPA/WHO/BIS-10500.

In the absence of the project activity, the PP would have installed bore wells that would have depleted the local groundwater resources and/or continued to use existing drinking water resources in the surrounding area and/or discharged the ETP effluent without recycling the same for gainful captive purposes..

The following are the key details of the project activity:

Location	Hadapsar ETP	Manjri ETP
ETP Capacity	ETP plant capacity: 1.5 MLD (From 2012 to 2020) ETP plant capacity: 2.5 MLD (From year 2021)	ETP plant capacity: 1.0 MLD (From 2017 to 2022)
Quantity Effluent Recycled and Reused	2012-2020: 1.2 MLD 2021-2022: 1.7 MLD	2017-2022: 0.55 MLD
Gainful End Use	Cooling towers / Boilers / Gardening / Landscaping	

The facilities at the Manjri and Hadapsar ETPs generate wastewater from process washings, utilities, domestic and wastewater from other units within both project boundaries. The two (ETPs) consist of equalization tanks from where the wastewater is sent for primary, secondary and tertiary treatment. The ETP effluent is then further treated and reused within each facility.

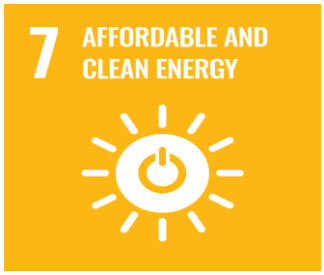
The project activity qualifies under the UCR RoU program since the PP has undertaken water conservation measures to recycle and reuse wastewater for gainful end use.

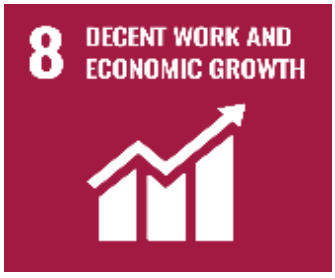
The project activity showcases an integrated approach involving wastewater treatment, source reduction, reuse of process water, effluent treatment, recycling of treated ETP effluent and waste-minimisation.

The project activity achieves the following key water and sanitation related Sustainable Development Goals under the United Nation (UN-SDGDs):

1 – SDG 1 End poverty in all its forms everywhere
2 – SDG 3 Ensure good health and well-Being for all at all ages
3 – SDG 6 Ensure access to water and sanitation for all
4 – SDG 7 Ensure access to affordable and clean energy for all
5 – SDG 8 Promote economic growth and decent work for all
6 – SDG 11 Make cities and settlements sustainable
7 – SDG 17 Strengthen global partnership for sustainable development
8 – SDG 13 Climate Action

Sustainable Development Goals Targeted	**Most relevant SDG Target/Impact**	**Indicator (SDG Indicator)**
 13 Climate Action (mandatory)	13.2: Integrate climate change measures into national policies, strategies and planning.	Recycling and reusing wastewater is an effective solution for climate change adaptation because it helps mitigate the impacts of droughts, floods, and other extreme weather events that are becoming increasingly common due to climate change. The quantity of wastewater recycled and reused by the PP is the SDG indicator.
 1 - End poverty in all its forms everywhere	1.4: By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including	The PP prevents unequal distribution of natural groundwater resources -which prevents poverty of natural economic resources (groundwater). The PP ensures that the citizens of Pune get a chance to preserve their natural groundwater resources for future generations since PP recycling and reusing

	microfinance.	wastewater for gardening and captive processes, which is currently unutilized by the local industry. The PP could have alternately dug fresh borewells or used existing drinking water sources for their captive water and gardening requirements.
 3 – Ensure healthy lives and promote well-being for all at all ages.	3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	The PP showcases how recycling and reusing wastewater can prevent depletion of natural water reserves and prevent water scarcity during droughts. The PP ensures water availability in water-scarce zones that help promotes healthy lives and well-being.
 7 - Ensure access to affordable, reliable, sustainable and modern energy for all	7.a by 2030 enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil fuel technologies, and promote investment in energy infrastructure and clean energy technologies	The PP facilitate access to clean energy research and technology and promotes investment in energy infrastructure and clean energy technologies related to water and wastewater treatment.

 11 - Make cities and human settlements inclusive, safe, resilient and sustainable.	11.A: Support positive economic, social and environmental links between urban, periurban and rural areas by strengthening national and regional development planning	The PP enhancing inclusive and sustainable urbanization via the project activity.
 6 - Ensure access to water and sanitation for all.	6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.	The PP has showcased recycling and safe reuse of 4983 million liters within the industry during this monitored period.
 8 – Promote inclusive and sustainable economic growth, employment and decent work for all.	8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value. 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training.	Number of jobs created. Number of people trained.

 17 – Strengthen the means of implementation and revitalize the global partnership for sustainable development	17.7: Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms including on concessional and preferential terms, as mutually agreed.	PP will monetize the water credits via the virtual water footprint market internationally.

Scope:

The scope covers verification of RoUs from the project - Bundled ETP Wastewater Recycling by SIIPL, Pune, India, (UCR ID – 362)

Criteria:
Verification criteria is as per the requirements of UCR RoU program for the scope – 5.

Description of project:
The project, Bundled ETP Wastewater Recycling by SIIPL, Pune, India is located at the following locations:

- Hadapsar ETP: Village: Hadapsar, District: Pune, State: Maharashtra, Country: India
- Manjri ETP: Village: Manjri, District: Pune, State: Maharashtra, Country: India.

The 1st ETP by the PP (i.e., Hadapsar ETP), was commissioned in 2012. Between 2014 and 2022, the project activity has reused 4983 million litres of recycled wastewater from both ETPs successfully. The PP highlights the catalytic role that corporate India must play in reducing industrial water consumption as well as water pollution per unit of industrial output.

This wastewater from both ETPs are further purified through Ultrafiltration + Reverse Osmosis + UV to generate water quality equivalent to safe drinking water standards. This treated wastewater complies with all national and international standards like USEPA/WHO/BIS-10500.

Hence the project activity is pre-approved under the UCR RoU program for the following scope:

- Scope 5: Conservation measures taken to recycle and/or reuse water, spent wash, wastewater etc across or within specific industrial processes and systems, including wastewater recycled/ reused in a different process, but within the same site or location of the project activity. Recycled wastewater used in off-site landscaping, gardening or tree plantations/forests activity are also eligible under this UCR Scope.

Treatment Process

Cooling towers operated by the PP at both project sites, are an essential component in the industrial processes, however, recycling cooling tower water improperly can have a significant impact on the environment if not treated properly.
The effluent from cooling towers is often contaminated with suspended solids, dissolved solids, and microorganisms, which must be removed before discharge or recycling within the processes.
The wastewater from both ETPs are further purified through

- MMF : Multimedia Filtration
- UF : Ultrafiltration
- RO : Reverse Osmosis

to create water quality equivalent to safe drinking water standards that complies with all national and international standards such a like USEPA/WHO/BIS-10500.

Project Location:

PROJECT NAME	: Bundled ETP Wastewater Recycling by SIIPL, Pune, India.
UCR Scope	: RoU Scope 5: Conservation measures taken to recycle and/or reuse water, spent wash, wastewater etc across or within specific industrial processes and systems, including wastewater recycled/ reused in a different process, but within the same site or location of the project activity. Recycled wastewater used in off-site landscaping, gardening or tree plantations/forests activity are also eligible under this Scope.
PCNMR Prepared on	: 24/08/2023.
Location of Project Activities	: 1. **Serum Institute of India Pvt Ltd (SIIPL)** Village - Hadapsar **ETP Hadapsar** Latitude: 18°30'12.4”N & Longitude: 73° 56'44.9"E

: 2. **SEZ Biotech Services Pvt Ltd.**

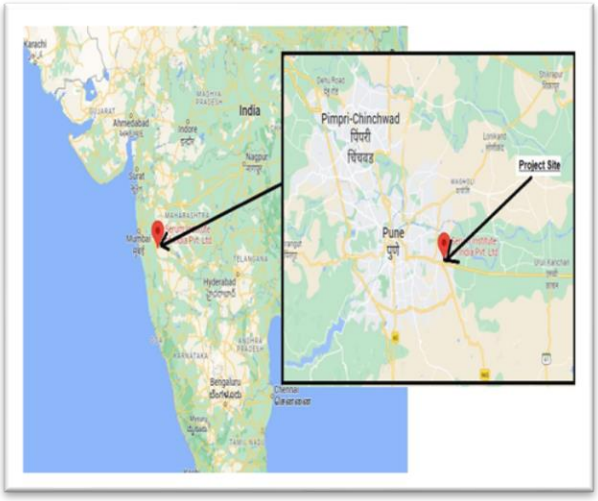
Village: Manjri

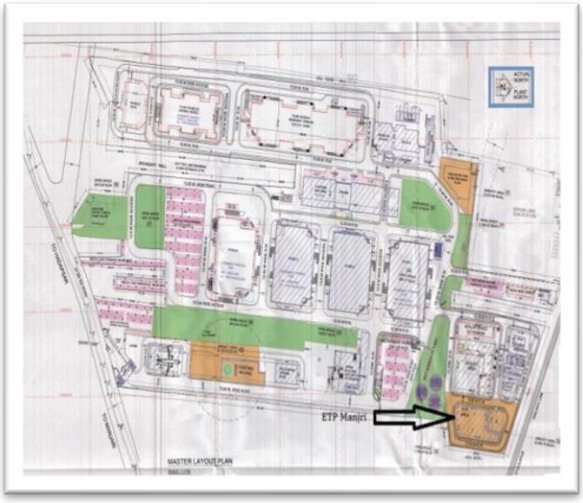
Taluka: Haveli

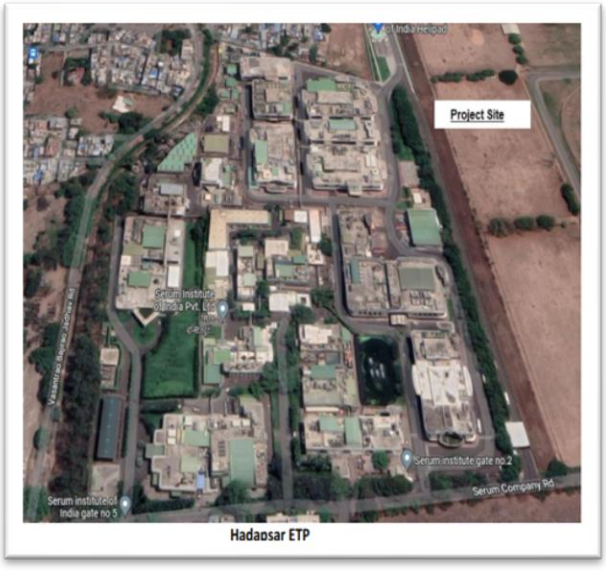
ETP Manjri

Latitude: 18°30'56.1”N & Longitude: 73° 57'47.2"E

Project Commissioning Year : 2012







The PPs daily water requirement is as follows:

Activity	Water Requirement (KL/d)
Potable water (for further purification)	2000
Cooling Tower	1800
Boiler	500
Domestic Use (washrooms, canteen, drinking)	150
Gardening	600
Total	**5050 KL/d (~5MLD)**

Baseline scenario

The baseline scenario is the situation where, in the absence of the project activity, the PP would have discharged the ETP effluent without further treatment, recycling and reuse.

Hence the baseline scenario is:

“the net quantity of treated ETP effluent / wastewater that would be discharged directly into the local drain/sewer without being further recycled and/or reused post treatment per year”.

Level of Assurance:

The verification report is based on onsite audit, information collected through interviews, supporting documents provided during the verification, Project Concept Note - Monitoring Report (PCNMR) submitted to SQAC. The verification opinion is assured provided the credibility of all the above.

Verification Methodology:

Review of the following documentation was done by SQAC Verifiers, Mr. Santosh Nair and Ms. Sheetal Wader, who are experienced in such projects.

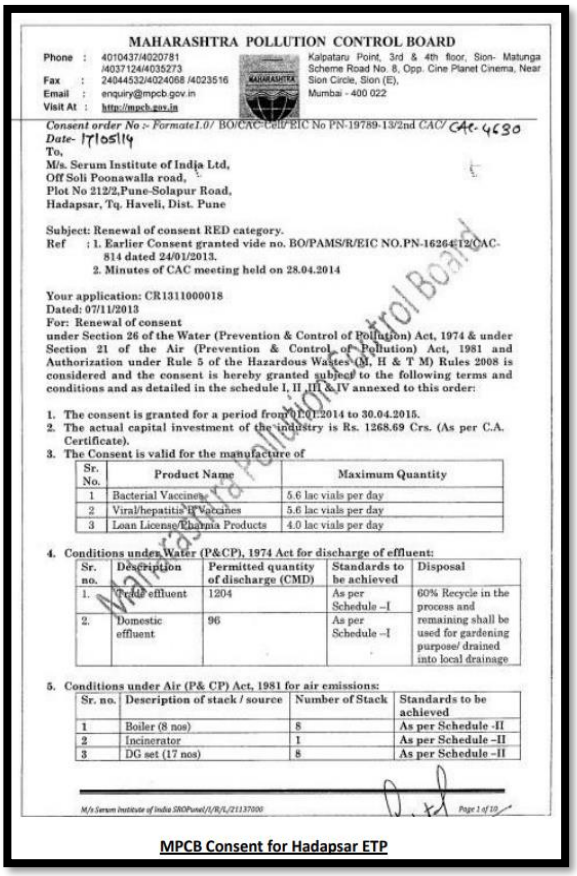
- Project Concept Note / Monitoring Report (PCNMR)
- Commissioning Certificate
- RO Permeate Water Test Report
- Master Plan Layout
- Daily Record Sheet – ETP Plants
- Data provided upon request of all the documents of the related project.

Sampling:

Not applicable

Persons interviewed:

1. Mr. Santosh Arankalle : Sr. General Manager, M/s Serum Institute of India Pvt Ltd.
2. Mr. Baban Chaudhari : Sr. Manager – Engineering, M/s Serum Institute of India Pvt Ltd
3. Mr. Saurabh Sainger : Sr. Project Manager, M/s. Egis India Consulting Engineers Pvt Ltd.



MAHARASHTRA POLLUTION CONTROL BOARD

Phone : 4010437/4020781 /4037124/4035273
Fax : 24044532/4024068 /4023516
Email : enquiry@mpcb.gov.in
Visit At : http://mpcb.gov.in

Kalpataru Point, 3rd & 4th floor, Sion- Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai - 400 022

Consent order No :- Format1.0/ BO/CAC-Cell/ EIC No PN-19789-13/2nd CAC/ CAC-4630
Date- 17/05/14

To,
M/s. Serum Institute of India Ltd,
Off Soli Poonawalla road,
Plot No 212/2,Pune-Solapur Road,
Hadapsar, Tq. Haveli, Dist. Pune

Subject: Renewal of consent RED category.
Ref : 1. Earlier Consent granted vide no. BO/PAMS/R/EIC NO.PN-16264/12/CAC-814 dated 24/01/2013.
2. Minutes of CAC meeting held on 28.04.2014

Your application: CR1311000018
Dated: 07/11/2013
For: Renewal of consent
under Section 26 of the Water (Prevention & Control of Pollution) Act, 1974 & under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and Authorization under Rule 5 of the Hazardous Wastes (M, H & T M) Rules 2008 is considered and the consent is hereby granted subject to the following terms and conditions and as detailed in the schedule I, II ,III & IV annexed to this order:

1. **The consent is granted for a period from 01.01.2014 to 30.04.2015.**
2. **The actual capital investment of the industry is Rs. 1268.69 Crs. (As per C.A. Certificate).**
3. **The Consent is valid for the manufacture of**

Sr. No.	Product Name	Maximum Quantity
1.	Bacterial Vaccines	5.6 lac vials per day
2	Viral/hepatitis-B Vaccines	5.6 lac vials per day
3	Loan License/Pharma Products	4.0 lac vials per day

4. **Conditions under Water (P&CP), 1974 Act for discharge of effluent:**

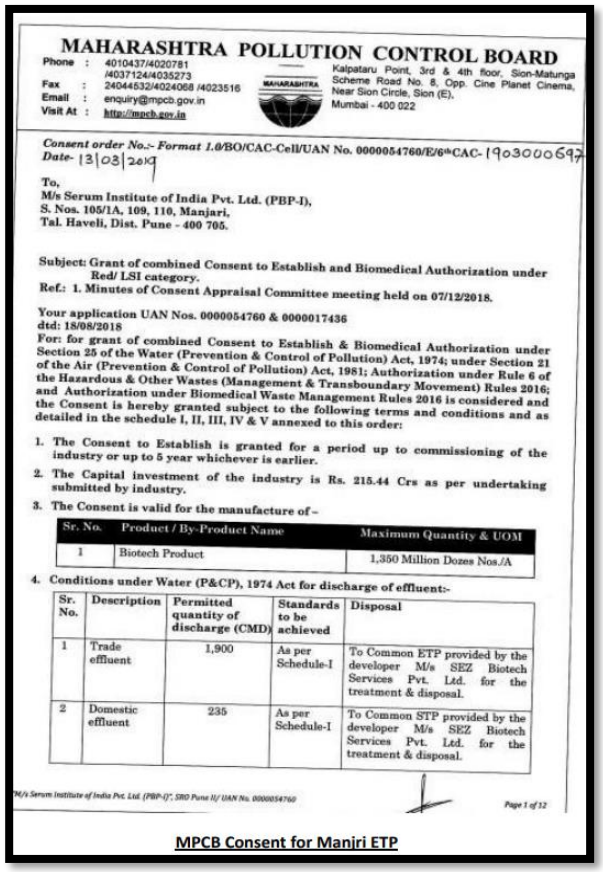
Sr. no.	Description	Permitted quantity of discharge (CMD)	Standards to be achieved	Disposal
1.	Trade effluent	1204	As per Schedule –I	60% Recycle in the process and remaining shall be used for gardening purpose/ drained into local drainage
2.	Domestic effluent	96	As per Schedule –I	

5. **Conditions under Air (P& CP) Act, 1981 for air emissions:**

Sr. no.	Description of stack / source	Number of Stack	Standards to be achieved
1	Boiler (8 nos)	8	As per Schedule -II
2	Incinerator	1	As per Schedule –II
3	DG set (17 nos)	8	As per Schedule –II

M/s Serum Institute of India SRO/Pune(I)/R/L/21137000 Page 1 of 10

MPCB Consent for Hadapsar ETP



MAHARASHTRA POLLUTION CONTROL BOARD

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Kalpataru Point, 3rd & 4th floor, Sion-Matunga Scheme Road No. 8, Opp. Cine Planet Cinema, Near Sion Circle, Sion (E), Mumbai - 400 022

Consent order No.:- Format 1.0/BO/CAC-Cell/UAN No. 0000054760/E/6thCAC- 1903000697
Date- 13/03/2019

To,
M/s Serum Institute of India Pvt. Ltd. (PBP-I),
S. Nos. 105/1A, 109, 110, Manjari,
Tal. Haveli, Dist. Pune - 400 705.

Subject: Grant of combined Consent to Establish and Biomedical Authorization under Red/ LSI category.
Ref.: 1. Minutes of Consent Appraisal Committee meeting held on 07/12/2018.

Your application UAN Nos. 0000054760 & 0000017436
dtd: 18/08/2018
For: for grant of combined Consent to Establish & Biomedical Authorization under Section 25 of the Water (Prevention & Control of Pollution) Act, 1974; under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981; Authorization under Rule 6 of the Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016; and Authorization under Biomedical Waste Management Rules 2016 is considered and the Consent is hereby granted subject to the following terms and conditions and as detailed in the schedule I, II, III, IV & V annexed to this order:

1. **The Consent to Establish is granted for a period up to commissioning of the industry or up to 5 year whichever is earlier.**
2. **The Capital investment of the industry is Rs. 215.44 Crs as per undertaking submitted by industry.**
3. **The Consent is valid for the manufacture of –**

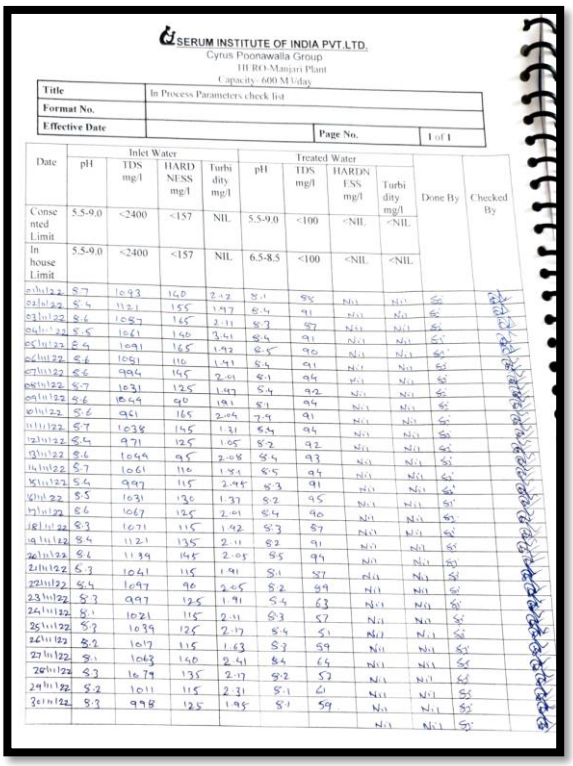
Sr. No.	Product / By-Product Name	Maximum Quantity & UOM
1	Biotech Product	1,350 Million Dozes Nos./A

4. **Conditions under Water (P&CP), 1974 Act for discharge of effluent:-**

Sr. No.	Description	Permitted quantity of discharge (CMD)	Standards to be achieved	Disposal
1	Trade effluent	1,900	As per Schedule-I	To Common ETP provided by the developer M/s SEZ Biotech Services Pvt. Ltd. for the treatment & disposal.
2	Domestic effluent	235	As per Schedule-I	To Common STP provided by the developer M/s SEZ Biotech Services Pvt. Ltd. for the treatment & disposal.

M/s Serum Institute of India Pvt. Ltd. (PBP-I)", SRO Pune II/ UAN No. 0000054760 Page 1 of 12

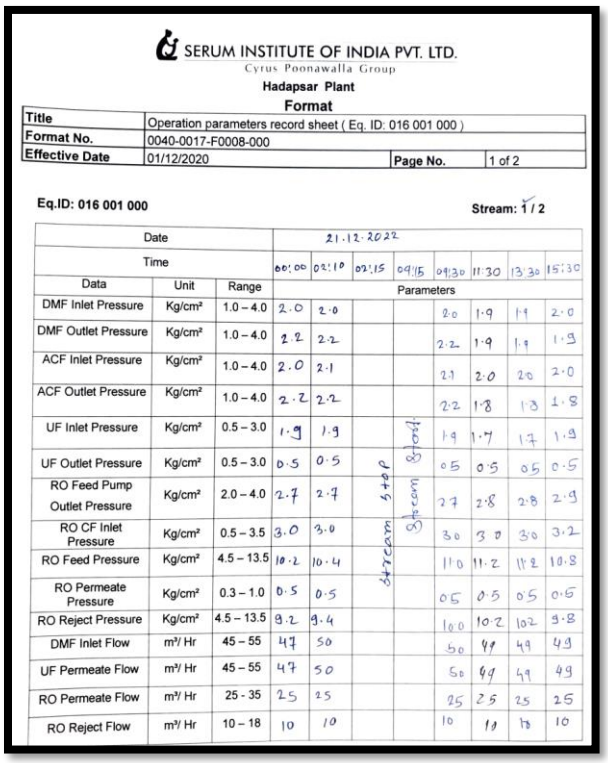
MPCB Consent for Manjri ETP



SERUM INSTITUTE OF INDIA PVT.LTD.
Cyrus Poonawalla Group
III RO Manjri Plant
Capacity- 600 M3/day

Title	In Process Parameters check list		
Format No.			
Effective Date		Page No.	1 of 1

Date	Inlet Water pH	TDS mg/l	HARD NESS mg/l	Turbidity mg/l	Treated Water pH	TDS mg/l	HARDNESS mg/l	Turbidity mg/l	Done By	Checked By
Consented Limit	5.5-9.0	<2400	<157	NIL	5.5-9.0	<100	<NIL	<NIL		
In house Limit	5.5-9.0	<2400	<157	NIL	6.5-8.5	<100	<NIL	<NIL		
01/11/22	8.7	1093	160	2.12	8.1	95	NIL	NIL	SS	
02/11/22	8.4	1121	155	1.97	8.4	91	NIL	NIL	SS	
03/11/22	8.6	1057	145	2.11	8.3	87	NIL	NIL	SS	
04/11/22	8.5	1061	140	3.41	8.4	91	NIL	NIL	SS	
05/11/22	8.4	1091	165	1.92	8.5	90	NIL	NIL	SS	
06/11/22	8.6	1051	110	1.91	8.4	91	NIL	NIL	SS	
07/11/22	8.6	994	145	2.01	8.1	94	NIL	NIL	SS	
08/11/22	8.7	1031	125	1.97	8.4	92	NIL	NIL	SS	
09/11/22	8.6	1049	90	1.91	8.1	94	NIL	NIL	SS	
10/11/22	8.6	961	165	2.09	7.9	91	NIL	NIL	SS	
11/11/22	8.7	1038	145	1.31	8.4	94	NIL	NIL	SS	
12/11/22	8.4	971	125	1.05	8.2	92	NIL	NIL	SS	
13/11/22	8.6	1049	95	2.08	8.4	93	NIL	NIL	SS	
14/11/22	8.7	1061	110	1.81	8.5	94	NIL	NIL	SS	
15/11/22	8.4	997	115	2.45	8.3	91	NIL	NIL	SS	
16/11/22	8.5	1031	130	1.37	8.2	95	NIL	NIL	SS	
17/11/22	8.6	1067	125	2.01	8.4	90	NIL	NIL	SS	
18/11/22	8.3	1071	115	1.92	8.3	87	NIL	NIL	SS	
19/11/22	8.4	1121	135	2.11	8.2	91	NIL	NIL	SS	
20/11/22	8.6	1139	145	2.05	8.5	99	NIL	NIL	SS	
21/11/22	8.3	1041	115	1.91	8.1	87	NIL	NIL	SS	
22/11/22	8.4	1097	90	2.05	8.2	99	NIL	NIL	SS	
23/11/22	8.7	997	125	1.91	8.4	63	NIL	NIL	SS	
24/11/22	8.1	1021	115	2.11	8.3	87	NIL	NIL	SS	
25/11/22	8.7	1039	125	2.17	8.4	51	NIL	NIL	SS	
26/11/22	8.2	1017	115	1.63	8.3	59	NIL	NIL	SS	
27/11/22	8.1	1043	140	2.41	8.4	64	NIL	NIL	SS	
28/11/22	8.3	1079	135	2.17	8.2	52	NIL	NIL	SS	
29/11/22	8.2	1011	115	2.31	8.1	61	NIL	NIL	SS	
30/11/22	8.3	998	125	1.95	8.1	59	NIL	NIL	SS	
							NIL	NIL	SS	

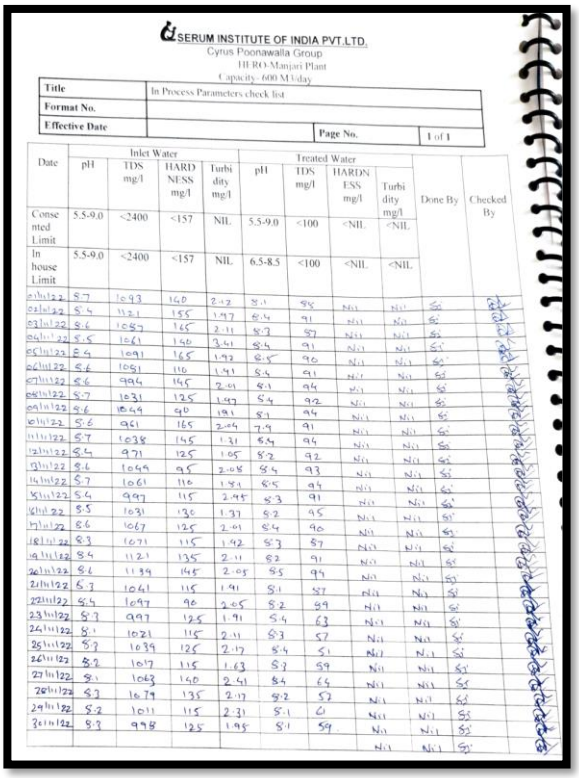


SERUM INSTITUTE OF INDIA PVT. LTD.
Cyrus Poonawalla Group
Hadapsar Plant
Format

Title	Operation parameters record sheet (Eq. ID: 016 001 000)		
Format No.	0040-0017-F0008-000		
Effective Date	01/12/2020	Page No.	1 of 2

Eq.ID: 016 001 000 **Stream: 1 / 2**

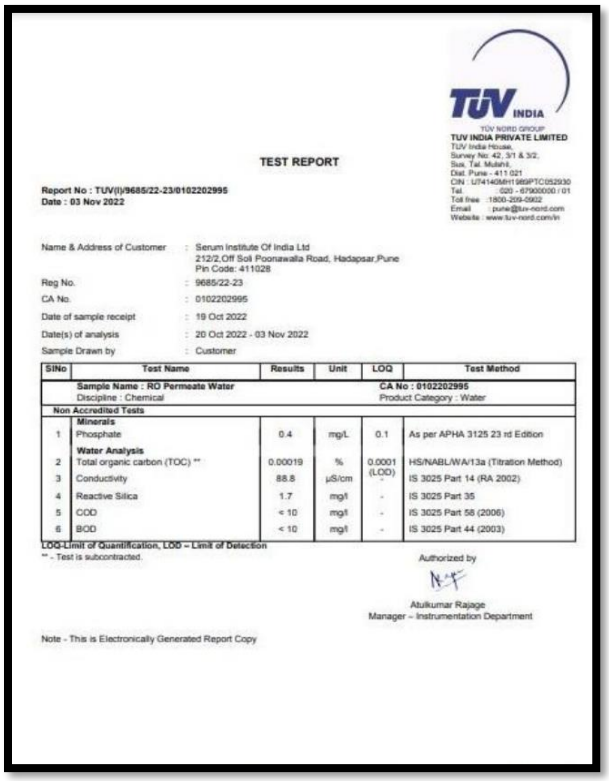
Date			21.12.2022							
Time			00:00	02:10	02:15	09:15	09:30	11:30	13:30	15:30
Data	Unit	Range	Parameters							
DMF Inlet Pressure	Kg/cm²	1.0 – 4.0	2.0	2.0			2.0	1.9	1.9	2.0
DMF Outlet Pressure	Kg/cm²	1.0 – 4.0	2.2	2.2			2.2	1.9	1.9	1.9
ACF Inlet Pressure	Kg/cm²	1.0 – 4.0	2.0	2.1			2.1	2.0	2.0	2.0
ACF Outlet Pressure	Kg/cm²	1.0 – 4.0	2.2	2.2			2.2	1.8	1.8	1.8
UF Inlet Pressure	Kg/cm²	0.5 – 3.0	1.9	1.9			1.9	1.7	1.7	1.9
UF Outlet Pressure	Kg/cm²	0.5 – 3.0	0.5	0.5			0.5	0.5	0.5	0.5
RO Feed Pump Outlet Pressure	Kg/cm²	2.0 – 4.0	2.7	2.7			2.7	2.8	2.8	2.9
RO CF Inlet Pressure	Kg/cm²	0.5 – 3.5	3.0	3.0			3.0	3.0	3.0	3.2
RO Feed Pressure	Kg/cm²	4.5 – 13.5	10.2	10.4			11.0	11.2	11.2	10.8
RO Permeate Pressure	Kg/cm²	0.3 – 1.0	0.5	0.5			0.5	0.5	0.5	0.5
RO Reject Pressure	Kg/cm²	4.5 – 13.5	9.2	9.4			10.0	10.2	10.2	9.8
DMF Inlet Flow	m³/ Hr	45 – 55	47	50			50	49	49	49
UF Permeate Flow	m³/ Hr	45 – 55	47	50			50	49	49	49
RO Permeate Flow	m³/ Hr	25 - 35	25	25			25	25	25	25
RO Reject Flow	m³/ Hr	10 – 18	10	10			10	10	10	10



SERUM INSTITUTE OF INDIA PVT.LTD.
Cyrus Poonawalla Group
HLRO Manjari Plant
Capacity - 600 M³/day

Title	In Process Parameters check list		
Format No.			
Effective Date		Page No.	1 of 1

Date	Inlet Water				Treated Water				Done By	Checked By
	pH	TDS mg/l	HARD NESS mg/l	Turbidity mg/l	pH	TDS mg/l	HARDNESS mg/l	Turbidity mg/l		
Consented Limit	5.5-9.0	<2400	<157	NIL	5.5-9.0	<100	<NIL	<NIL		
In house Limit	5.5-9.0	<2400	<157	NIL	6.5-8.5	<100	<NIL	<NIL		
01/11/22	5.7	1093	160	2.12	5.1	95	Nil	Nil	SI	
02/11/22	5.4	1121	155	1.97	6.4	91	Nil	Nil	SI	
03/11/22	5.6	1057	165	2.11	5.7	97	Nil	Nil	SI	
04/11/22	5.5	1061	140	3.41	5.4	91	Nil	Nil	SI	
05/11/22	5.4	1091	165	1.93	6.5	96	Nil	Nil	SI	
06/11/22	5.6	1051	110	1.91	5.4	91	Nil	Nil	SI	
07/11/22	5.6	994	145	2.91	6.1	94	Nil	Nil	SI	
08/11/22	5.7	1031	125	1.97	5.4	92	Nil	Nil	SI	
09/11/22	5.6	1049	90	1.91	5.1	94	Nil	Nil	SI	
10/11/22	5.6	951	165	2.04	7.9	91	Nil	Nil	SI	
11/11/22	5.7	1038	145	1.31	5.4	94	Nil	Nil	SI	
12/11/22	5.4	971	125	1.05	5.2	92	Nil	Nil	SI	
13/11/22	5.6	1049	95	2.08	5.4	93	Nil	Nil	SI	
14/11/22	5.7	1061	116	1.91	6.5	94	Nil	Nil	SI	
15/11/22	5.4	997	115	2.95	5.3	91	Nil	Nil	SI	
16/11/22	5.5	1031	130	1.37	5.2	95	Nil	Nil	SI	
17/11/22	5.6	1067	125	2.01	5.4	90	Nil	Nil	SI	
18/11/22	5.3	1071	115	1.42	5.3	87	Nil	Nil	SI	
19/11/22	5.4	1121	135	2.11	5.2	91	Nil	Nil	SI	
20/11/22	5.6	1139	145	2.05	5.5	99	Nil	Nil	SI	
21/11/22	5.7	1041	115	1.91	5.1	87	Nil	Nil	SI	
22/11/22	5.4	1097	90	2.05	5.2	89	Nil	Nil	SI	
23/11/22	5.7	997	125	1.91	5.4	63	Nil	Nil	SI	
24/11/22	5.1	1021	115	2.11	5.3	57	Nil	Nil	SI	
25/11/22	5.7	1039	125	2.17	5.4	51	Nil	Nil	SI	
26/11/22	5.2	1017	115	1.63	5.7	59	Nil	Nil	SI	
27/11/22	5.1	1043	140	2.41	5.4	65	Nil	Nil	SI	
28/11/22	5.3	1079	135	2.17	5.2	57	Nil	Nil	SI	
29/11/22	5.2	1011	115	2.31	5.1	61	Nil	Nil	SI	
30/11/22	5.3	998	125	1.95	5.1	59	Nil	Nil	SI	



TÜV INDIA
TÜV NORD GROUP
TUV INDIA PRIVATE LIMITED
TUV India House, Survey No. 42, 3/1 & 3/2, Sus, Tal. Mulshi, Dist. Pune - 411 021
CIN : U74140MH1969PTC052930
Tel. : 020 - 67900000 / 01
Toll free : 1800-209-0902
Email : pune@tuv-nord.com
Website : www.tuv-nord.com/in

TEST REPORT

Report No : TUV(I)/9685/22-23/0102202995
Date : 03 Nov 2022

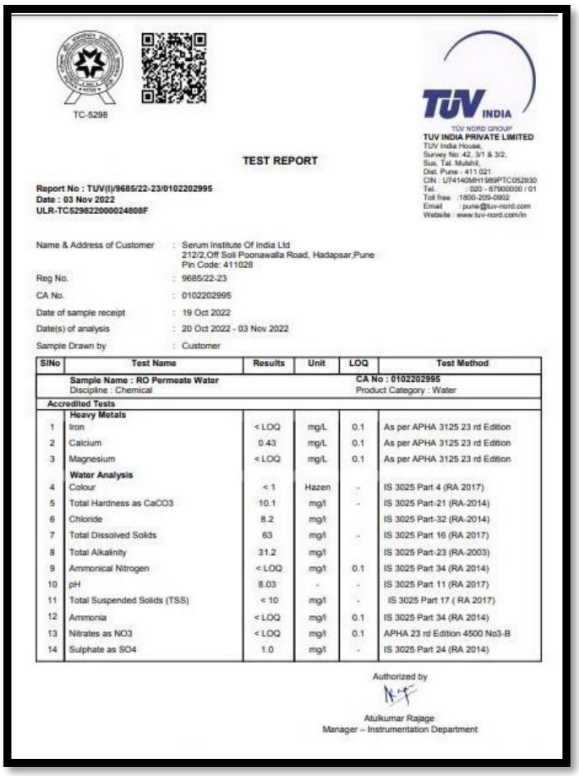
Name & Address of Customer : Serum Institute Of India Ltd
212/2,Off Soli Poonawalla Road, Hadapsar,Pune
Pin Code: 411028
Reg No. : 9685/22-23
CA No. : 0102202995
Date of sample receipt : 19 Oct 2022
Date(s) of analysis : 20 Oct 2022 - 03 Nov 2022
Sample Drawn by : Customer

SINo	Test Name	Results	Unit	LOQ	Test Method
	Sample Name : RO Permeate Water Discipline : Chemical			**CA No : 0102202995** Product Category : Water	
	Non Accredited Tests				
	Minerals				
1	Phosphate	0.4	mg/L	0.1	As per APHA 3125 23 rd Edition
	Water Analysis				
2	Total organic carbon (TOC) **	0.00019	%	0.0001 (LOD)	HS/NABL/WA/13a (Titration Method)
3	Conductivity	88.8	µS/cm	-	IS 3025 Part 14 (RA 2002)
4	Reactive Silica	1.7	mg/l	-	IS 3025 Part 35
5	COD	< 10	mg/l	-	IS 3025 Part 58 (2006)
6	BOD	< 10	mg/l	-	IS 3025 Part 44 (2003)

LOQ-Limit of Quantification, LOD – Limit of Detection
** - Test is subcontracted.

Authorized by
Atulkumar Rajage
Manager – Instrumentation Department

Note - This is Electronically Generated Report Copy



TC-5298

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TEST REPORT

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Date : 03 Nov 2022
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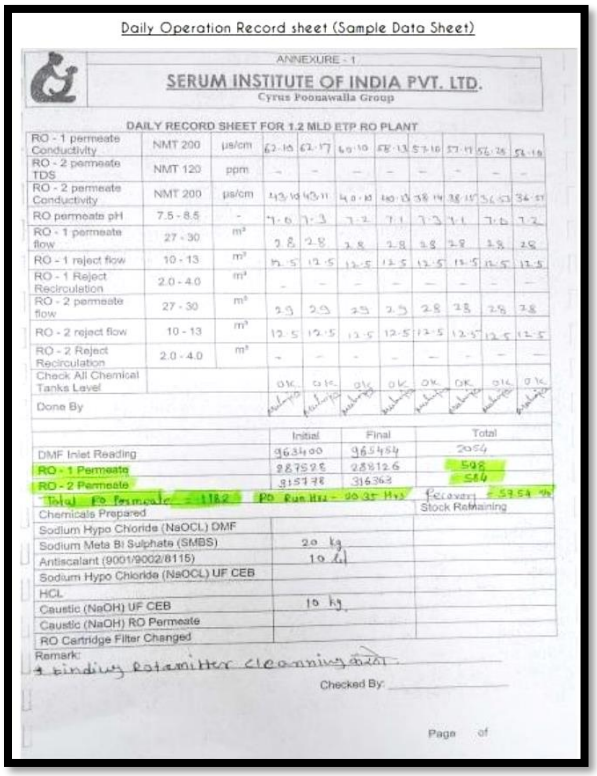
Pin Code: 411028
Reg No. : 9685/22-23
CA No. : 0102202995
Date of sample receipt : 19 Oct 2022
Date(s) of analysis : 20 Oct 2022 - 03 Nov 2022
Sample Drawn by : Customer

SINo	Test Name	Results	Unit	LOQ	Test Method
	Sample Name : RO Permeate Water Discipline : Chemical			**CA No : 0102202995** Product Category : Water	
	Accredited Tests				
	Heavy Metals				
1	Iron	< LOQ	mg/L	0.1	As per APHA 3125 23 rd Edition
2	Calcium	0.43	mg/L	0.1	As per APHA 3125 23 rd Edition
3	Magnesium	< LOQ	mg/L	0.1	As per APHA 3125 23 rd Edition
	Water Analysis				
4	Colour	< 1	Hazen	-	IS 3025 Part 4 (RA 2017)
5	Total Hardness as CaCO3	10.1	mg/l	-	IS 3025 Part-21 (RA-2014)
6	Chloride	8.2	mg/l	-	IS 3025 Part-32 (RA-2014)
7	Total Dissolved Solids	63	mg/l	-	IS 3025 Part 16 (RA 2017)
8	Total Alkalinity	31.2	mg/l	-	IS 3025 Part-23 (RA-2003)
9	Ammonical Nitrogen	< LOQ	mg/l	0.1	IS 3025 Part 34 (RA 2014)
10	pH	8.03	-	-	IS 3025 Part 11 (RA 2017)
11	Total Suspended Solids (TSS)	< 10	mg/l	-	IS 3025 Part 17 (RA 2017)
12	Ammonia	< LOQ	mg/l	0.1	IS 3025 Part 34 (RA 2014)
13	Nitrates as NO3	< LOQ	mg/l	0.1	APHA 23 rd Edition 4500 No3-B
14	Sulphate as SO4	1.0	mg/l	-	IS 3025 Part 24 (RA 2014)

Authorized by
Atulkumar Rajage
Manager – Instrumentation Department



Daily Operation Record sheet (Sample Data Sheet)

ANNEXURE - 1
SERUM INSTITUTE OF INDIA PVT. LTD.
Cyrus Poonawalla Group

DAILY RECORD SHEET FOR 1.2 MLD ETP RO PLANT

RO - 1 permeate Conductivity	NMT 200	µs/cm	62.16	62.17	60.10	58.13	57.10	57.11	55.26	54.18
RO - 2 permeate TDS	NMT 120	ppm	-	-	-	-	-	-	-	-
RO - 2 permeate Conductivity	NMT 200	µs/cm	43.10	43.11	40.10	40.13	38.19	38.15	36.53	34.57
RO permeate pH	7.5 - 8.5	-	7.0	7.3	7.2	7.1	7.3	7.1	7.6	7.2
RO - 1 permeate flow	27 - 30	m^3	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
RO - 1 reject flow	10 - 13	m^3	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
RO - 1 Reject Recirculation	2.0 - 4.0	m^3	-	-	-	-	-	-	-	-
RO - 2 permeate flow	27 - 30	m^3	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8
RO - 2 reject flow	10 - 13	m^3	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
RO - 2 Reject Recirculation	2.0 - 4.0	m^3	-	-	-	-	-	-	-	-
Check All Chemical Tanks Level			OK	OK	OK	OK	OK	OK	OK	OK
Done By			Anil	Anil	Anil	Anil	Anil	Anil	Anil	Anil

	Initial	Final	Total
DMF Inlet Reading	963400	965454	2054
RO - 1 Permeate	287525	288126	598
RO - 2 Permeate	315778	316363	= 584
Total RO Permeate = 1182	RO Run Hrs = 20.35 Hrs		Recovery = 53.54 %
Chemicals Prepared			Stock Remaining
Sodium Hypo Chloride (NaOCL) DMF			
Sodium Meta Bi Sulphate (SMBS)	20 kg		
Antiscalant (9001/9002/8115)	10 kg		
Sodium Hypo Chloride (NaOCL) UF CEB			
HCL			
Caustic (NaOH) UF CEB	10 kg		
Caustic (NaOH) RO Permeate			
RO Cartridge Filter Changed			

Remark: 1 Binding Rotameter cleaning done

Checked By:

Page of

Corrective Action Requests (CARs)

Not applicable as no non-conformities has been evidenced.

Applied methodologies:

Verification criteria is as per the requirements of UCR RoU program for the scope – 5.

Applicability of double counting emission reductions

Currently not applicable for water credits.

Issuance Period: (09 years, 00 months) – 01/01/2014 to 31/12/2022

According to the UCR RoU Standard principles, the project activity accomplishes the following:

- **Increases the sustainable water yield in areas where over development has depleted the aquifer**
- **Collect unutilized water or rainwater and preserve it for future use**
- **Conserve and store excess water for future use**

Gainful end use – Cooling Towers / Gardening / Landscaping

Year	Total ETP Capacity Installed (MLD)	Total ETP Effluent Treated (MLD)	Quantity Recycled and Reused in Process Cooling (MLD)	Total Quantity Reused for cooling and gardening (MLD)	Total Quantity Gainfully Reused/yr (MLY)
2014	1.5	0.9	0.6	1.2	396
2015	1.5	0.9	0.6	1.2	396
2016	1.5	0.9	0.6	1.2	396
2017	2.5	1.5	1	1.75	577.5
2018	2.5	1.5	1	1.75	577.5
2019	2.5	1.5	1	1.75	577.5
2020	2.5	1.5	1	1.75	577.5
2021	3.5	2.9	1.6	2.25	742.5
2022	3.5	2.9	1.6	2.25	742.5

Annual RoU calculation:

Year	Total RoUs (1000 litres) /yr
	UCR Cap (1 million RoUs/yr)
2014	396000
2015	396000
2016	396000
2017	577500
2018	577500
2019	577500
2020	577500
2021	742500
2022	742500
Total RoUs	**49,83,000**

Conclusions:

Based on the audit conducted on the basis of UCR Protocol, which draws reference from UCR RoU program, the documents submitted during the verification including the data, Project Concept Note (PCNMR), SQAC is able to certify that the Water Credits from the project -: Bundled ETP Wastewater Recycling by SIIPL, Pune, India, (UCR ID – 362) for the period 01/01/2014 to 31/12/2022 amounts to **49,83,000 RoUs**

SQAC Certification Pvt. Ltd. Mapusa-Goa

Santosh Nair Lead Verifier (Signature)	Sheetal Wader Verifier (Signature)	Praful Shinganapurkar Senior Internal Reviewer (Signature)

Date: 15/09/2023