

HSE/MDPP/MOEF/2024-25/28

Date: 18/11/2024

To
SHRI SHRAWAN KUMAR VERMA
Deputy Director General of Forests (C)
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office, Gandhi Nagar,
A-Wing – 407 & 409, Aranya Bhawan,
Near CH-3 Circle, Sector-10A,
Gandhi Nagar - 382010

Dear Sir / Madam,

Subject: Submission of Six-monthly EC progressive compliance for the period Apr-2024 to Sep-2024

Reference:

1. EC reference details

- a. Letter F. J-11011/234/2007-IA II (I) dated 28th April 2008
- b. Letter F. J-11011/444/2011-IA II (I) dated 5th September 2012
- c. Letter F. No. J-11011/444/2011-IA II (I) dated 23rd May 2014
- d. Letter F. No. 11-34/2009-IA-III dated 24th August 2009
- e. Letter F. No. J-11011/234/2007-IA II (I) dated 31st October 2016
- f. Letter F. No. SEIAA/GUJ/EC&CRZ/7(e)/754/2021 dated 2nd June 2021

Six monthly EC compliance status report is also uploaded in our website, and the same can be browsed in the following link (<https://www.cairnindia.com/Pages/PoliciesandDisclosures.aspx>). This report is for the six-month period Apr-2024 to Sep-2024.

Thanking you,
Yours faithfully,



Aniruddhsinh Rathod
Head - Midstream Operations

Copy to:

1. Addl. Principal Chief Conservator of Forests (C), Kendriya Bhavan, 5th Floor, Sector-H, Aliganj, Lucknow-226024, Uttar Pradesh
2. Member Secretary, Gujarat Pollution Control Board, Paryavaran Bhavan, Sector-10A, Gandhinagar-382010
3. Member Secretary, Rajasthan Pollution Control Board, 4, Jhalana Institutional Area, Jhalana Doongri, Rajasthan 302004

Enclosed As: CD

VEDANTA LIMITED

(Formerly known as Sesa Sterlite Limited)

Cairn Oil & Gas; Viramgam Terminal | Ahmedabad-Dhrangdhra Highway | Viramgam -382150| Gujarat

www.cairnindia.com

Registered Office: Vedanta Limited, 1st Floor, 'C' wing, Unit 103, Corporate Avenue, ^{Sensitivity: Internal (C3)} Atul Projects, Chakala, Andheri (East), Mumbai-400093,

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**SIX-MONTHLY REPORT ON
PROGRESSIVE COMPLIANCE TO ENVIRONMENTAL CLEARANCE CONDITIONS**

Project:	Oil evacuation pipeline with associated facilities from Mangala Terminal, Barmer district Rajasthan to Salaya Terminal in Jamnagar district via Viramgam (Ahmedabad district) in Gujarat
File reference:	F. J-11011/234/2007-IA II (I) dated 28 th April 2008
EC compliance reporting period:	April-2024 to September-2024
Project phase:	Initial midstream operations started in quarter – 3 of 2009
Project activity during reporting period:	Crude oil transportation and Natural Gas Transportation. Operation of the following facilities to transport crude oil produced from the RJ-ON-90/1 Block in Rajasthan to buyers (IOC, Essar and Reliance) in Gujarat <ul style="list-style-type: none"> ▪ 24" crude oil and 8" natural gas pipelines. ▪ Radhanpur and Viramgam crude oil storage terminals ▪ Above-Ground Installations 33 no's (AGIs) 1 to 33

Compliance to Specific Conditions:

S. No.	Environment Clearance conditions	Status of compliance
(i)	Regular monitoring of VOC and HC shall be undertaken near the storage/terminal area.	Monitoring of VOC and HC is being carried out in Viramgam. Refer Annexure-1 for the details.
(ii)	The compensation to the landowners for acquisition of land shall be as per the State Government norms. It may be noted that the compensation paid to the landowners shall not be less than the norms prescribed under National Resettlement and Rehabilitation Policy, 2007.	This condition was compiled during land acquisition stage of the project development. Compensations for the landowners was paid through Land Acquisition Officer nominated by District Collector.
(iii)	The design, material of construction, assembly, inspection, testing and safety aspects of operation and maintenance of pipeline and transporting the natural gas shall be governed by ASME/ANSI 8 31.8/831.4 and OISD standard 141.	The operation and maintenance of the pipeline facilities is being done strictly in accordance with ASME/ANSI 831.8 / 831.4 and OISD standard 141.
(iv)	Annual safety audit shall be carried out for the initial three years by an independent agency and report submitted to this Ministry for ensuring the strict compliance of safety regulation on operation and maintenance.	Three years of Annual safety audit is submitted through EC Six monthly compliance report. Recommendation of Safety audits are being complied.

S. No.	Environment conditions	Clearance	Status of compliance																																																
(v)	The construction of pipelines, particularly at the river and stream crossing shall be done during dry seasons to avoid disturbance of breeding seasons and soil erosion. The riverbed, embankments and dykes shall be restored adequately after installation of crossings.		This condition was compiled during the construction stage. Bank and bed protection measures such as lining with sand bags, geo-textile and stones were also carried out in the river crossing locations.																																																
(vi)	Pipeline wall thickness and minimum depth of burial at river crossings and casings at rails, major road crossings shall be in conformity with ANSI/ASME requirements.		This condition was compiled during the construction project stage.																																																
(vii)	The company shall follow horizontal drilling technique for laying of pipeline while passing through major irrigation canal and perennial rivers.		During construction stage, horizontal drilling technique was followed (viz. CLX-3) for all major crossing locations.																																																
(viii)	The project authorities shall plant a minimum of 10 trees for every tree cut along the pipeline route in consultation with the local DFO (s). This will be in addition to the compensatory afforestation. Approval under Forest (Conservation) Act, 1980 shall also be obtained for forest area falling under the pipeline route before initiating construction of the pipeline in the forest area.		<p>Plantation activities are being done in a phased manner in partnership with Forest Department and NGOs. In total 23,840 trees were cut along the pipeline corridor route. Tree saplings of 2,04,948 no's have been planted so far in lieu of compensatory plantation.</p> <table border="1"> <thead> <tr> <th>State</th> <th>Village</th> <th>District</th> <th>Total Hectares Planted</th> <th>Total Trees Planted in No's</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Rajasthan</td> <td>Golia Jethmal</td> <td>Barmer</td> <td>25</td> <td>11263</td> </tr> <tr> <td>Chokhla</td> <td>Barmer</td> <td>15</td> <td>10560</td> </tr> <tr> <td>Sanchole</td> <td>Jalore</td> <td>12</td> <td>4655</td> </tr> <tr> <td>Total</td> <td></td> <td>52</td> <td>26478</td> </tr> <tr> <td rowspan="5">Gujarat</td> <td>Makansar</td> <td>Morbi</td> <td>110</td> <td>123000</td> </tr> <tr> <td>Banaskhanta</td> <td>Palanpur</td> <td>20</td> <td>22220</td> </tr> <tr> <td>Banaskhanta</td> <td>Banaskhanta</td> <td>25</td> <td>25250</td> </tr> <tr> <td>Nal Sarovar</td> <td>Ahmedabad</td> <td>12.5</td> <td>8000</td> </tr> <tr> <td>Total</td> <td></td> <td>167.5</td> <td>178470</td> </tr> <tr> <td colspan="3">Grand Total</td> <td>219.5</td> <td>204948</td> </tr> </tbody> </table> <p>Refer Annexure – 7 for compensatory plantation details carried out by Cairn.</p>	State	Village	District	Total Hectares Planted	Total Trees Planted in No's	Rajasthan	Golia Jethmal	Barmer	25	11263	Chokhla	Barmer	15	10560	Sanchole	Jalore	12	4655	Total		52	26478	Gujarat	Makansar	Morbi	110	123000	Banaskhanta	Palanpur	20	22220	Banaskhanta	Banaskhanta	25	25250	Nal Sarovar	Ahmedabad	12.5	8000	Total		167.5	178470	Grand Total			219.5	204948
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(ix)	The project authorities shall install SCADA system with dedicated optical fiber-based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential areas and sensitive installations should be provided to		<p>However, the following pipeline safety and security systems have been operational in the existing pipeline and associated facilities:</p> <ul style="list-style-type: none"> ▪ Supervisory Control and Data Acquisition System (SCADA) & Distributed Control System (DCS) ▪ Pipeline Intrusion Detection System (PIDS) ▪ Leak Detection Systems (LDS) 																																																

S. No.	Environment Clearance conditions	Status of compliance
	prevent the number of gas / hydrocarbons going to the atmosphere in the event of pipeline failure. Intelligent pigging facility should be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system shall be provided to prevent external corrosion.	For 8" gas pipeline, sectionalizing valves are installed at every AGI. For 24" crude oil pipeline, valves are installed at Mangala Processing Terminal, AGI 6, AGI 9, AGI 12, AGI 13A, AGI 13B, AGI 15, AGI 17, Viramgam Terminal, AGI 21, AGI 24, AGI 26, AGI 27, AGI 30, AGI 33, AGI 35 and Bhogat Terminal. Intelligent pigging stations for 24" crude oil pipeline is located in Mangala Processing Terminal, AGI 9, AGI 13A, Viramgam Terminal, AGI 26, AGI 33 and Bhogat Terminal. The three-layer polyethylene coating of the gas pipeline is supplemented with Impressed Current Cathodic Protection System to protect against external corrosion. During construction of the pipeline, temporary cathodic protection has been provided.
(x)	The project authorities shall patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method(s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey shall be carried out at regular intervals to ensure the adequacy of cathodic protection system.	Foot patrolling along pipeline ROU is followed as per the operational procedure. The adequacy of the cathodic protection system is checked through the following surveys: <ul style="list-style-type: none"> ▪ Pipe to Soil Potential (PSP) Survey (once in every 3 months) ▪ CIPS (Close Interval Potential Survey) (once in every 4 years) ▪ DCVG (Direct Current Voltage Gradient) Survey (once in every 4 years) ▪ Pearson Survey (once on every 4 years)
(xi)	The fire water facilities at the terminals must be designed as per OISD-117 guidelines. However, for fighting prolonged fires, the company shall firm up a plan for assured water supply from nearby ground water source/ surface water source. This must be complied before commissioning the project.	The fire water facilities have been designed as per OISD-117 guidelines. Viramgam Terminal has a bore well within the premises permitted by CGWB. In case of any emergency, this source of water shall be continuously available for fire-fighting purpose.
(xii)	Green belt of adequate width and density shall be provided to mitigate the effects of fugitive emission all around the intermediate pumping stations. A minimum of 25% of the total land acquired shall be developed as green belt in consultation with the local DFO.	Greenbelt is developed in accordance with EC and CTE conditions. Refer Annexure – 12 for the details of the green belt developed.

Compliance to General Conditions:

S. No.	Environment Clearance conditions	Status of compliance
(i)	The project authorities must strictly adhere to the stipulations made by the Rajasthan and Gujarat State Pollution Control Boards and the State Governments.	Noted and will be complied with.

S. No.	Environment Clearance conditions	Status of compliance
(ii)	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted and no activities presently being carried out without any EC requirements. All the activities are being carried out as per the as per obtained EC.
(iii)	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.	Hazardous chemicals have been identified, labeled, and securely stored. MSDS has been displayed at points of storage and usage. The following approvals have been obtained: <ul style="list-style-type: none"> ▪ License for storage of petroleum from Petroleum & Explosives Safety Organization (PESO) ▪ License to Work a Factory from Directorate of Industrial Health & Safety, Gujarat ▪ Certificate from Electrical Inspectorate
(iv)	The project authorities must strictly comply with the rules and regulation with regarding to handling and disposal of Hazardous Wastes (Management and Handling) Rules, 1989/ 2003 wherever applicable. Authorization form the State Pollution Control Boards must be obtained for collections/treatment/storage/disposal of hazardous wastes.	During the reporting period, the AGIs and Terminals have operated with valid Combined Consents & Authorization from GPCB. During the reporting period, hazardous wastes have been disposed only to CPCB / GPCB authorized recyclers. Hazardous wastes have been collected at central hazardous waste storage facilities inside the Viramgam terminal and AGIs. The areas have impervious floor, berms, slope with collection sump and shade.
(v)	The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules,1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	Noise level is measured at boundary of the plant at four locations and value of the noise at night and daytime is well within limit and as per Annexure-1. High noise equipment's such as gas turbine generators, diesel generators, rotary equipment's are provided with acoustic enclosures to control noise.
(vii)	A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	No separate environmental laboratories is established at the site, but environmental monitoring is carried out through third party environmental laboratories certified by NABL and MoEF&CC.
(viii)	The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions	Cost for pollution control devices are inbuilt as part of the overall project cost (CAPEX). Annual recurring costs for EMP implementation are budgeted as part of pipeline OPEX budget.

S. No.	Environment Clearance conditions	Status of compliance
	stipulated herein. The funds so provided shall not be diverted for any other purposes.	During financial year 2023-24, approximately INR 2,53,12,723 was invested for EMP implementation and HSE excellence.
(ix)	The Regional Offices of this Ministry at Bhopal and Lucknow / Central Pollution Control Board / State Pollution Control Board will monitor the stipulated conditions. A six-monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Six-monthly EC compliance reports are submitted regularly to various regulatory authorities such as CPCB, GPCB, RSPCB and MoEF&CC regional office and uploaded in Cairn India website. Refer the below link for details. https://www.cairnindia.com/sustainability/disclosure-s-and-report Refer Annexure – 1 of this report for environmental monitoring reports.
(x)	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of clearance letter are available with State Pollution Control Boards/ Committee and may also be seen at Website of Ministry and Forests at http://www.envfor.nic.in . This shall be advertised within seven days of issue of this letter in at least two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of locality concerned.	Advertisement of environment clearance issuance was done in local newspaper and in vernacular Language.
(xi)	The project authorities shall inform the Regional Offices as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	For Barmer-Salaya Phase I project (EC no. J-11011/234/2007-IA.II(I) dated 28.04.2008): <ul style="list-style-type: none"> • Land development work commenced on 25.05.2008 • Final approval of the project obtained from PESO, Gol ref. P-2(4)621 dated 16.06.2010. Once the project closures out plan finalized, the same will be intimated to the concerned authorities.
(xii)	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted.
(xiii)	The Ministry reserves the right to stipulate additional conditions if found necessary. The company in a time bound manner will implement these conditions.	Noted.
(xiv)	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management & Handling) Rules, 1989, 2003 and the Public Liability insurance Act, 1991 along with their amendments and rules.	All facilities covered under this EC were operated with valid Consents under Air & Water Acts and valid Hazardous Waste Authorization under applicable Hazardous Waste Rules obtained from the Gujarat Pollution Control Board. In compliance with the requirements of the Public Liability Insurance Act 1991, Vedanta Limited has taken insurance with Tata AIG General Insurance Company Ltd. (Ref: Policy No.: 0304012635) valid till 30th September 2025.

S. No.	Environment Clearance conditions	Status of compliance
		Vedanta Limited has membership of GPCB authorized TSDF for hazardous wastes (Saurashtra Enviro Projects Pvt. Ltd., Kutch) and E-coli waste management pvt Ltd. for Viramgam Terminal and Care BMW incineration Limited for Radhanpur Terminal) and Dev Care Bio Medical waste management for Bhogat Terminal for BMW disposal.

**SIX-MONTHLY REPORT ON
PROGRESSIVE COMPLIANCE TO ENVIRONMENTAL CLEARANCE CONDITIONS**

Project:	Installation and operation of Two Single Point Mooring (SPM) and interconnecting pipelines to evacuate crude oil and import diluents to the storage terminal and installation and operation of crude oil terminal at Village Bhogat, Taluka -Kalyanpur, Distt. - Jamnagar, Gujarat.
File reference:	F. No. 11-34/2009-IA-III dated 24 th August 2009
EC compliance reporting period:	April-2024 to September-2024
Project phase:	Initial midstream operations started in quarter – 3 of 2009
Project activity:	<ul style="list-style-type: none"> ▪ Crude oil transportation and Natural Gas Transportation. ▪ Operation of 3 no's. of Above-Ground Installations (AGIs) 34, 35 & 36 (which serve as stations for heating the viscous crude oil pipeline to maintain its flow), Bhogat Terminal (having facilities for hydrocarbon storage and marine export) and Single Point Mooring in Arabian Sea.

Compliance to Specific Conditions:

S. No.	Environment Clearance conditions	Status of compliance
7(i)	All the commitments made by the project proponent to the Director (Environment), Govt. of Gujarat and conditions stipulated in the letter No. ENV-10-2008-1949-E, dated 21 st March. 2009 shall be strictly complied with.	Noted for compliance. Refer Annexure – 11 for compliance details.
7(ii)	There shall be no temporary/permanent camp sites in CRZ area.	There was no camp set-up in the CRZ area during laying of the pipeline. However, during the present reporting period there was no construction in the CRZ area.
7(iii)	All the recommendations of EIA and Disaster Management Plan shall be strictly complied with.	<p>The key compliances in reference to EIA are detailed below:</p> <ul style="list-style-type: none"> • Environmental pollution control systems such as oil water separator, STP and facility for reject disposal to sea have already been installed and operational. • STP is operational and treated water is used for green belt development. • Oil water separator is installed and in operation. • Green belt area is earmarked and phase wise development in under progress. • Rainwater harvesting and recharge structures constructed. • Hazardous waste storage shed has been constructed and in usage. • Environmental monitoring is being conducted through NABL accredited 3rd party laboratory. • Community-based disaster management plan covering onshore facilities was prepared

S. No.	Environment Clearance conditions	Status of compliance
		through third party (Certification Engineers International Limited) in November 2013 and submitted to Khambaliya District Magistrate, Jamnagar District Collector and Asst. Director, Directorate of Industrial Safety & Health, Jamnagar.
7(iv)	Proper oil spillage contingency plan shall be put in place.	The Oil spill Response Plan developed for operations of the Barmer to Salaya section of the pipeline was extended to include the Bhogat terminal operations. An Oil spill Response Plan for offshore operations was prepared by Oil Spill Response Limited (OSRL), Singapore and is in accordance the guidelines issued by the Indian Coast Guard (ICG). The Plan has been provisionally approved by ICG vide. letter no. 7563 dated 10 th November 2014. Updated plan is again sent to ICG on the 5 th September,2019.
7(v)	Any offshore vessel discharge shall be complied the norms of MARPOL.	Three support vessels were deployed are compliance to MARPOL 73/78 norms.
7(vi)	Wastewater generated shall be properly treated and reused, with the provision of oil water separator system.	25 KLD Sewage Treatment Plant (STP) are currently treating sewage waste generated from Bhogat Terminal. The treated water is being used for green belt development. The treated water quality is being tested Quarterly through MoEF approved third party Laboratory. The treated wastewater from OWS is mixed with RO reject and disposed into the Arabian Sea 800 m off Bhogat coast through diffuser arrangement, as recommended by National Institute of Oceanography (NIO) and mentioned in CCA. <u>AGIs:</u> Septic tank and soak pit has been installed at each AGI for disposal of domestic waste. There is no industrial wastewater generation at AGIs.
7(vii)	Oily waste to be stored in paved dedicated storage area and shall be disposed to authorized oily recyclers.	Central hazardous waste storage facility has been constructed inside the Bhogat terminal and AGIs. They have impervious floor, berms, slope with collection sump and shade. Used oil is collected and periodically disposed to nearby Close Drain Tank (CDT) as per GPCB consent. Oily contaminated waste is disposed to TSDF operator Saurashtra Enviro Project Pvt Ltd, Bhachau as authorized in CCA.
7(viii)	Crude oil storage tank farm shall be impervious lined and concrete paved with dyke walls.	In Bhogat terminal, RCC constructed secondary containment including dyke wall is provided to the crude oil storage facilities.
7(ix)	Under Corporate Social Responsibility (CSR), sufficient budgetary provision shall be made for health improvement, education,	Vedanta Limited has been investing in CSR to improve the socio-economic conditions of the community along the pipeline route from Barmer to Bhogat. The activities are carried on in four

S. No.	Environment Clearance conditions	Status of compliance
	water and electricity supply etc. in and around the project.	thematic areas education, health, infrastructure and economic development. Refer Annexure – 4 for CSR related programs.
7(x)	All the conditions stipulated by Gujarat Maritime Board vide their letter dated 25.11.2008 shall be strictly complied with.	Complied with the conditions mentioned by Gujarat Maritime Board. Refer Annexure – 5 for details.

Compliance to General Conditions:

S. No.	Environment Clearance conditions	Status of compliance
8(i)	The construction of the structures should be undertaken as per the plans approved by the concerned local authorities/local administration, meticulously conforming to the existing local and Central rules and regulations including the provisions of Coastal Regulation Zone Notification dated 19.2.1991 and the approved Coastal Zone Management Plan of Gujarat.	Noted and complied with the conditions. CRZ Clearance for installation and operation of two SPM, interconnecting pipelines and crude oil storage terminal obtained from Forests & Environment Department, Government of Gujarat in 2009. Local body approval was obtained for the construction of buildings and other structures.
8(ii)	In the event of any change in the project profile a fresh reference shall be made to the Ministry of Environment and Forests.	There is no change in the project profile.
8(iii)	This Ministry reserves the right to revoke this clearance, if any, of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Noted.
8(iv)	This Ministry or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.	Noted and if any conditions stipulated to the Cairn oil and gas division will be complied.
8(v)	Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the offices of the Central and State Pollution Control Board by the project proponents during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.	Cairn oil and gas division of Vedanta Limited will provide all necessary supports to the regulatory authorities. Also will demonstrate with evidence the various actions plans initiated and under implementation towards mitigating various environmental measures.

Compliance to other conditions:

S. No.	Environment Clearance conditions	Status of compliance
9.	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974 the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and Municipal Solid	All facilities covered under this EC were operated with valid Consents under Air & Water Acts and valid Hazardous Waste Authorization under applicable Hazardous Waste Rules obtained from the Gujarat Pollution Control Board.

S. No.	Environment Clearance conditions	Status of compliance
	Wastes (Management and Handling) Rules, 2000 including the amendments and rules made thereafter.	<p>In compliance with the requirements of the Public Liability Insurance Act 1991, Vedanta Limited has taken insurance with Tata AIG General Insurance Company Ltd. (Ref: Policy No.: 0304012635) valid till 30th September 2025.</p> <p>Vedanta Limited (Cairn Oil and Gas) has membership of GPCB authorized TSDF for hazardous wastes (Saurashtra Enviro Projects Pvt. Ltd., Kutch) and Bio- medical wastes (Dev Biomedical Waste Management Services, Jamnagar) disposal.</p>
10.	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department and Civil Aviation Department from height point of view, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	<p>License for storage of petroleum at Bhogat Terminal has been obtained from Petroleum & Explosives Safety Organization (PESO) (Ref: P/HQ/GJ/15/5312 (P251992) dated 06th Mar 2014)</p> <p>Certificate from Electrical Inspectorate was obtained (Ref: CEI/T-1/P-2/PPP/0836(13)/14/6049 dated 16th July, 2014 for Bhogat Terminal & CEI/T-1/P-2/EHT/006/14/6038 dated 16th July, 2014, Drawing approval CEI/T-1/P-2/PPP/0836(13)/14/3929 dated 21st April 2014).</p> <p>The approvals for following obtained:</p> <ul style="list-style-type: none"> ▪ License to Work a Factory from Directorate of Industrial Health & Safety, Gujarat as under: <ul style="list-style-type: none"> ○ Bhogat Terminal - NO.A.D.I.S.H/JAM/1511/2014 date of Issue: 10/10/2014 (for 2014-2015) ○ AGI 34 - NO.A.D.I.S.H/JAM/1512/2014 date of Issue: 10/10/2014 (for 2013-2014) ○ AGI 35 – NO.A.D.I.S.H/JAM/1513/2014 date of Issue: 10/10/2014 (for 2013-2014) ○ AGI 36 - NO.A.D.I.S.H/JAM/1514/2014 date of Issue: 10/10/2014 (for 2013-2014) ▪ Certificate from Electrical Inspectorate as under: <ul style="list-style-type: none"> ○ Bhogat Terminal: Ref No. CEI/T-1/P-2/EHT/006/14/6038 date of issue 16/07/2014 ○ AGI -34 - Ref No. CEI/T1/P2/PPP/0005/14/5380; date of issue 21/06/2014 ○ AGI -35 - Ref No. CEI/T1/P2/PPP/0007/14/5376; date of issue 21/06/2014 ○ AGI -36 - Ref No CEI/T1/P2/PPP/0006/14/5372; date of issue 21/06/2014 ▪ Approval on Oil Spill Contingency Plan from Indian Coast Guard; approval received 7563 dated 10/11/2014. ▪ Consent to Operate from Oil Industry Safety Directorate for SPM, OISD/ENGG-PL/GEN/17 dated 27/11/2014.

S. No.	Environment Clearance conditions	Status of compliance
		<ul style="list-style-type: none"> ▪ Approval from Navigational Safety Ports Committee – Provisional approval receive vide letter No. 5-NT (03)/Bhogat Port/ 2014-NSPC ▪ ISPS (International Ship & Port facility Security) compliance certificate from Directorate General of Shipping vide MMDKDL/SOC/010 dated 10/01/2014
11.	<p>The project proponent should advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Gujarat Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at http://www.envfor.nic.in. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bhopal.</p>	<p>Advertisement of environment clearance issuance was done in local newspaper and in vernacular Language.</p>
12.	<p>Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004 as may be applicable to this subject.</p>	<p>Noted.</p>
13.	<p>Any appeal against this Environmental Clearance shall be with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of National Environment Appellate Act, 1997</p>	<p>Noted.</p>
14.	<p>A copy of the clearance letter shall be sent by the proponent to be concerned Panchayat, Zilla Parisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.</p>	<p>Copy of EC is circulated to concerned Panchayat, Zilla Parisad/Municipal Corporation, Urban Local Body and the Local NGO. All EC copies are uploaded with Six monthly EC compliance report on website.</p>
15.	<p>The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously, be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall</p>	<p>Six-monthly EC compliance reports are submitted regularly to various regulatory authorities such as CPCB, GPCB, RSPCB and MoEF&CC regional office and also uploaded in Cairn India website. Refer the below link for details. https://www.cairnindia.com/Pages/PoliciesandDisclosures.aspx Refer Annexure – 1 of this report for environmental monitoring reports.</p>

S. No.	Environment Clearance conditions	Status of compliance
	be monitored and displayed at a convenient location near the main gate of the company in the public domain.	
16.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB	Six-monthly EC compliance reports are submitted regularly to various regulatory authorities such as CPCB, GPCB, RSPCB and MoEF&CC regional office and also uploaded in Cairn India website. Refer the below link for details. https://www.cairnindia.com/Pages/PoliciesandDisclosures.aspx Refer Annexure – 1 of this report for environmental monitoring reports.
17.	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	Environment statement of the Viramgam, Radhanpur and Bhogat Terminal are enclosed as Annexure - 09. Compliance of the Environment clearance conditions are submitted six monthly once to regional office of MoEF&CC at Bhopal and Lucknow, CPCB Bhopal Office, Member Secretary GPCB and RSPCB.

**SIX-MONTHLY REPORT ON
PROGRESSIVE COMPLIANCE TO ENVIRONMENTAL CLEARANCE CONDITIONS**

Project:	Increase in carrying capacity of crude oil pipeline (1,50,000 to 1,75,000 bopd in existing Barmer (Rajasthan) to Bhogat (Gujarat) pipelines.
File reference:	F. J-11011/444/2011-IA II (I) dated 5 th September 2012
EC compliance reporting period:	April-2024 to September-2024
Project phase:	Initial midstream operations started in quarter – 3 of 2009
Project activity:	Crude oil transportation

Compliance to Specific Conditions:

S. No.	Environment Clearance conditions	Status of compliance
3(i)	No additional facilities, tankages or pipeline system will be installed	As per this EC, no additional facilities have been installed.
3(ii)	All the specific and general conditions specified in the environmental clearance accorded vide. Ministry's letter no. J-11011/234/2007-IAII (I) dated 28th April 2008 (pipeline facilities) and J-11011/34/2009-IAII (I) dated 24th August 2009, shall be implemented.	All the conditions mentioned in the subject EC has been complied with and the compliance report is also submitted for your immediate reference.
3(iii)	Consent to Establish and Operate for the revised proposal shall be obtained from the Rajasthan Pollution Control Board and Gujarat Pollution Control Board.	CTE and CTO was not obtained for new proposal from Rajasthan Pollution Control Board and Gujarat Pollution Control Board in reporting period.
3(iv)	No further expansion or modifications in the plant shall be carried out without prior approval of the ministry of Environment and Forest. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environment protection measures required, if any.	No expansion or modifications was initiated outside the scope of this EC.

**SIX-MONTHLY REPORT ON
PROGRESSIVE COMPLIANCE TO ENVIRONMENTAL CLEARANCE CONDITIONS**

Project:	Augmentation in carrying capacity (175,000 BoPD to 200,000 BoPD) of Inter-State Pipeline of M/s Cairn India Ltd from Barmer (Rajasthan) to Bhogat (Gujarat)
File reference:	F. No. J-11011/444/2011-IA II (I) dated 23 rd May 2014
EC compliance reporting period:	April-2024 to September-2024
Project phase:	Initial midstream operations started in quarter – 3 of 2009
Project activity during reporting period:	Crude oil transportation and Natural Gas Transportation.

Compliance to Specific Conditions:

S. No.	Environment Clearance conditions	Status of compliance
(i)	No additional facilities, tankages or pipeline system will be installed	As per this EC, no additional facilities have been installed in reporting time.
(ii)	All the specific conditions and general conditions specified in the environmental clearance accorded vide Ministry's letter no. J-11011/234/2007-IAII (I) dated 28 th April, 2008 (pipeline associated facilities), J-11011/34/2009-IAII(I) dated 24 th August, 2009 and J-11011/444/2011- IA II (I) dated 4 th September, 2012 shall be complied with.	All the conditions mentioned in the subject EC has been complied with and the compliance report is also submitted for your immediate reference.
(iii)	'Consent to Establish and Operate' for the revised proposal shall be obtained from the Rajasthan Pollution Control Board and Gujarat Pollution Control Board.	New Project is not installed as per this EC in this reporting time, so CTE and CTO was not obtained for new proposal from Rajasthan Pollution Control Board and Gujarat Pollution Control Board.
(iv)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	No expansion or modifications was initiated outside the scope of this EC.

**SIX-MONTHLY REPORT ON
PROGRESSIVE COMPLIANCE TO ENVIRONMENTAL CLEARANCE CONDITIONS**

Project:	Expansion in existing crude oil carrying capacity from 2,00,000 bopd to 3,00,000 bopd and natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Rageshwari to Palanpur in existing project to Bhogat (Gujarat) Pipeline, dist Barmer, Rajasthan by M/s. Cairn India Limited reg.EC
File reference:	F.No. J-11011/234/2007-IA II (I) dated 31 st October, 2016
EC compliance reporting period:	April-2024 to September-2024
Project phase:	Initial midstream operations started in quarter – 3 of 2009
Project activity completed during reporting period:	In the said reporting period, no new pipeline construction was started.
Environmental emergencies	No hydrocarbon leaks/spills or unplanned shutdown of pollution control equipment's happened during this reporting period.

Compliance to Specific Conditions:

S. No.	Environment Clearance conditions	Status of compliance
i.	The project authority shall ensure restoration of the Right of Way to pre-construction level as soon as construction activity is completed. To ensure prevention of soil erosion, backfilled areas should be properly compacted.	Noted and will be complied during the construction phase. New gas Pipeline lying project from Raageshwari to Palanpur was not initiated in the said EC Compliance reporting period.
ii.	Adequate stack height shall be provided to gas-based power plant. Low NOx burner shall be provided to control NOx emissions.	Gas based power plant commissioned at Viramgam and Bhogat terminal is equipped with adequate stack height and low NOx burner.
iii.	Adequate buffer zone around the crude oil tankages, as may be required as per the OISD or other statutory requirements.	Noted and adequate buffer zone will be provided in compliance to OISD standard and other statutory requirements. However, no crude oil tank was erected in the said EC Compliance reporting period.
iv.	Regular monitoring of VOC and HC in the work zone area in the plant premises shall be carried and data be submitted to Ministry's Regional Office at Bhopal, CPCB and State Pollution Control Board.	Monitoring of VOC and HC is being carried out in Viramgam and Bhogat terminal.
v.	Total additional freshwater requirement for Viramgam Terminal from ground water sources shall not exceed 20 m ³ /day and prior permission shall be obtained from the CGWA/SGWA.	Viramgam has 110 m ³ /day ground water withdrawal permission No.21-4(269)/WCR/CGWA/2008-580 dated 6 th Aug 2008. However, at present around 44.40m ³ /day of ground water is being withdrawn for consumption. This additional 20 m ³ /day of water will be required in future after meeting all the expansion requirements as mentioned in the EC. Refer Annexure – 2 for the CGWA compliance requirements.

S. No.	Environment Clearance conditions	Status of compliance
vi.	Annual safety audit shall be carried out for the initial three years by an independent agency and report submitted to this Ministry for ensuring the strict compliance of safety regulation on operation and maintenance.	Annual safety audit carried out for consecutively three years and report is submitted with EC compliance report for last three years. Last Audit was carried out by British Safety Council in 2019-20. All the points are compiled for the safety audit.
vii.	The construction of pipeline particularly at the river and stream crossing shall be done during dry seasons to avoid disturbance of breeding seasons and soil erosion. The riverbed, embankments and dykes shall be restored adequately after installation of crossings.	Noted and will be complied during the construction phase. New gas Pipeline lying <u>project</u> from Raageshwari to Palanpur was not initiated in the said EC Compliance reporting period.
viii.	Pipeline wall thickness and minimum depth of burial at river crossings and casings at rails, major road crossings shall be in conformity with ANSI/ASME requirements.	
ix.	The Company should follow horizontal drilling technique for laying of pipeline while passing through major rivers.	
x.	The project authorities should install SCADA system with dedicated optical fiber-based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential areas and sensitive location should be provided to prevent leaking of gas going to the atmosphere in the event of pipeline failure. Intelligent pigging facility should be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system shall be provided to prevent external corrosion.	<p>The following pipeline safety and security systems have been operational in the existing pipeline and associated facilities:</p> <ul style="list-style-type: none"> ▪ Supervisory Control and Data Acquisition System (SCADA) & Distributed Control System (DCS) ▪ Pipeline Intrusion Detection System (PIDS) ▪ Leak Detection Systems (LDS) <p>For 8" gas pipeline, sectionalizing valves are installed at every AGI. For 24" crude oil pipeline, valves are installed at Mangala Processing Terminal, AGI 6, AGI 9, AGI 12, AGI 13A, AGI 13B, AGI 15, AGI 17, Viramgam Terminal, AGI 21, AGI 24, AGI 26, AGI 27, AGI 30, AGI 33, AGI 35 and Bhogat Terminal.</p> <p>Intelligent pigging stations for 24" crude oil pipeline is in Mangala Processing Terminal, AGI 9, AGI 13A, Viramgam Terminal, AGI 26, AGI 33 and Bhogat Terminal.</p> <p>The three-layer polyethylene coating of the gas pipeline is supplemented with Impressed Current Cathodic Protection System to protect against external corrosion. During construction of the pipeline, temporary cathodic protection has been provided.</p>
xi.	The project authorities shall patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method(s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey shall be carried out at regular	<p>Foot patrolling along pipeline ROU is followed as per the operational procedure.</p> <p>The adequacy of the cathodic protection system is checked through the following surveys:</p> <ul style="list-style-type: none"> ▪ Pipe to Soil Potential (PSP) Survey (once in every 3 months)

S. No.	Environment Clearance conditions	Status of compliance
	intervals to ensure the adequacy of cathodic protection system.	<ul style="list-style-type: none"> ▪ CIPS (Close Interval Potential Survey) (once in every 5 years) ▪ DCVG (Direct Current Voltage Gradient) Survey (once in every 5 years).
xii.	All the recommendations mentioned in the risk assessment report should be implemented.	<p>Risk assessments are periodically carried out at the terminals and other facilities based on the change in the activities.</p> <p>The recent risk assessment study carried out for the various risks such as flash fire, jet fire, over pressure and late pool fire. The outcome of the study reveals that risk level is within acceptable limits. Refer Annexure-8 for details.</p>
xiii.	All the issues raised during the public hearing/consultation meetings held on 12 th December 2014 should be satisfactorily implemented.	Public hearing/consultation meetings issues were satisfactorily implemented. Refer for the details in Annexure – 3.
xiv.	Necessary approvals from the Chief Controller of Explosives must be obtained before commissioning of project. Requisite on-site and off-site Disaster Management Plans will be prepared and implemented.	PESO approval is obtained and periodically renewed as required. Disaster management is periodically updated based on the change in activities and information. The latest disaster management plan was submitted to GPCB and DISH office on 10 th Feb 2020.
xv.	The company should obtain all requisite clearances for fire safety and explosives and should comply with the stipulation made by the respective authorities.	PESO approval obtained for the fire and safety precaution system in place for the terminals & pipeline operations. The conditions of same are complied.
xvi.	Occupational health surveillance of worker should be done on a regular basis and records maintained as per Factory Act.	Six monthly medical checkups are done as per the factory act requirement for all the employees and contractor persons.
xvii.	The company should harvest surface as well as rainwater from the rooftops of the building proposed in the project and storm water drains to recharge the ground water and use the same water from the various activities of the project to conserve fresh water.	At various locations such as Viramgam, Radhanpur and Bhogat terminal, rain harvesting, and recharging structures are developed and operational. Rainwater harvested is being utilized in greenbelt development.
xviii.	At least 2.5% of the total cost of the project should be earmarked towards Enterprise Social Commitment based on local needs and action plan with financial and physical break-up details should be prepared and submitted to the Ministry's regional office at Bhopal. Implementation of such program should be ensured accordingly in a time bound manner.	Project activities and budget incurred towards the Enterprise Social Commitment programs are detailed in the Annexures – 4.

Compliance to General Conditions:

S. No.	Environment Clearance conditions	Status of compliance
i.	The project authorities must strictly adhere to the stipulations made by the Rajasthan and Gujarat State Pollution Control	Being complied with the conditions mentioned in the Consent Orders. Also, the consent and

S. No.	Environment Clearance conditions	Status of compliance
	Board (SPCBs), State Governments and any other statutory authority.	authorization related compliance reports are periodically submitted to the concerned SPCBs.
ii.	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted and no activities presently being carried out without any EC requirements.
iii.	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Boards (SPCB) and it shall be ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	AAQM station is decided in such way that two station in upwind and two station in downwind directions are monitored. The monitoring reports are periodically submitted to the Pollution Control Boards (PCBs).
iv.	The National Ambient Air Quality Emission Standards issued by the Ministry vide. G.S.R. No. 826(E) dated 16 th November 2009 shall be followed.	Ambient Air quality monitoring is done as per NAAQM standards and reports submitted to the PCBs. Refer Annexure-1 for monitoring reports.
v.	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules,1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).	Noise level is measured at boundary of the plant at four locations and value of the noise at night and daytime is well within limit. High noise equipment's such as gas turbine generators, diesel generators, rotary equipment's are provided with acoustic enclosures to control noise. Refer Annexure-1 for monitoring reports.
vi.	The company should harvest rainwater from the rooftops of the building and storm water drains to recharge the ground water and use the same water from the various activities of the project to conserve fresh water.	At various locations such as Viramgam, Radhanpur and Bhogat terminal, rain harvesting, and recharging structures are developed and operational. Rainwater harvested is being utilized in greenbelt development.
vii.	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to employees on handling of chemicals shall be imparted.	All the employees are trained periodically on the various aspects of health, safety and environment topics such as chemicals handling, incident response, process safety management, permit to work, firefighting, waste management, occupational hazards etc. Occupational health checkups during pre-employment and periodical medical examination are carried out for employees as defined in Cairn procedure.

S. No.	Environment Clearance conditions	Status of compliance
viii	The company shall also comply with the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environment management, risk mitigation measures and public hearing related to the project shall be implemented.	Cairn is committed in the implementation of the EMP, public hearing comments etc. Refer EMP Compliance progress in the Annexure - 6.
ix.	The company shall undertake all relevant measures for improving the socio-economic condition of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.	CSR activities are undertaken in consultation with the local population and village administration. The socio-economic improvement measures are identified through the need-based assessment study. The study reveals key focus involvement required in the area of education & health. Refer Annexure – 4 towards these initiatives.
x.	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	Company initiated various measures towards community welfare. Refer Annexure – 4 for details.
xi	A separate Environmental Management Cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	One-member designated at site environmental team is stationed at Viramgam towards carrying out the project and operational related activities in an environmentally responsible manner complying with environmental legal requirements. No separate environment laboratories is established at the site, but all the environmental monitoring is carried out through third party environmental laboratories certified by NABL and MoEF&CC.
xii.	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management /pollution control measure shall not be diverted for any other purposes.	Cost for pollution control devices are inbuilt as part of the overall project cost (CAPEX). Annual recurring costs for EMP implementation are budgeted as part of the pipeline OPEX budget. During financial year 2023-24, approximately INR 2,53,12,723 was invested for EMP implementation and HSE excellence.
Xiii	A copy of the clearance letter shall be sent by the project proponent to concerned panchayat, Zila Parisad/Municipal Corporation, Urban local body and the local NGO, if any, from whom suggestions/representation, if any were received while processing the proposal.	Copy of Environment clearance is submitted to Panchayat, District Collector office, GPCB and NGO. No suggestion or representation from the any of NGO and or local bodies were received in the said EC compliance reporting period.
Xiv.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental clearance conditions including results of monitored data (Both in hard copies as well as by e-mail) to the	Six-monthly EC compliance reports are submitted regularly to various regulatory authorities such as CPCB, GPCB, RSPCB and MoEF&CC regional

S. No.	Environment Clearance conditions	Status of compliance
	respective Regional office of MoEF, The respective Zonal office of the CPCB and GSPCB. A copy of the Environmental Clearance and six-monthly compliance status report shall be posted on the website of the company.	office through CD and also uploaded in Cairn India website. Refer the below link for details. https://www.cairnindia.com/sustainability/disclosures-and-report
xv.	The environmental statement for each financial year ending 31 st March in FORM-V as is mandated shall be submitted to the concerned state pollution control board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the company along with the status of compliance of the environmental clearance conditions and shall also be sent to the respective regional offices of MoEF by e-mail.	Environment statement of the Viramgam, Radhanpur and Bhogat Terminal are enclosed as Annexure - 09. Compliance of the Environment clearance conditions are submitted six monthly once to Regional office of MoEF&CC at Bhopal and Lucknow, CPCB Bhopal Office, Member Secretary GPCB and RSPCB.
xvi.	The Project proponent shall inform the public that the project has been accorded environment clearance by the Ministry and copies of the clearance letter are available with the SPCB/committee and may also be seen at website of the ministry of at http://moef.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	Advertisement of environment clearance issuance was done in local newspaper and in vernacular Language.
xvii.	The project authorities shall inform the Regional office as well as the Ministry, the date of the financial closure and final approval for the project by the concerned authorities and the date of the start of the project.	Partial development of the facilities mentioned in this EC has already been initiated effective December 2016 onwards. Once the project closures out plan finalized, the same will be intimated to the concerned authorities.

**SIX-MONTHLY REPORT ON
PROGRESSIVE COMPLIANCE TO ENVIRONMENTAL CLEARANCE CONDITIONS**

Project:	EC & CRZ clearance for proposed installation and operation of a captive passenger Jetty at Bhogat, near Bhogat village, Kalyanpur Taluka, Devbhoomi Dwarka District, Gujarat
File reference:	SEIAA/GUJ/EC&CRZ/7(e)/754/2021 dated 2nd June 2021
EC compliance reporting period:	April-2024 to September-2024
Project activity completed during reporting period:	Construction activities are not initiated during this period.
Environmental emergencies	Not Applicable

Compliance to Specific Conditions:

Sr. No.	Environment Clearance conditions	Status of Compliance
Specified Condition		
1	The provisions of the CRZ Notification of 2011 as amended from time to time shall be strictly adhered to by the M/s. Vedanta Limited	Noted for compliance.
2	The Vedanta Limited shall submit an undertaking mentioning that this project will not be used for commercial purpose, if any case and it will be only for captive use	Undertaking form need to be submitted
3	Necessary Permission from different department /agencies under different laws/acts shall be obtained before commencing any activity , including the construction.	Permission from Different department under different Laws/acts are under process.
4	As per MoEF&CC office Memorandum dated 30/09/2020 as per Corporate Environment Responsibility (CER), M/s. Vedanta Ltd. has to spend Rs. 0.94 Crores (2% of project cost) for mangrove plantation in about 200 Ha, under guidance of the Forests Department/GEER Foundation. A comprehensive plan for this purpose has to be submitted to the Forests & Environment Department, SEIAA and MoEF&CC.	Project is under preliminary stage and construction is yet started so CER spending will be utilized once Project will be in Operation phase.
5	Construction waste including debris and dredged material shall be disposed safety in the designated areas as approved by MoEF&CC, Gol and it shall ensured that there shall be no impact on flora and fauna.	Construction Phase is not yet started so this condition will be taken care during construction phase.
6	All the recommendations and suggestions given by the Bhagvati Ana Labs (P) Ltd., in their Environment Impact Assessment report shall be implemented strictly by Vedanta Limited.	Construction and Operation activities are not yet started so this condition will be taken care during construction and Operation phase.
7	The cost of the external agency that may be appointed by this department for Supervision/monitoring of the project activities during construction / operational Phases shall be paid by Vedanta limited.	Noted and will be complied as when department will appoint for Supervision/monitoring of the

Sr. No.	Environment Clearance conditions	Status of Compliance
		project activities during construction / operational Phases
8	The workers camps shall be located outside the CRZ area, and the labor shall be provided with the necessary amenities, including sanitation, water supply and fuel and it shall be ensured that the environmental conditions are not deteriorated by the labors.	Construction Phase is not yet started so this condition will be taken care during construction phase.
9	The ground water shall not be taped to meet with water requirements in any case.	Ground water will be utilized from Local sources through water tankers.
10	The Vedanta limited Shall have to contribute financially for taking up the socio-economic upliftment activities in this region in consultation with the Forests and Environment Department and the District Collector / District Development Officer.	Construction Phase is not yet started so this condition is not applicable during this period.
11	A six-monthly report on compliance of the conditions mentioned in this letter shall have to be furnished by Vedanta Limited on a regular basis to be this Department and MoEF&CC, Gol.	Noted.
12	The noise level during transport and construction of marine facilities shall be kept minimum.	Construction Phase is not yet started so this condition will be taken care during construction phase.
13	Any other condition that may be stipulated by this Department and MoEF&CC, GOI from time for environmental protection / management purpose shall have to be complied with by Vedanta Limited.	Noted and will be complied.
14	The Project Proponent (pp) shall strictly adhere to the provisions of the CRZ Notification, 2019 issued by the Ministry of Environment, Forests and Climate change, Government of india. No activity in contradiction of the provisions of the CRZ Notification shall be carried out by GMB, Govt. of Gujarat.	Noted and will be complied.
15	Proposed development of the passenger captive Jetty shall be used only for the personnel movement to be carry out the operation and maintenance activities of the already installed Single Point Mooring (SPM) at the location having Latitude 21 56 49.0" N and Longitude 69 09 52.09" E.	Noted and will be complied during operation phase.
16	No cargo shall be handled from the proposed jetty. All cargo movements shall be carried out only from the designated ports such as Okha, Porbandar etc, and not from the proposed passenger captive jetty at Bogat.	Construction Phase is not yet started so this condition is not applicable during this period.
17	There shall be no adverse impact on Schedule-II species due to proposed project and PP shall implement Ecology and Biodiversity conservation plan.	Construction Phase is not yet started so this condition is not applicable during this period.
18	No mangrove shall be disturbed and/or damaged during construction and operation phase of the proposed jetty. PP shall carry out mangrove plantation as well as conservation and preservation of associated species in the area in consultation with Divisional Forest Office	Construction Phase is not yet started so this condition is not applicable during this period.

Sr. No.	Environment Clearance conditions	Status of Compliance
19	All Necessary permissions from different Government Department / agencies shall be obtained by the PP before commencing the Activities.	Permission from Different department under different Laws/acts are under process.
20	No groundwater shall be tapped to meet with the water requirements during the construction and/or operation phases.	Construction Phase is not yet started so this condition will be taken care during construction and operation phase.
21	PP shall ensure that there shall not be any discharge of pollutants into sea, creek etc. which affects the marine water and marine ecology like discharge from boats, accidental spillage of oils from boats, etc.	Construction Phase is not yet started so this condition is not applicable during this period.
22	PP shall take up greenbelt development activities under guidance of the Forests Department / GEER Foundation. A comprehensive plan for this purpose has to be submitted to the Forests & Environment Department, SEIAA and Mo EF & CC.	Construction Phase is not yet started so this condition will be taken care during construction and Operations phase.
23	PP shall comply any Order/Circular/Resolution passed by concern authority w.r.t order dated 22.11.2017 in the original application No. 424 of 2016 by The National Green Tribunal, Principal Bench, New Delhi.	Noted and will be complied.
24	There shall be no capital dredging for the proposed project.	Construction Phase is not yet started so this condition will be taken care during construction phase.
25	PP shall ensure that construction activities like dredging etc. shall be carried out in confined manner to reduce the impact on marine environment.	Construction Phase is not yet started so this condition will be taken care during construction phase.
26	Dredging shall be done by appropriate dredger so as to minimize transfer of element between sediments and the water phase.	Construction Phase is not yet started so this condition will be taken care during construction phase.
27	PP shall monitor the environment parameters i.e. marine water, Ambient Air within the 10 km radius of the Jetty once the Jetty starts operating.	Construction Phase is not yet started so this condition will be taken care during construction phase.
28	PP shall ensure that there shall be no damage to the existing mangrove patches near the site and also ensure the free flow of water to avoid damage to the mangrove (If any).	Construction Phase is not yet started so this condition will be taken care during construction phase.
29	The jetty and the approach would be supported on piles allowing adequate flow of water without significant obstruction.	Construction Phase is not yet started so this condition will be taken care during construction phase.
30	Dredging (Maintenance) shall not be undertaken during the fish breeding season and other special weather.	Construction Phase is not yet started so this condition will be taken care during construction phase.
31	Dredging activity (Maintenance) shall be completed in the least possible time by reducing over run of duration in order to minimize adverse impacts.	Construction Phase is not yet started so this condition will be

Sr. No.	Environment Clearance conditions	Status of Compliance
		taken care during construction phase.
32	The dredging (Maintenance) material shall be completely used for reclamation for the proposed project and due shall be taken to avoid any adverse impact during reclamation.	Construction Phase is not yet started so this condition will be taken care during construction phase.
33	The dredging (Maintenance) material shall be disposed in low lying area in deep Sea as predicted using hydrodynamic model study for dumping the dredge material.	Construction Phase is not yet started so this condition will be taken care during construction phase.
CONSTRUCTION PHASE		
34	No construction debris and / or any other type of waste / wastewater shall be disposed of in CRZ areas.	Construction Phase is not yet started so this condition is not applicable during this period.
35	Construction materials and debris shall be properly stored and handled to avoid negative impacts such as air pollution and public nuisances by blocking the roads and public passages. The debris shall be removed from the construction site immediately after the construction is over.	Construction Phase is not yet started so this condition is not applicable during this period.
36	It shall be ensured that there is no adverse impact on the drainage of the area due to the construction activities.	Construction Phase is not yet started so this condition will be taken care during construction phase.
37	Solid waste likely to be generated from construction site and labor camps during construction phase will be collected and disposed of as per the Solid Waste Management Rules - 2016.	Construction Phase is not yet started so this condition will be taken care during construction phase.
38	Vessels operating during construction phase such as dredger shall be equipped with spill response kits.	Construction Phase is not yet started so this condition will be taken care during construction phase.
39	The construction camps shall be kept outside the CRZ areas, and the construction labor shall be provided with adequate amenities like drinking water, fuel, sanitation, etc. to ensure that the existing environmental condition is not deteriorated by them.	Construction Phase is not yet started so this condition will be taken care during construction phase.
40	Topsoil excavated during construction activities shall be stored for use in horticultural / landscape development within the project site.	Construction Phase is not yet started so this condition will be taken care during construction phase.
41	Ready Mix Concrete should be used so far as possible. Water demand during construction should be reduced by use of curing agents, plasticizers and other best practices.	Construction Phase is not yet started so this condition will be taken care during construction phase.
42	The Diesel Generator Set, if to be provided during the construction phase shall be of enclosed type and conforming to the EPA Rules for air and noise emission standards.	Construction Phase is not yet started so this condition will be taken care during construction phase.

Sr. No.	Environment Clearance conditions	Status of Compliance														
43	The overall noise level in and around the jetty area shall be kept well within the standards by providing noise control measures including engineering controls on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under The Environment (Protection) Act, 1986 & Rules.	Construction Phase is not yet started so this condition will be taken care during construction phase.														
44	Vehicles hired for bringing construction material at site should be in good conditions and conform to applicable air and noise emission standards and should be operated only during non-peak hours.	Construction Phase is not yet started so this condition will be taken care during construction phase.														
OPERATION PHASE																
45	There shall be no requirement of water during the operation phase of proposed project. Unit shall make arrangement of packaged water bottle at security cabin for drinking purpose.	Noted														
46	Unit shall use waterless urinals.	Construction Phase is not yet started but we will ensure that waterless urinals will be constructed in construction phase.														
47	No ground water shall be tapped in any case for the project requirements.	Ground water will be utilized from Local sources through water tankers.														
48	There shall be no wastewater generation from the proposed activity.	Noted and will be complied during construction phase.														
AIR																
49	<p>Unit shall not exceed fuel consumption DG set as mentioned below:</p> <table border="1"> <thead> <tr> <th>SR. no.</th> <th>Source of emission With Capacity e.g. Boiler</th> <th>Stack Height (meter)</th> <th>Name of the fuel</th> <th>Quantity of Fuel NIT/hr & MT/Day</th> <th>Type of emissions i.e. Air Pollutants</th> <th>APCM</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>D.G. Set- 1 no. (5 kVA)</td> <td>0.5 meter</td> <td>HSD</td> <td>0.024</td> <td>PM, SO₂, NO_x</td> <td>Adequate stack height</td> </tr> </tbody> </table>	SR. no.	Source of emission With Capacity e.g. Boiler	Stack Height (meter)	Name of the fuel	Quantity of Fuel NIT/hr & MT/Day	Type of emissions i.e. Air Pollutants	APCM	1	D.G. Set- 1 no. (5 kVA)	0.5 meter	HSD	0.024	PM, SO ₂ , NO _x	Adequate stack height	Construction Phase is not yet started so this condition will be taken care during construction phase.
SR. no.	Source of emission With Capacity e.g. Boiler	Stack Height (meter)	Name of the fuel	Quantity of Fuel NIT/hr & MT/Day	Type of emissions i.e. Air Pollutants	APCM										
1	D.G. Set- 1 no. (5 kVA)	0.5 meter	HSD	0.024	PM, SO ₂ , NO _x	Adequate stack height										
50	Unit shall provide adequate APCM with flue gas generation sources as mentioned above:	Construction Phase is not yet started so this condition will be taken care during construction phase.														
51	There shall be no any process gas emission from the unit.	Noted and will be complied.														
52	Adequate stack height as per prevailing norms shall be provided for the flue gas emissions and flue gas emission shall conform to the norms prescribed by the GPCB at the stack outlet.	Construction Phase is not yet started so this condition will be taken care during construction phase.														
53	Diesel to the tune of 0.024 MT/Day shall be used as a fuel in D, G. Set (5 KVA) and adequate stack height shall be provided as per the CPCB norms. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution	Construction Phase is not yet started so this condition will be taken care during construction phase.														

Sr. No.	Environment Clearance conditions	Status of Compliance												
	and conforming to the EPA Rules for air and noise emission standards.													
54	The fugitive emission in the work area shall be monitored. The emission shall conform to the standards prescribed by the concerned authorities from time to time (e.g. Directors of Industrial Safety & Health).	Construction Phase is not yet started so this condition will be taken care during construction phase.												
SOLID / HAZARDOUS WASTE														
55	The Project proponent shall strictly comply with the rules and regulations with regards to handling and disposal of Hazardous waste in accordance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016, as may be amended from time to time. Authorization of the GPCB must be obtained for collection / treatment / storage / disposal of hazardous wastes & other wastes.	Construction Phase is not yet started so this condition will be taken care during construction phase.												
56	Hazardous wastes shall be dried, packed and stored in separate designated hazardous waste storage facility with pucca bottom and leachate collection facility, before its disposal.	Construction Phase is not yet started so this condition will be taken care during construction phase.												
57	Hazardous / Solid waste management shall be as below:	Construction Phase is not yet started so this condition will be taken care during construction phase.												
	<table border="1"> <thead> <tr> <th>SR. no.</th> <th>Type/Name of Hazardous waste</th> <th>Source of generation</th> <th>Category and Schedule as per</th> <th>Quantity (MT/Annum)</th> <th>Disposal Method</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Used/spent oils</td> <td>D.G. Set</td> <td>Sch.:I, 5.1</td> <td>6 MT/Annum</td> <td>Sold to registered refiners.</td> </tr> </tbody> </table>	SR. no.	Type/Name of Hazardous waste	Source of generation	Category and Schedule as per	Quantity (MT/Annum)	Disposal Method	1	Used/spent oils	D.G. Set	Sch.:I, 5.1	6 MT/Annum	Sold to registered refiners.	
SR. no.	Type/Name of Hazardous waste	Source of generation	Category and Schedule as per	Quantity (MT/Annum)	Disposal Method									
1	Used/spent oils	D.G. Set	Sch.:I, 5.1	6 MT/Annum	Sold to registered refiners.									
58	Around 0.6 kg (0.01 kg/capita/day) MSW will be generated. Necessary arrangements shall be made for safe disposal of municipal solid wastes as per the provisions of the Solid Wastes Management Rules, 2016 as amended from time to time and solid wastes shall not be released in marine water / coastal area in any case.	Construction Phase is not yet started so this condition will be taken care during construction phase.												
59	Necessary arrangements shall be made for safe disposal of municipal solid wastes as per the provisions of the Solid Wastes Management Rules, 2016 as amended from time to time and solid wastes shall not be released in marine water / coastal area in any case.	Construction Phase is not yet started so this condition will be taken care during construction phase.												
60	Authorized end-users shall have permissions from the concerned authorities under the Rule 9 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.	Construction Phase is not yet started so this condition will be taken care during construction phase.												

Sr. No.	Environment Clearance conditions	Status of Compliance
61	Any non-hazardous waste shall be disposed off as per the hazardous and other wastes (management and transboundary movement) Rules 2016.	Construction Phase is not yet started so this condition will be taken care during construction phase.
	SAFETY	
62	The approach channel shall be properly demarcated with lighted buoys for safe navigation and adequate traffic control guidelines shall be framed. The fishermen shall be suitably educated and informed about the traffic guidelines.	Construction Phase is not yet started so this condition will be taken care during construction phase.
63	Local Oil Spill Contingency and Disaster Management Plan shall be prepared in consonance with the National Oil Spill and Disaster Contingency Plan.	Oil spill contingency plan is under review of ICG.
64	Necessary emergency lighting system along with emergency power back up system shall be provided at the harbor.	Construction Phase is not yet started so this condition will be taken care during construction phase.
65	Personal Protective Equipment's (PPEs) shall be provided to workers and its usage shall be ensured and supervised.	Construction Phase is not yet started so this condition will be taken care during construction phase.
66	First Aid Boxes shall be provided in adequate quantity at strategic locations.	Construction Phase is not yet started so this condition will be taken care during construction phase.
67	Training shall be given to all workers on safety and health aspects of handling chemicals.	Construction Phase is not yet started so this condition will be taken care during construction phase.
68	Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained as per the Rules.	Construction Phase is not yet started so this condition will be taken care during construction phase.
69	The project management shall prepare a comprehensive Disaster Management Plan (DMP) for the project as per the guidelines from Directorate of Industrial Safety and Health. Detailed DMP prepared shall be implemented to bring down risk involved / hazards / accidents as low as reasonably practicable.	Construction Phase is not yet started so this condition will be taken care during construction phase.
70	Transportation of materials shall be as per the Motor Vehicle Act & Rules.	Construction Phase is not yet started so this condition will be taken care during construction phase.
71	The project management shall ensure to comply with all the environment protection measures, risk mitigation measures and safeguards mentioned in the Disaster Management Plan (DMP).	Construction Phase is not yet started so this condition will be taken care during construction phase.
72	Occupational health surveillance of the workers shall be done, and its records shall be maintained. Pre-employment and periodical medical examination for all the workers shall be undertaken as per the prevailing norms.	Construction Phase is not yet started so this condition will be taken care during construction phase.

Sr. No.	Environment Clearance conditions	Status of Compliance
73	Tie up shall be done with nearby health care unit / doctor for seeking immediate medical attention in the case of emergency.	Construction Phase is not yet started so this condition will be taken care during construction phase.
	NOISE	
74	The overall noise level in and around the plant area shall be kept well within the prescribed standards by providing noise control measures including acoustic insulation, hoods, silencers, enclosures vibration dampers etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the environment (protection) act and rules. Workplace noise levels for workers shall be as per the factories act and rules.	Construction Phase is not yet started so this condition will be taken care during construction phase.
75	High pressure hose shall be used for cleaning / washing in order to reduce wastewater generation.	Construction Phase is not yet started so this condition will be taken care during construction phase.
76	Cleaner production assessment study shall be carried out through a reputed institute / organization and recommendation thereof along with the compliance shall be furnished to the SEIAA and GPCB.	Construction Phase is not yet started so this condition will be taken care during construction phase.
77	The unit shall develop green belt withing premises as per the CPCB guidelines. However, if the adequate land is not available within the premises, the unit shall take up adequate plantation on roadsides and suitable open areas in GIDC estate or any other open areas in consultation with the GIDC / GPCB and submit an action plan of plantation for next three years to the GPCB.	Construction Phase is not yet started so this condition will be taken care during construction phase.
78	Drip irrigation / low-volume, low-angle sprinkler system shall be used for the green belt development within the premises.	Construction Phase is not yet started so this condition will be taken care during construction phase.
79	Solar lightings shall be provided in and around the Jetty.	Construction Phase is not yet started so this condition will be taken care during construction phase.
80	In the event of failure of any pollution control system adopted by the unit, the unit shall be safely closed and shall not be restarted until the desired efficiency of the control equipment has been achieved.	Construction Phase is not yet started so this condition will be taken care during construction phase.

Sr. No.	Environment Clearance conditions	Status of Compliance
81	All the recommendations of EMP, mitigation measures, environmental protection measures and safeguards proposed in the EIA report of the project prepared by M/s: Bhagirathi Ana Labs Pvt. Limited, Hyderabad and submitted by project proponent vide your letter dated 01/02/2018 and commitments made during presentation before SEAC and proposed in the EIA report shall be strictly adhered to in letter and spirit by the Project proponent.	Construction Phase is not yet started so this condition will be taken care during construction phase.
82	All the recommendations, EMP, mitigation measures, environmental protection measures and safeguards proposed in the EIA report of the project prepared by M/s: Eco Chem Sale s& Services, Surat and submitted by project proponent vide your letter dated 11/10/2017 and commitments made during presentation before SEAC.	Construction Phase is not yet started so this condition will be taken care during construction phase.
83	A separate budget shall be earmarked for environmental management and socio-economic activities including the greenbelt / mangrove plantation and details thereof shall be furnished to F&ED, SEIAA as well as MoEF, Gol. The details with respect to expenditure from this budget head shall also be furnished along with compliance report.	Construction Phase is not yet started so this condition will be taken care during construction phase.
84	A separate environmental management cell with qualified personnel shall be created for environmental monitoring and management during construction and operational phases of the project.	Construction Phase is not yet started so this condition will be taken care during construction phase.
85	The project shall be implemented in such a manner that there shall be no any hindrance to movement of fishing vessels or fishermen.	Noted and will be complied.
85	The project shall be implemented in such a manner that there shall be no any hindrance to movement of fishing vessels or fishermen.	Construction Phase is not yet started so this condition will be taken care during construction phase.
86	All issues raised during the public hearing shall be addressed comprehensively.	Public Hearing exempted by authority and so this condition is not applicable.
87	The Project proponent shall bear the cost of the external agency that may be appointed by SEIAA or Forests & Environment Department (F&ED], Gujarat for supervision / monitoring of proposed activities and the environmental impacts of the proposed activities.	Noted and will be complied as and when SEIAA will propose for same.
88	The Project proponent shall regularly submit the half-yearly compliance report on the conditions stipulated in hard and soft copies to the regulatory authorities concerned, on 1st June and 1st December of each calendar year.	Noted and complied.
89	Any other condition that may be stipulated by the SEIAA / F&ED from time to time for environmental protection /	Noted and will be complied.

Sr. No.	Environment Clearance conditions	Status of Compliance
	management purpose shall have to be complied with by The Project proponent,	
90	The project authorities must strictly adhere to the stipulations made by the Gujarat Pollution Control Board (GPCB), State Government and any statutory authority.	Noted and will be complied.
91	No further expansion or modifications in the plant likely to cause environmental impacts shall be carried out without obtaining prior Environment Clearance from the concerned authority.	Noted and will be complied.
92	The above conditions will be enforced, inter alia (a) under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	Noted and will be complied.
93	The company shall undertake socio-economic developmental / community welfare activities as per the CSR Rules 2014.	Construction Phase and operations phase is not yet started so this condition will be taken care during construction phase.
94	The project proponent shall allocate the separate fund of Rs. 94 Lakhs i.e. 2.0 % of the capital investment for activities like Education, Infrastructure, Health, CSR to Fishing hamlet and Environment under Corporate Environment Responsibility (CER) in accordance to the MoEFCC's Office Memorandum No. F.NO.22-65/2017-IA.III dated 01/05/2018. The entire activities proposed under CER shall be monitored and the monitoring report shall be submitted to the regional office of MoEF&CC as a part of half-yearly compliance report and to district collector. The monitoring report shall be posted on the website of the project proponent. With regards, Yours sincerely,	Construction Phase and Operation phase is not yet started so this condition will be taken care during construction phase.
95	PP shall monitor the environment parameters i.e. marine water, Ambient Air within the 10 km radius of the Jetty once the Jetty starts operating.	Construction Phase and Operation phase is not yet started so this condition will be taken care during construction phase.

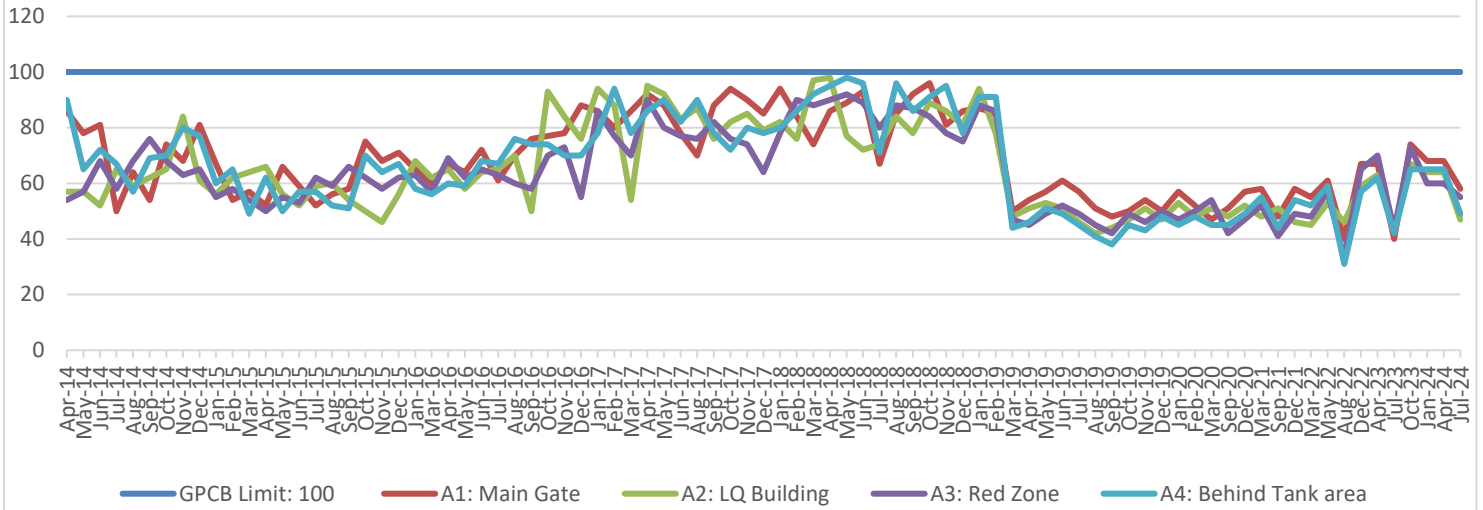
List of Annexures

List of Annexures	Details
Annexure No. 1	Environmental Monitoring reports
Annexure No. 2	CGWA compliance reports
Annexure No. 3	Public hearing compliance reports
Annexure No. 4	CSR program details including enterprise social responsibility activities
Annexure No. 5	Gujarat Maritime Board compliance report
Annexure No. 6	EMP compliance report
Annexure No. 7	Compensatory plantation details
Annexure No. 8	Risk study report
Annexure No. 9	Environmental Statement of Terminals
Annexure No. 10	List of midstream Environmental Clearances
Annexure No. 11	Compliance to the commitments made by Cairn to the Director (Environment), Govt. of Gujarat vide letter No. ENV-10-2008-1949-E, dated 21 st March. 2009
Annexure No. 12	Midstream Green Belt development details
Annexure No. 13	Post Monsoon Marine Monitoring Report

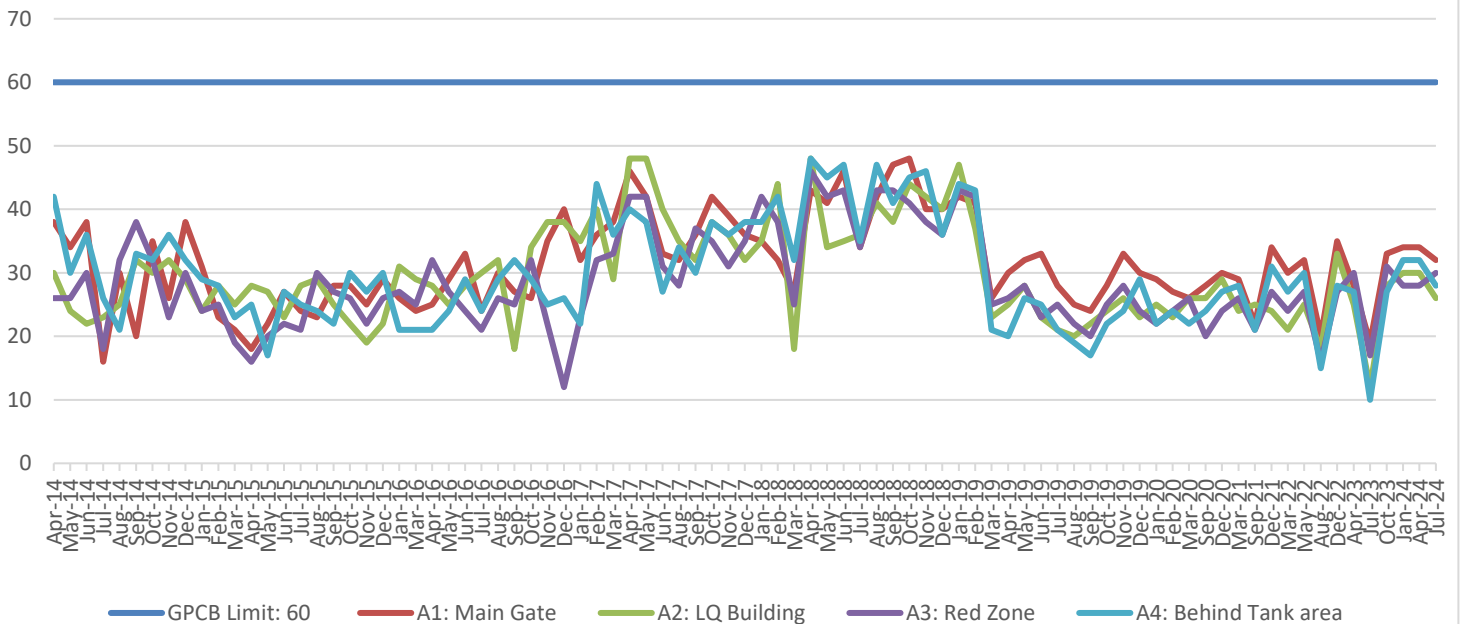
Annexure No. 1: Environmental Monitoring reports

AMBIENT AIR QUALITY MONITORING AT VIRAMGAM TERMINAL

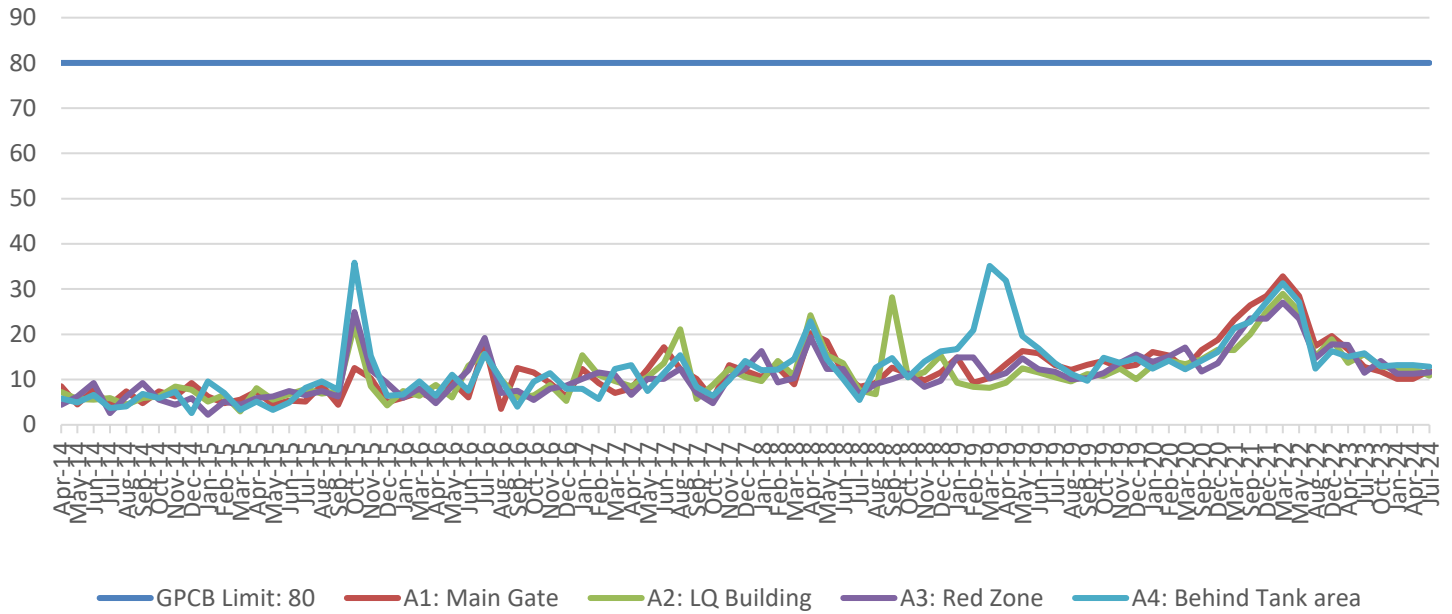
PM10 Ambient Air Quality Monitoring for Viramgam Terminal



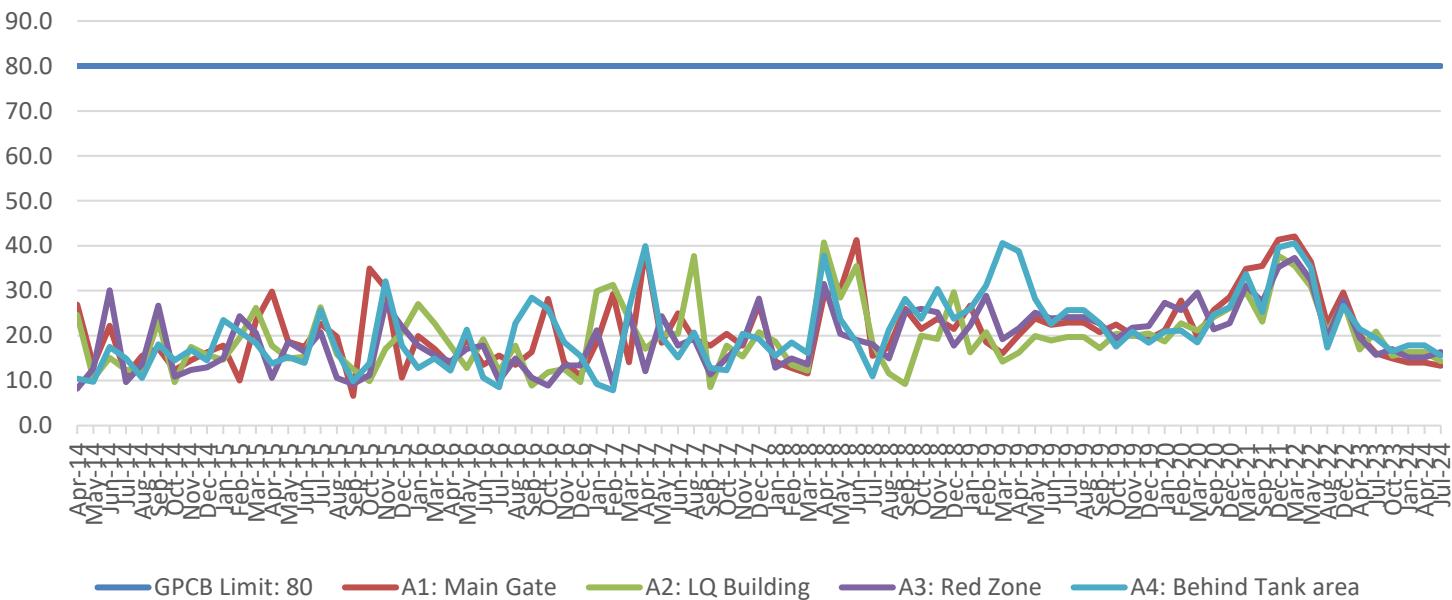
PM2.5 Ambient Air Quality Monitoring for Viramgam Terminal



SOx Ambient Air Quality Monitoring for Viramgam Terminal



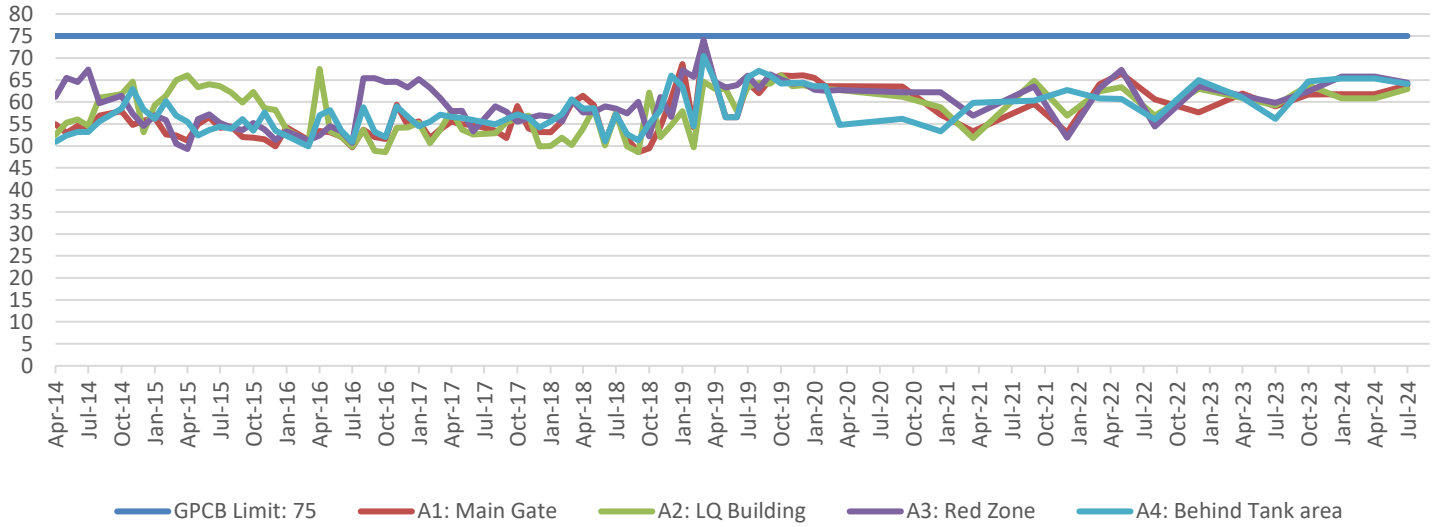
NOx Ambient Air Quality Monitoring for Viramgam Terminal



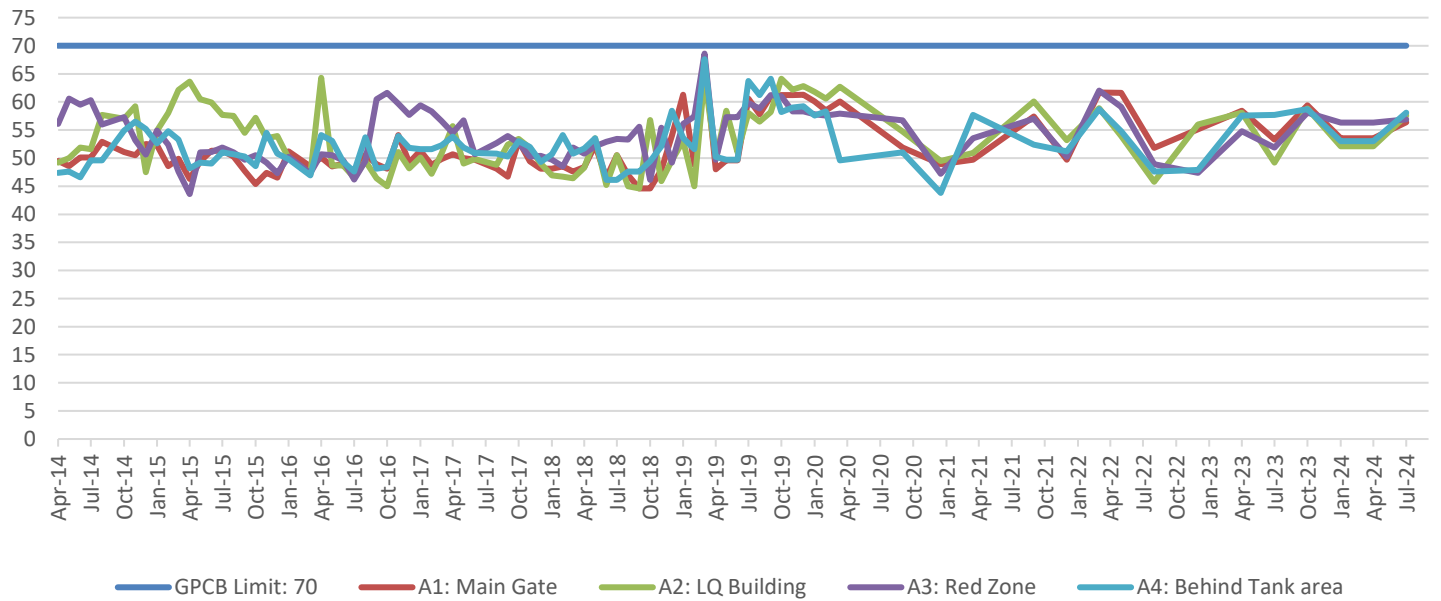
Note: HC and VOC levels are within BDL for Viramgam terminal Ambient Air quality monitoring location. BDL for HC is 160 mg/m3.

AMBIENT NOISE QUALITY MONITORING AT VIRAMGAM TERMINAL

Ambient Noise Level Monitoring for Day time for Viramgam Terminal

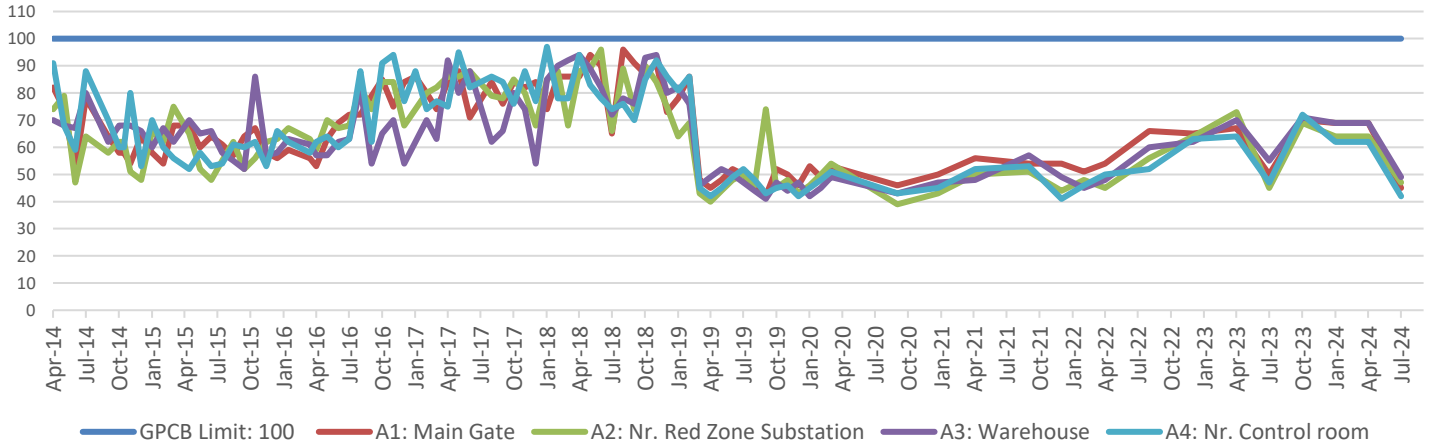


Ambient Noise Level Monitoring for Night time for Viramgam Terminal

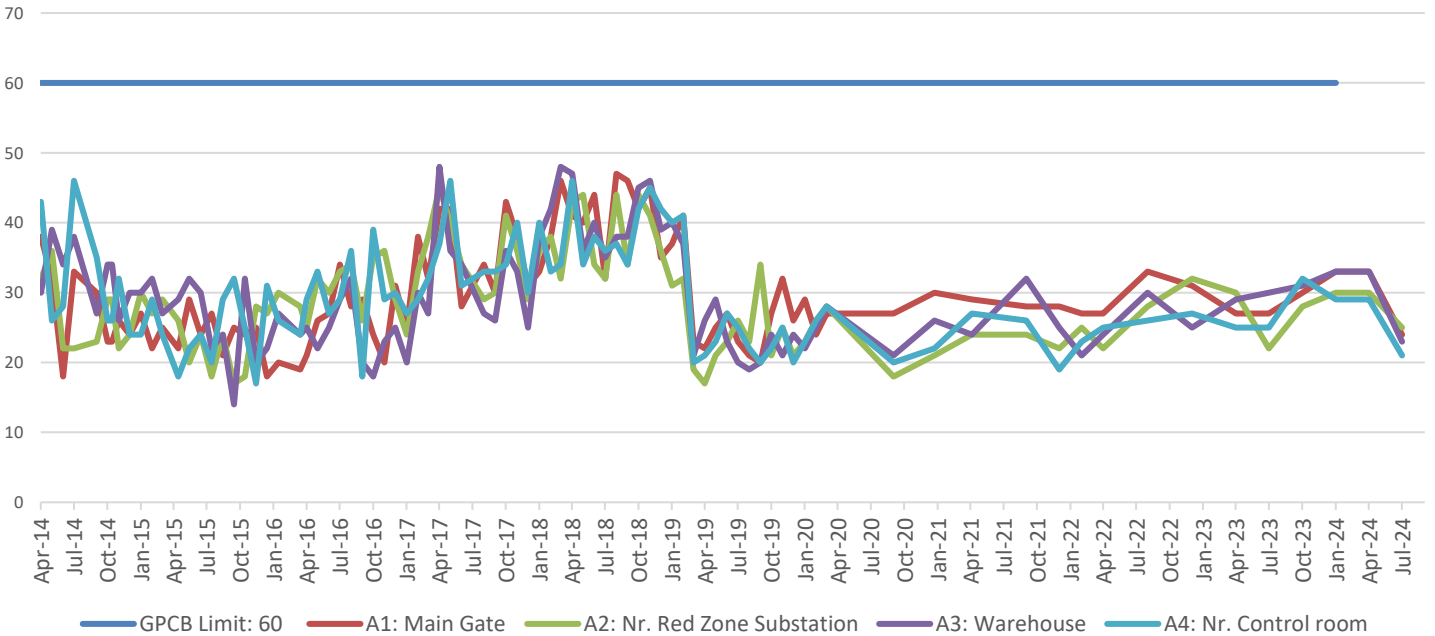


AMBIENT AIR QUALITY MONITOIIRNG AT RADHANPUR TERMINAL

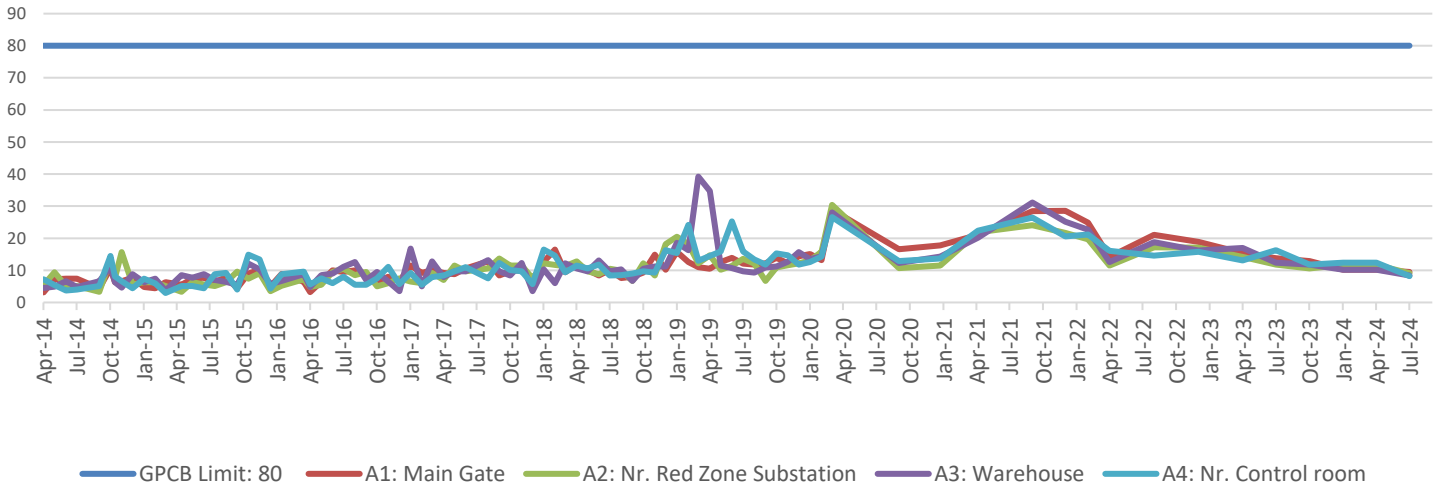
Ambient Air Quality Monitoirng PM10 ($\mu\text{g}/\text{m}^3$) Radhanpur Terminal



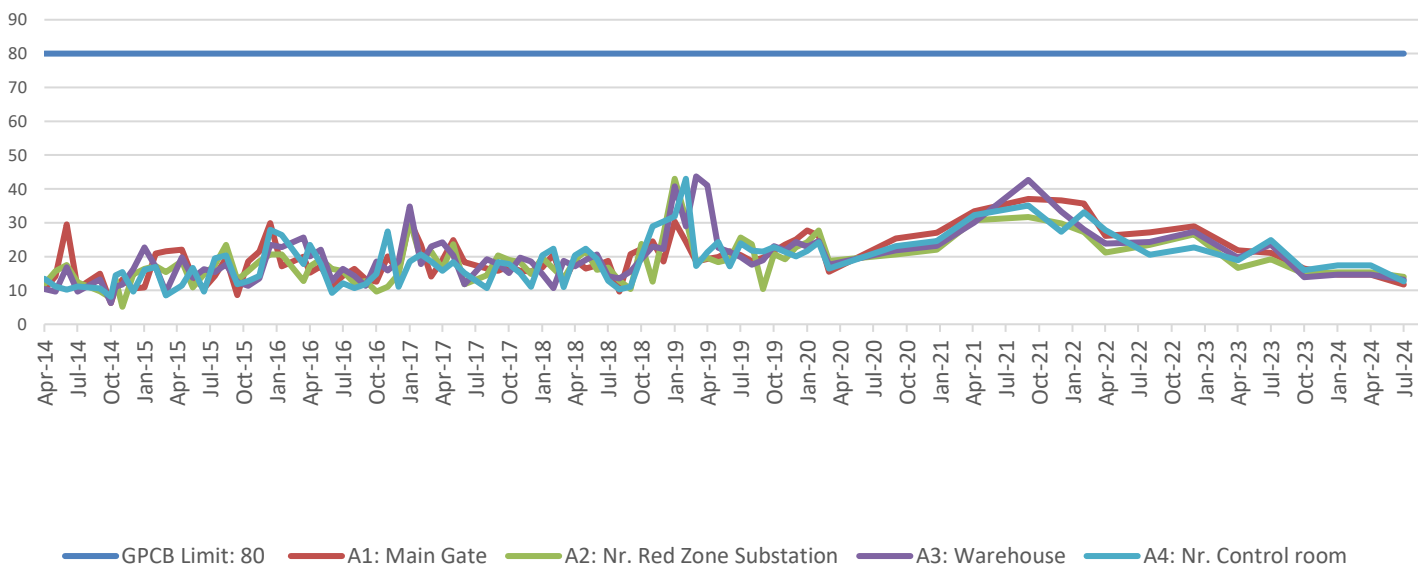
Ambient Air Quality Monitoirng PM2.5 ($\mu\text{g}/\text{m}^3$) Radhanpur Terminal



Ambient Air Quality Monitoring SOX ($\mu\text{g}/\text{m}^3$) Radhanpur Terminal



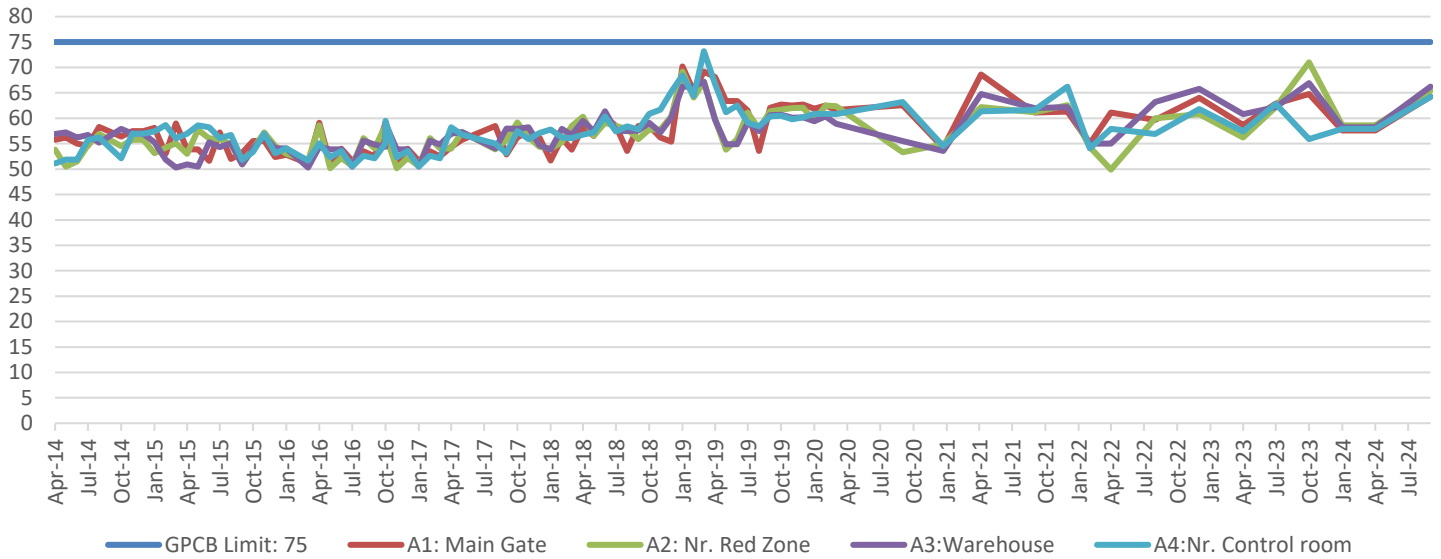
Ambient Air Quality Monitoring NOX ($\mu\text{g}/\text{m}^3$) Radhanpur Terminal



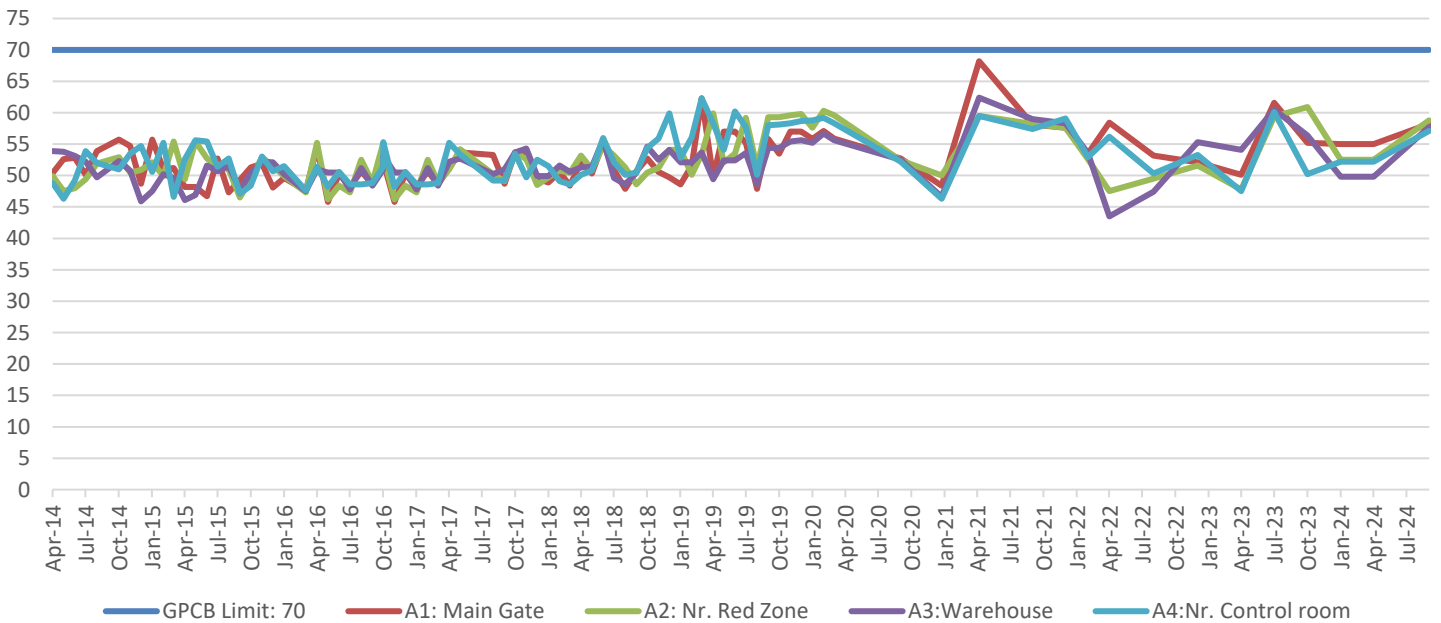
Note: HC and VOC level is within BDL for Radhanpur terminal Ambient Air quality monitoring location. BDL for HC is 160 mg/m³.

AMBIENT NOISE QUALITY MONITORING AT RADHANPUR TERMINAL

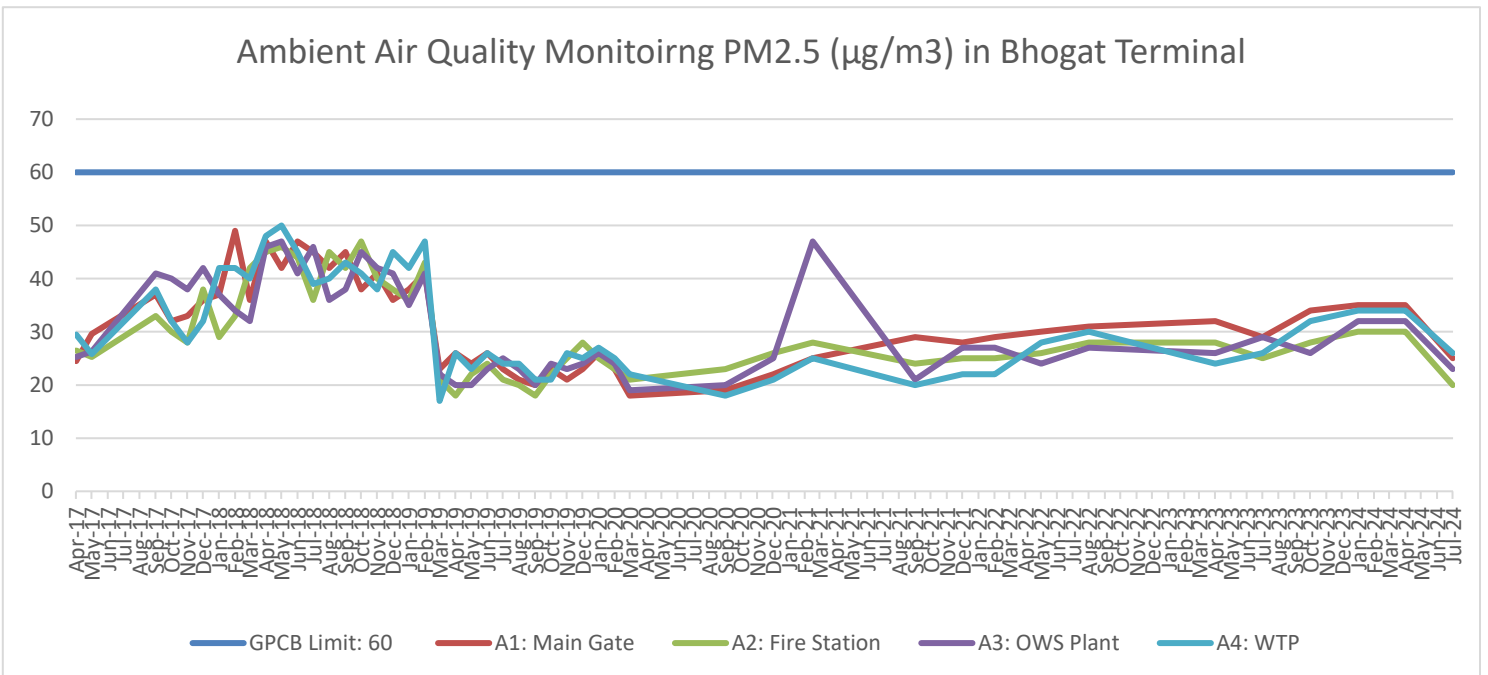
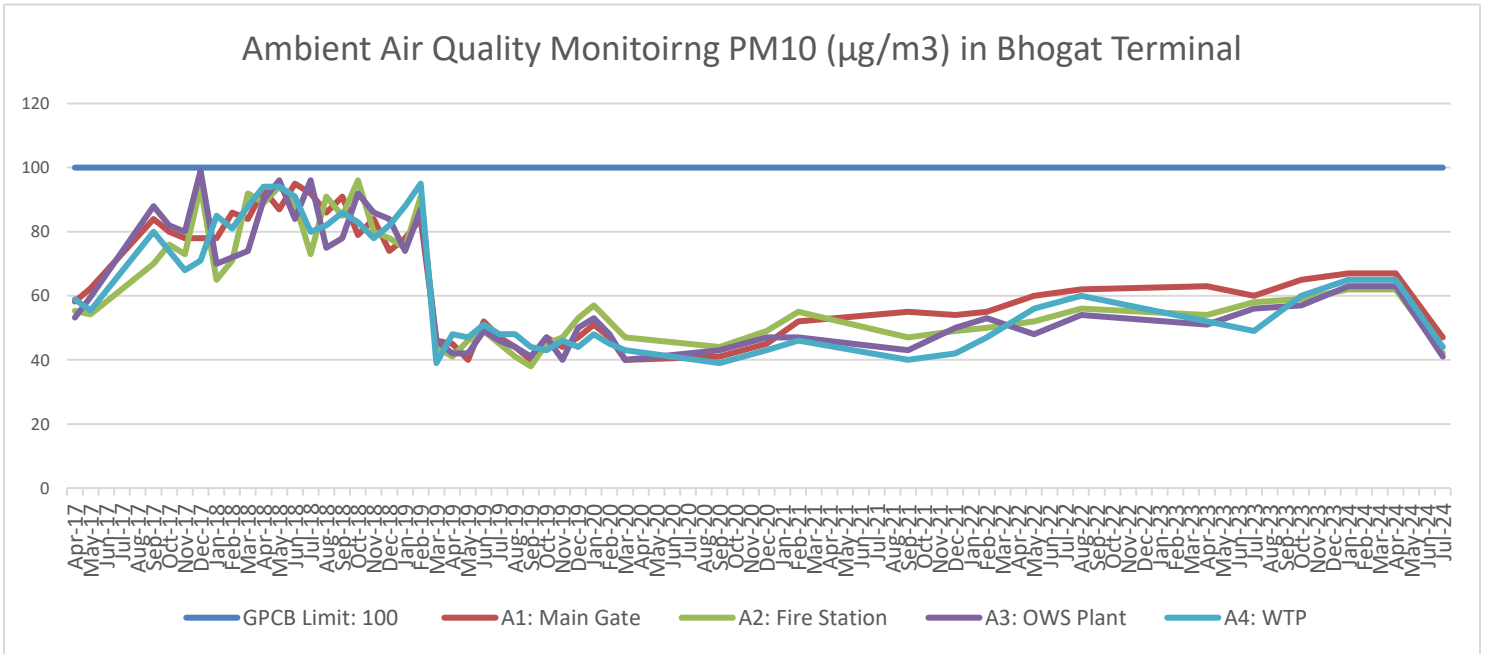
Ambient Noise Level Monitoring for Day time for Radhanpur Terminal



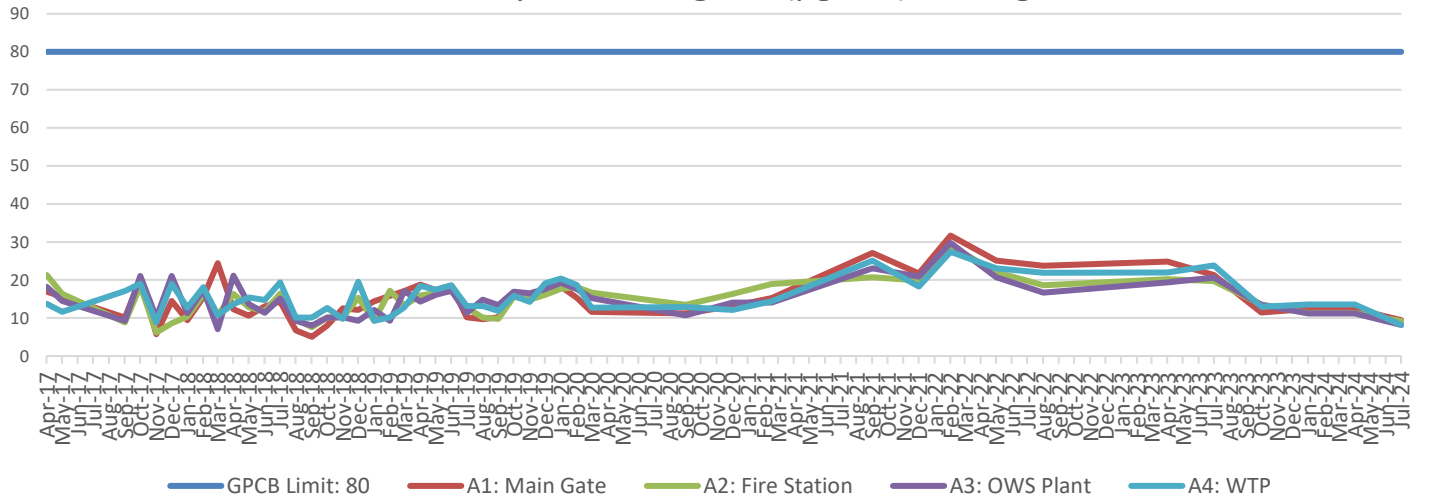
Ambient Noise Level Monitoring for Night time for Radhanpur Terminal



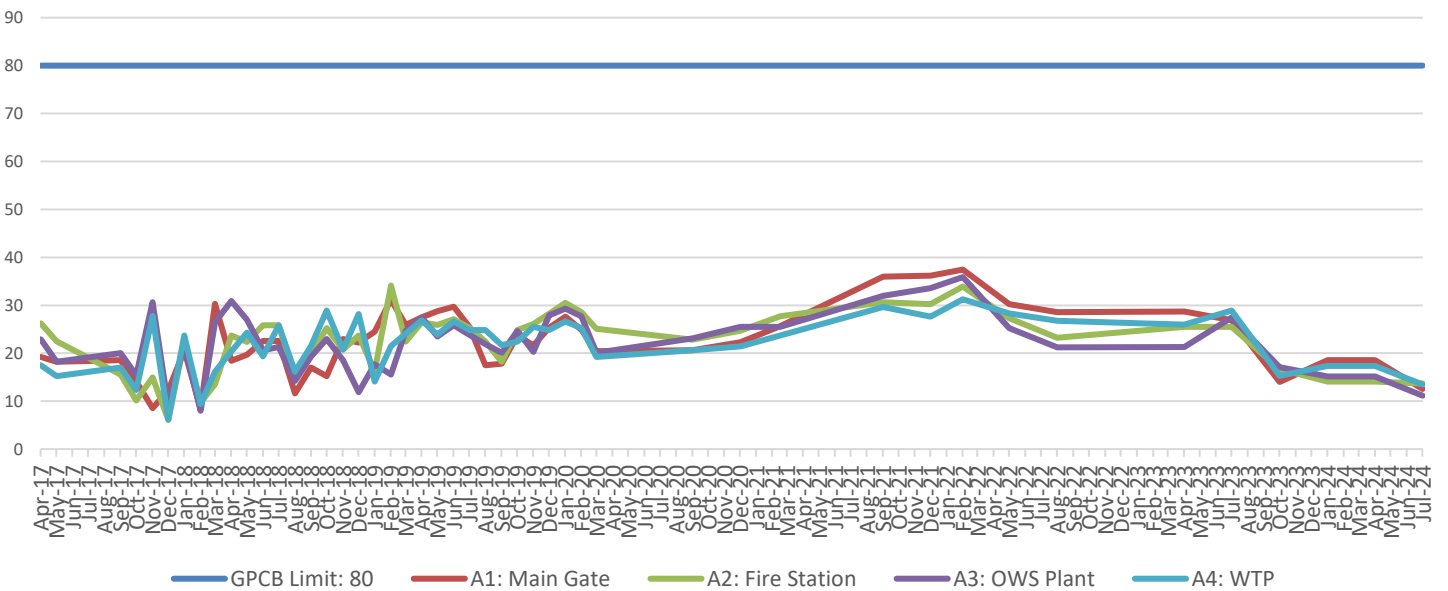
AMBIENT AIR QUALITY MONITIORNG AT BHOGAT TERMINAL



Ambient Air Quality Monitoring SO_x (µg/m³) in Bhogat Terminal



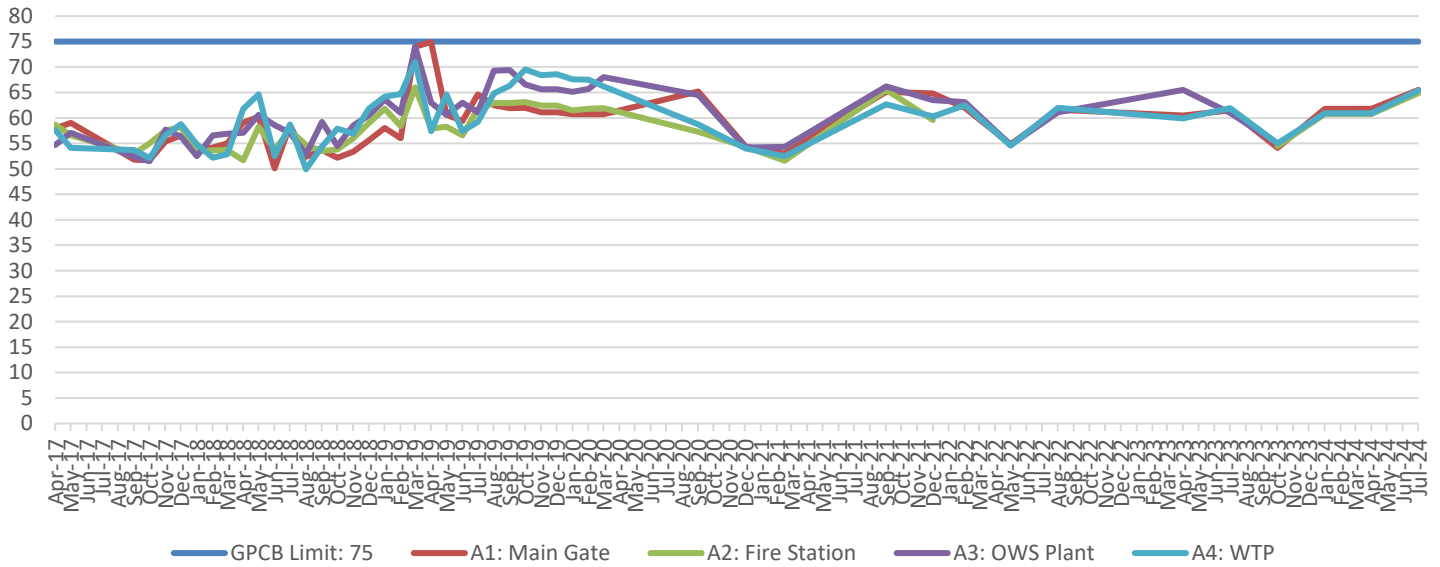
Ambient Air Quality Monitoring NO_x (µg/m³) in Bhogat Terminal



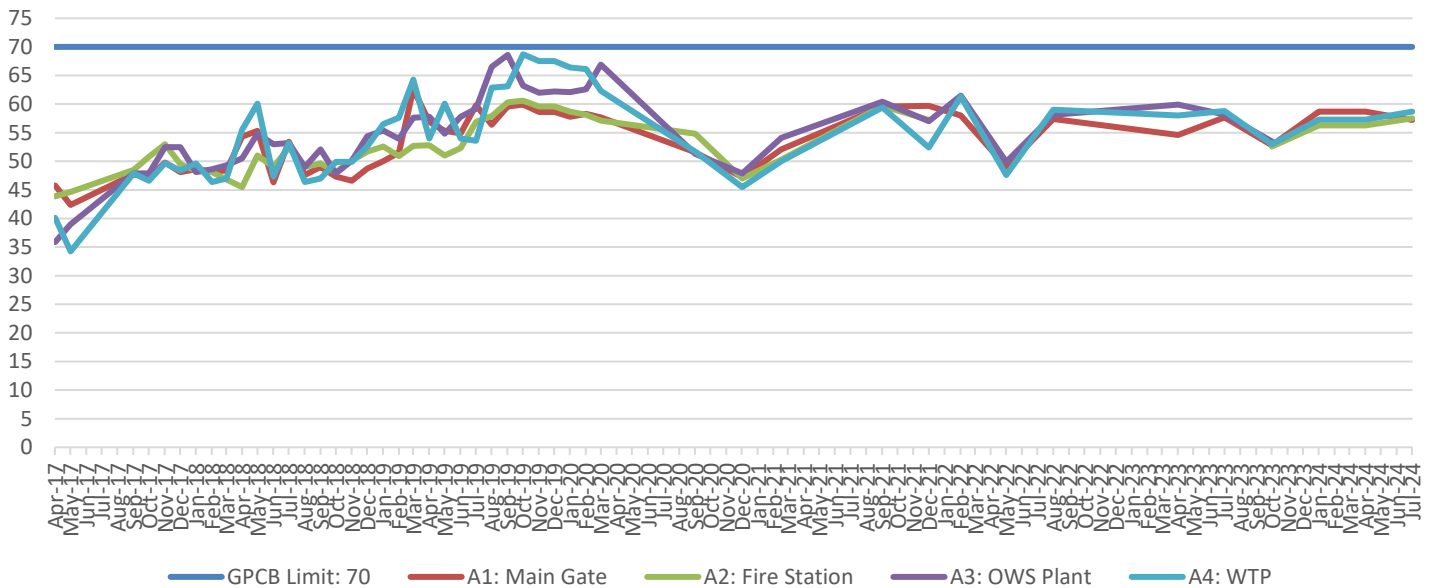
Note: HC and VOC level is within BDL for Viramgam terminal Ambient Air quality monitoring location. BDL for HC is 160 mg/m³.

AMBIENT NOISE QUALITY MONITORING AT BHOGAT TERMINAL

Ambient Noise Level Monitoring for Day time for Bhogat Terminal

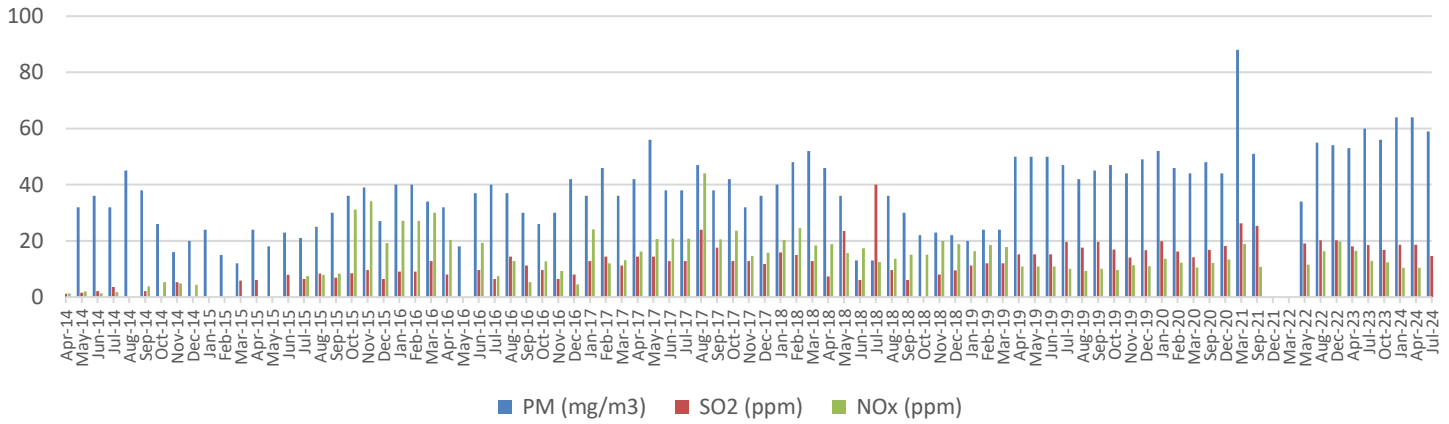


Ambient Noise Level Monitoring for Night time for Bhogat Terminal

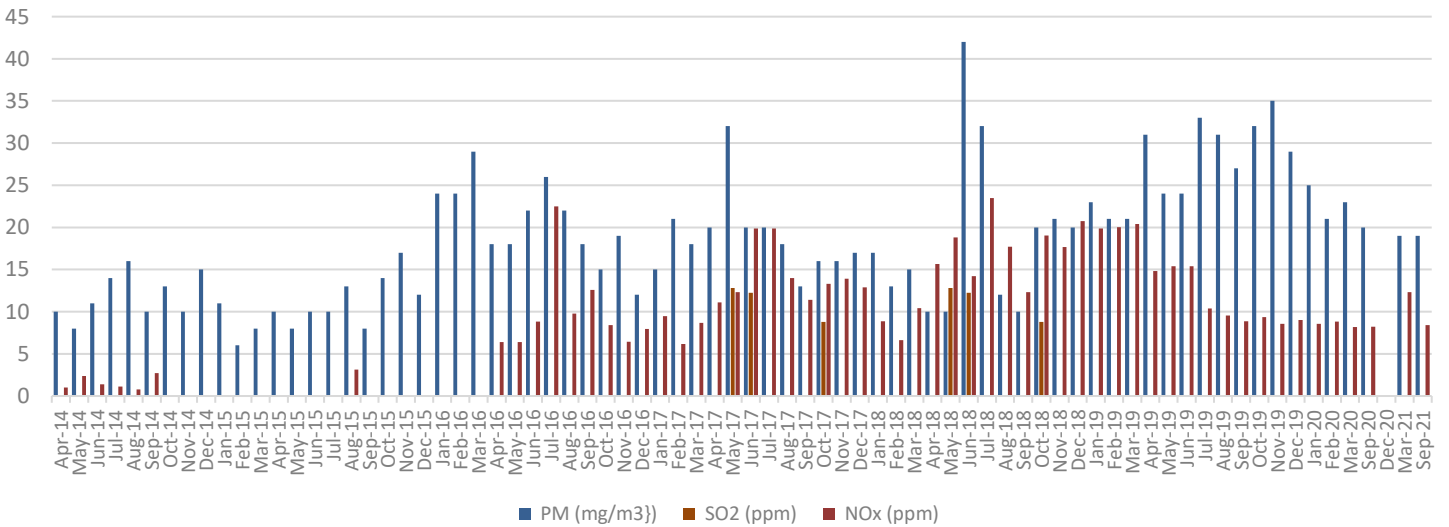


STACK MONITORING AT VIRAMGAM TERMINAL

Stack Monitoring result for DG Viramgam Terminal

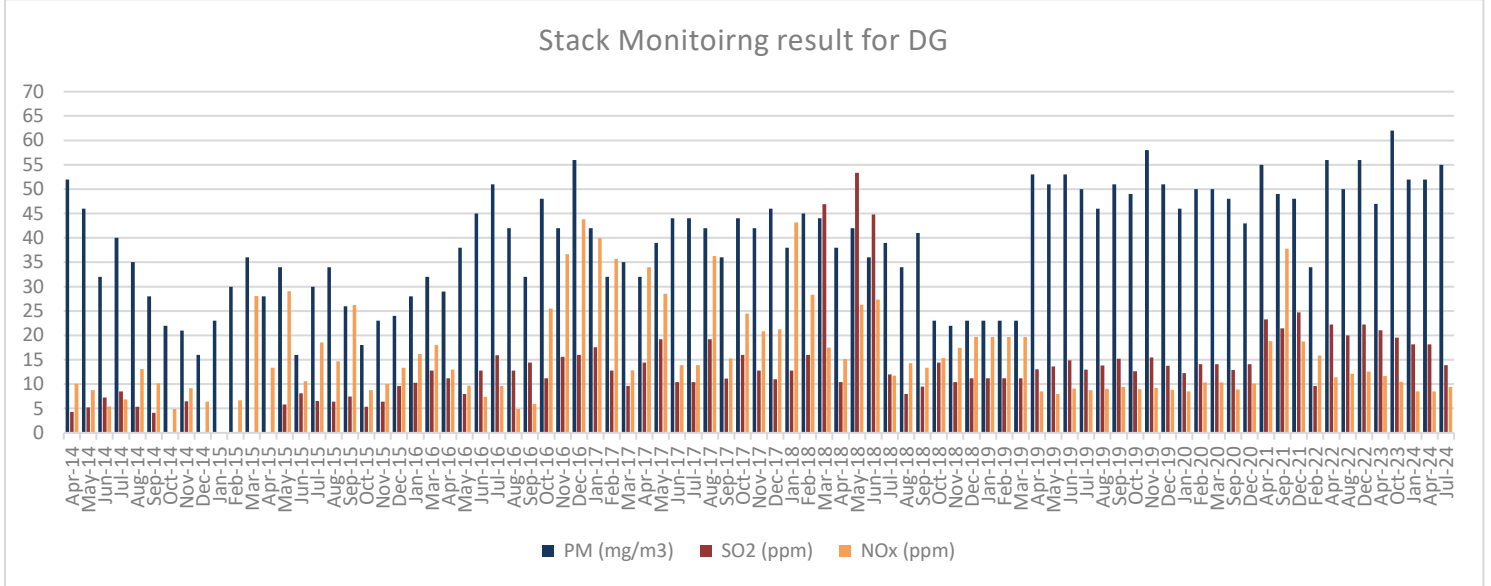


Stack Monitoring Result for GTG Set Viramgam Terminal

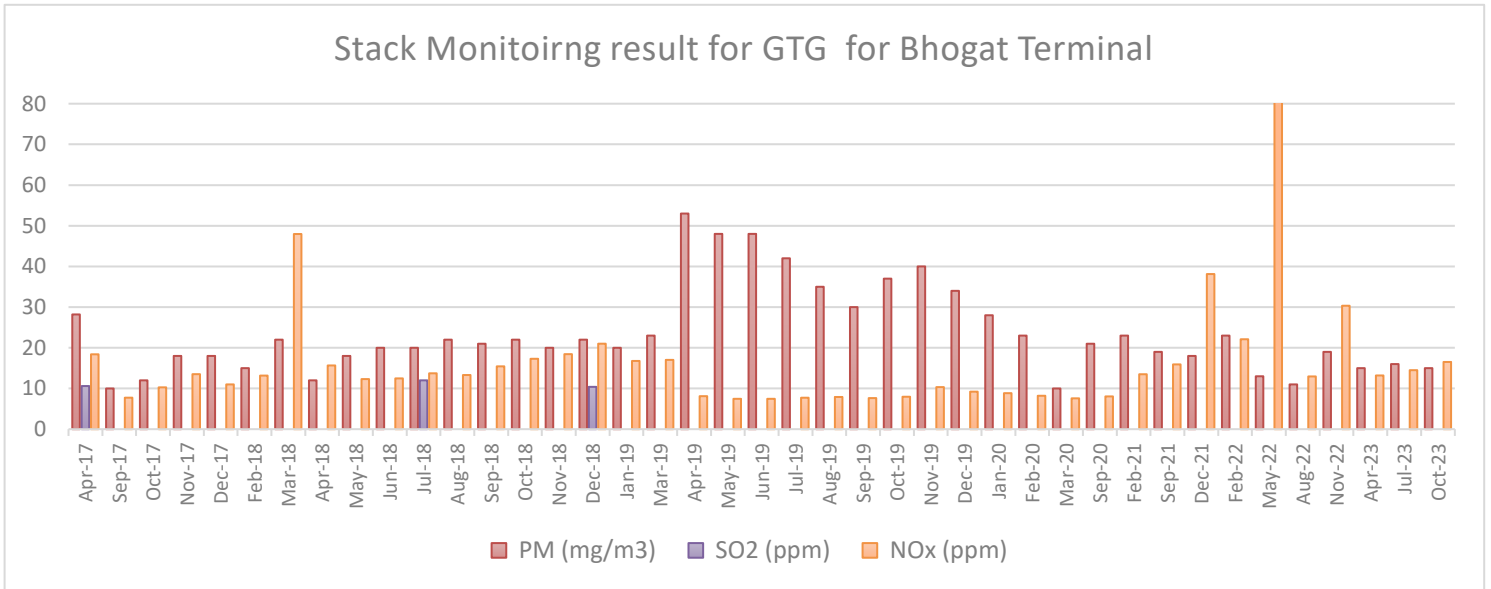


Note: - Since we are running DG & GTG as per our requirements & GTG was not running during monitoring after September 21 respectively, so the result is not available.

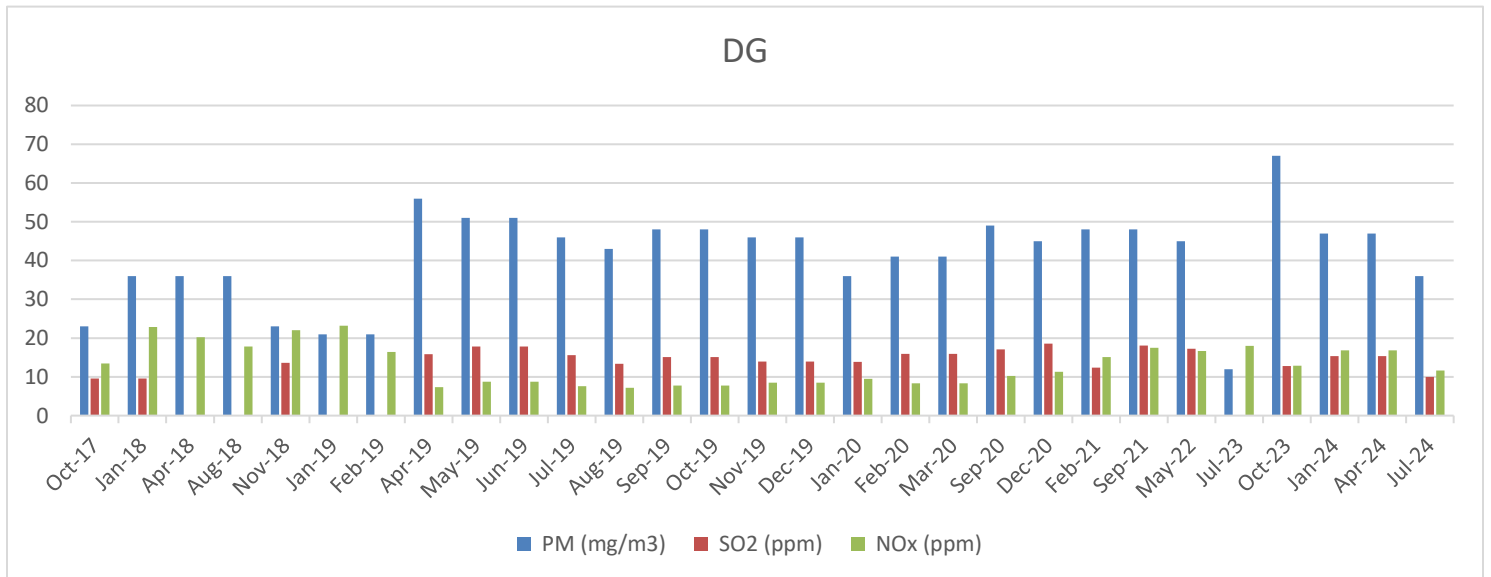
STACK MONITORING AT RADHANPUR TERMINAL



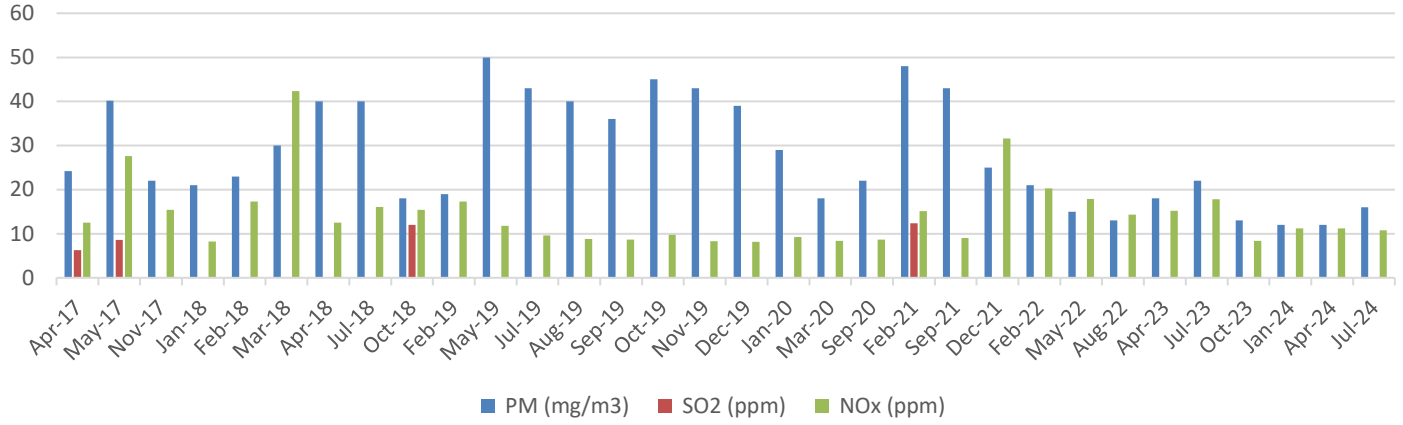
STACK MONITIROING AT BHOGAT TERMINAL



Note: - Since we are running GTG as per our requirements, it is not on continuous basis and GTG was not running during monitoring after Oct 23, so result is not available.



Boiler



Annexure No.2: CGWA compliance reports

ANNUAL COMPLIANCE REPORT

SEPTEMBER 2024



VIRAMGAM TERMINAL

APPLICATION NO : 21-4/269/GJ/IND/2008

CGWA NOC NO : CGWA/NOC/IND/REN/2/2022/7007

NOC VALIDITY : 17.07.2021-16.07.2024

GW REQUIREMENT : 95 KLD

1.0 BRIEF INTRODUCTION

Cairn Oil & Gas, operating under Vedanta Limited, manages the Production Sharing Contract (PSC) for the RJ-ON-90/1 onshore block in Rajasthan State. This block extends over Barmer and Jalore districts in southwestern Rajasthan. Through diligent efforts, Cairn has been developing oil and gas fields within this block, playing a significant role in India's crude oil production. Presently, their output contributes to about 25% of the nation's domestic production, thus reducing reliance on oil imports and fostering economic growth, especially in the Barmer district.

To facilitate crude oil transportation, Cairn has erected vital infrastructure, including approximately 680 kilometers of buried, insulated heated crude oil pipelines. Additionally, intermediate crude oil storage and pumping facilities are strategically located at Radhanpur (District – Patan, Gujarat), Viramgam (District - Ahmedabad, Gujarat), Salaya (District - Jamnagar, Gujarat), and Bhogat (District: Jamnagar, Gujarat).

Furthermore, Cairn has established the Viramgam (District – Ahmedabad, Gujarat), to facilitate crude transport through sea route. This facility is dedicated solely to the storage and pumping of crude oil. Environmental clearance for the terminal station was secured from the Ministry of Environment, Forest and Climate Change, Government of India

The study area is situated in Viramgam village within the Viramgam block of Ahmedabad district in the state of Gujarat, positioned at coordinates 23.09777° N, 72.04916° E. It spans an area of approximately 250000 square meters.

The geotagged photographs of the project site are given in Figure 1.



Figure 1: Geotagged Photographs of the Project Site

2.0 PROJECT LOCATION

The location map demarcating the state-district-block boundaries is given in Figure 2. The details of the project location are given in the table 1

Table 1: Brief Details of the Project Location

S. No	Particulars	Details
1	Villages	Viramgam
2	Block/ Mandal	Viramgam
3	Tehsil/Taluka	Viramgam
4	District	Ahmedabad
5	State	Gujarat
6	Toposheet No.	41M/16 7 46A/04
7	Latitude	23.09777
8	Longitude	72.04916
9	Nearest Highway	SH 7

The Google Image showing the Viramgam Terminal is given in Figure 3. The topo map of the study area demarcating the core (project site) and buffer zone (5km study area) is given in Figure 4.

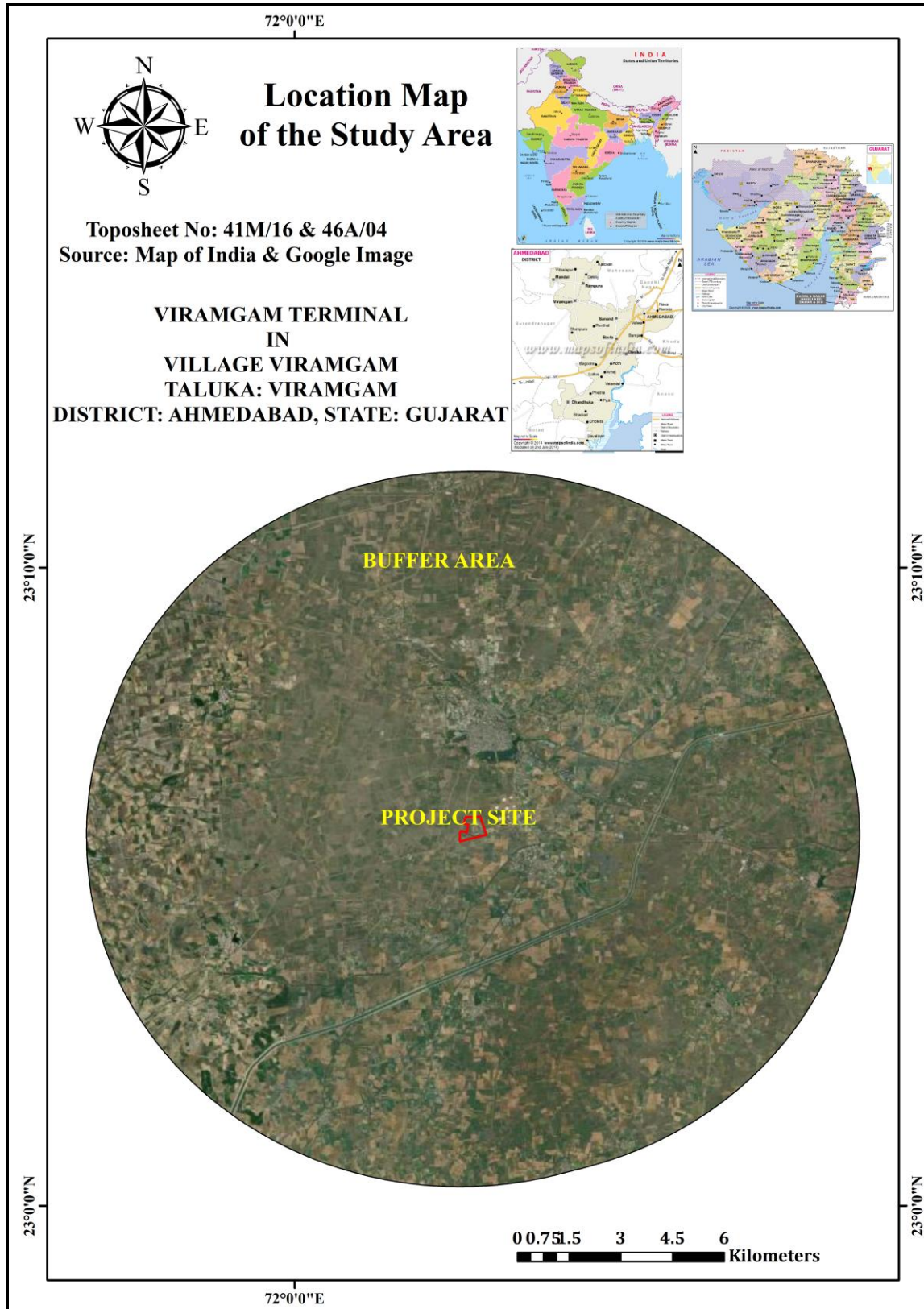


Figure 2: Location Map of the Project Site

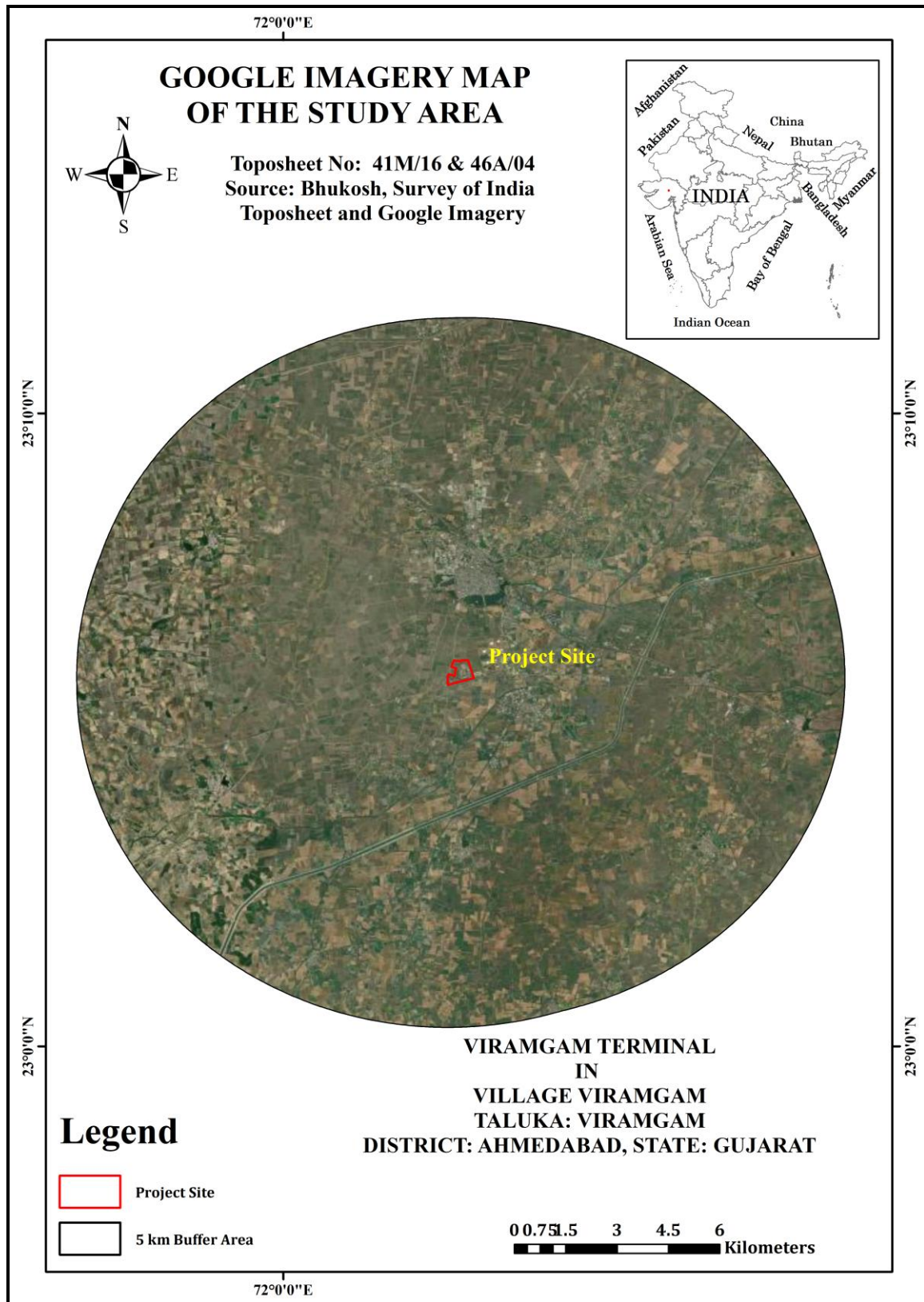


Figure 3: Google Map showing the Viramgam Terminal (Source: Google Imagery)

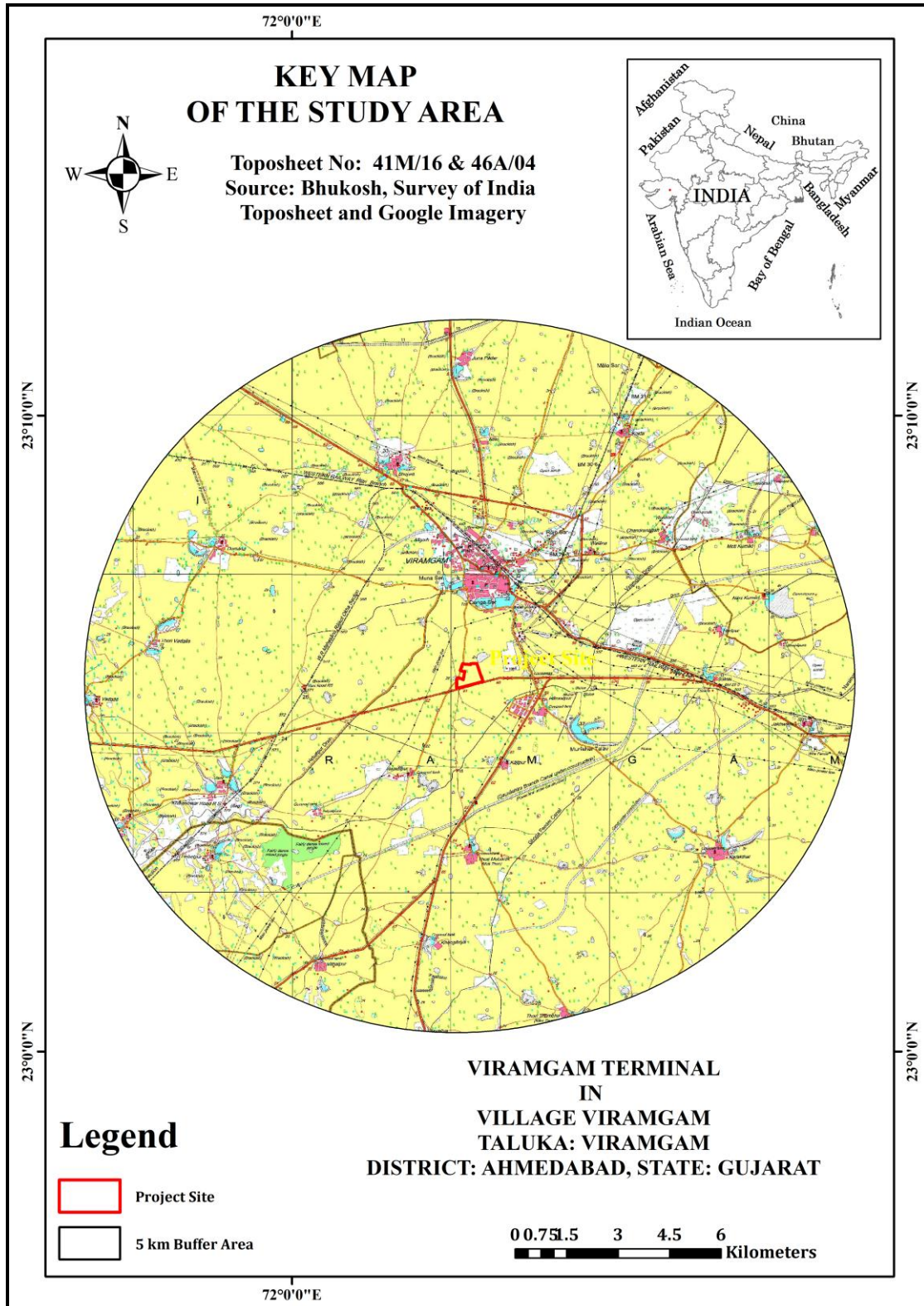


Figure 4: Topo Map demarcating the core (project site) and buffer zone (5km study area) (Source: Survey of India Toposheet)

3.0 COMPLIANCE CONDITIONS OF NOC

Earlier NOC was obtained in the tune of 110 KLD. Due to consistent withdrawal of GW in the tune less than 100 KLD through the entire NOC period as well as present date, the company has applied Modification in NOC for 95 KLD and same has been obtained from CGWA vide CGWA NOC NO. CGWA/NOC/IND/EXP/2024/96 valid from 17.07.2021 to 16.07.2024 against Application No. 21-4/269/GJ/IND/2008 in the tune of 95 KLD dated 28.09.2024. Copy of NOC is enclosed in **Annexure A**.

The conditions of the NOC along with the present compliance status is illustrated in the table 2 give below:

Table 2: Status of Compliance to NOC Conditions

S. No	NOC Condition	Status of Compliance	Annexure
Mandatory Conditions			
1	Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.	All the GW abstraction structures are fitted with tamper proof digital water flow meter with telemetry. Same has been already intimated to CGWB/CGWA.	Annexure B_Communication Mail to CGWB/CGWB
2	Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.	The Company has calibrated water flow meters every year from an authorized agency. Latest calibration done by Prism Calibration Centre dated 27.05.2024.	Annexure C_Calibration Certificate.

3	Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.	The Company has constructed 1 piezometer with DWLR with telemetry as per NOC Condition for regular ground water level monitoring. The user id and password along with the link of the telemetry system has been shared to CGWB/CGWA.	Annexure D_Piezometer Data
4	Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analyzed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.	The Company has monitored Ground water quality of all the abstraction structures regularly in pre and post monsoon. The samples are analyzed in the NABL accredited lab and same is regularly forwarded to CGWB/CGWA.	Annexure E_GW Quality Report
5	In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.	This is an Industrial proposal hence the same is not applicable.	

6	In case of mining project, the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.	This is an Industrial proposal hence the same is not applicable.	
7	The firm shall report compliance of the NOC conditions online on the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.	Noted and same is being complied.	
8	Industries abstracting ground water in excess of 100 m ³ /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.	The abstraction is less than 100 KLD and modification in NOC has been obtained in the tune of 95 KLD too hence the same is not applicable.	
9	Application for renewal can be submitted online 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.	Earlier NOC was obtained in the tune of 110 KLD. Due to consistent withdrawal of GW in the tune less than 100 KLD through the entire NOC period as well as present date, the company has applied Modification in NOC for 95 KLD and same has been obtained from CGWA vide CGWA NOC NO. CGWA/NOC/IND/EXP/2024/	

		96 valid from 17.07.2021 to 16.07.2024 dated 28.09.2024. Hence renewal of NOC has been applied after validity of NOC period.	
10	This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.	Noted.	
General conditions.			
11	No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).	Noted.	
12	The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).	Noted. Presently the Company is fulfilling the requirement from the quantum permitted in NOC.	
13	Proponents shall install roof top rainwater harvesting in the premise as per the existing building bye laws in the premise.	The Company has adopted roof top rainwater harvesting in the nearby school buildings within the study area and about 42432	Annexure F_Photographs of Roof Top Rainwater Harvesting

		cum/annum rainwater harvesting has been done.	
14	The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.	Noted.	
15	In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.	The industry is not water polluting; hence the Company has adopted recharge in the tune of 42432 cum/annum through roof top rainwater harvesting structures and RWH inside Plant.	Annexure F_Details of RWH Plan
16	Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated wastewater.	Noted and is being complied	
17	Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tube well(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.	Not Applicable since the project lies in Safe Area.	

18	Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.	This is an Industrial proposal hence the same is not applicable.	
19	In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.	Noted	
20	This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.	Noted	
21	The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.	Noted	
22	In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.	Noted	
23	This NOC is being issued without any prejudice to the directions of the Hon'ble	Noted	

	NGT/court orders in cases related to ground water or any other related matters.		
24	Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of up to 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.	The Company has adopted recharge in the tune of 42432 cum/annum through roof top rainwater harvesting structures and RWH inside Plant and aids in regular maintenance of the structures with periodic monitoring of the same.	Annexure F_Details of RWH Plan
25	Industries which are likely to cause ground water pollution e.g. Tanning, Slaughterhouses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.	This industry does not fall in the list of ground water polluting industries as per CPCB list. Hence the same is not applicable.	
26	In case of new infrastructure projects having ground water abstraction of more than 20 m ³ /day, the firm/entity shall ensure implementation of dual water supply system in the projects.	This is an Industrial proposal hence the same is not applicable.	

27	In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.	This is an Industrial proposal hence the same is not applicable.	
28	In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.	Noted	
29	The NOC issued is conditional subject to the conditions mentioned in the public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.	Noted	
30	This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).	Noted	

4.0 DETAILS OF THE TUBEWELLS/ BOREWELLS

There is a production well (Tube well) as granted in NOC for abstraction of Ground Water to meet the industrial requirement of the company. The details of the existing tube well are given in Table 3. The design of the Tube Well is shown in Figure 5. The site plan showing the location of the tube wells is given in Figure 6 and geotagged photograph of the same is given in Figure 7.

Table No. 3

S. No	Particulars	Tube Well 1
1	Name	VGT PDW01

2	Latitude & Longitude	23.09777, 72.04916
3	Drilling Depth (m)	240
4	Diameter (mm)	200
5	Depth to water level (mbgl)	82.48
6	Mode of Lift	Submersible
7	Horsepower of the Pump	20
8	Discharge of tube wells (cum/hour)	30
9	Operational hr./day	3
10	Operation day/year	365

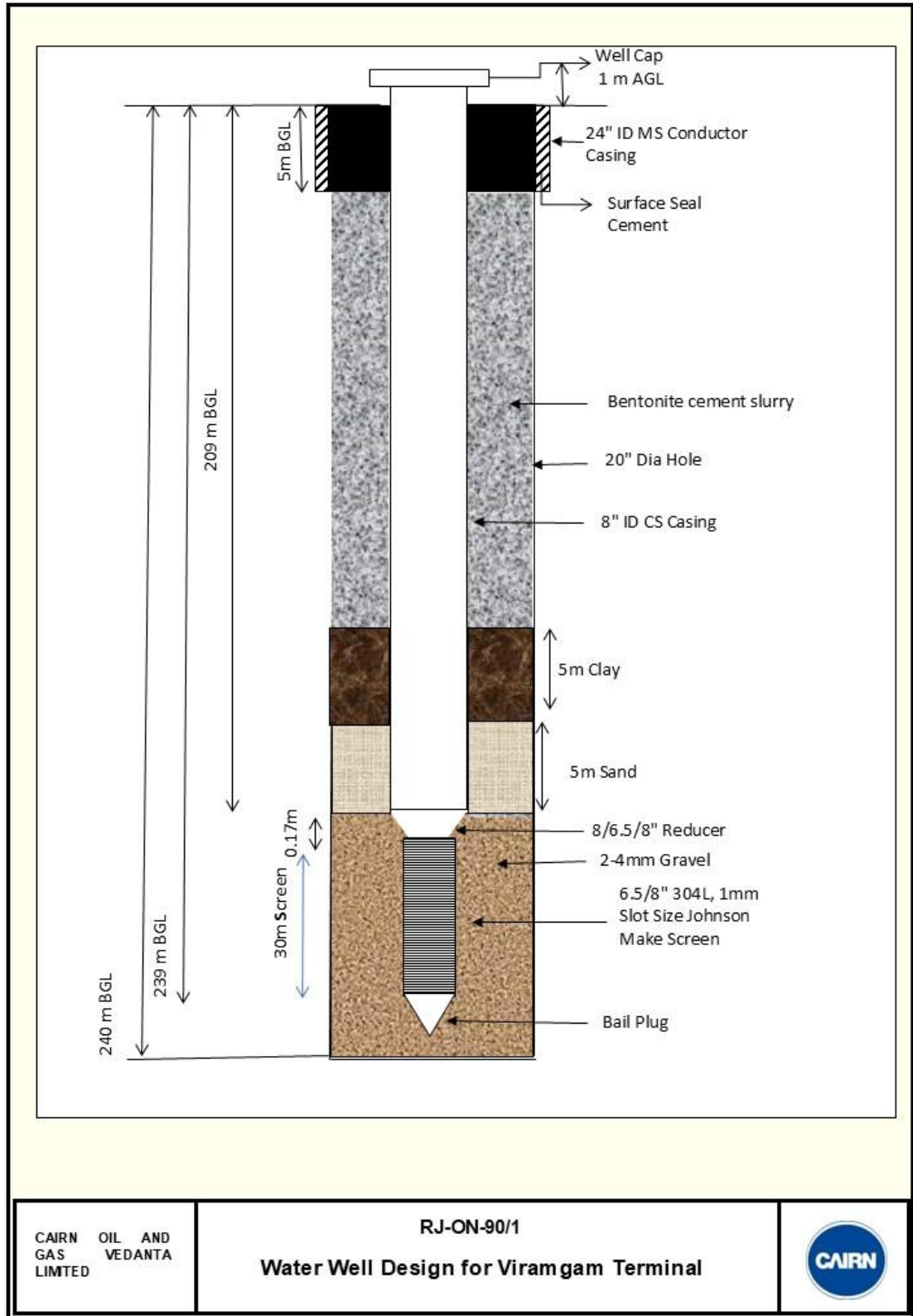


Figure 5: Design of Tube Well (Viramgam) (Source: CAIRN Oil & Gas Vedanta Limited)

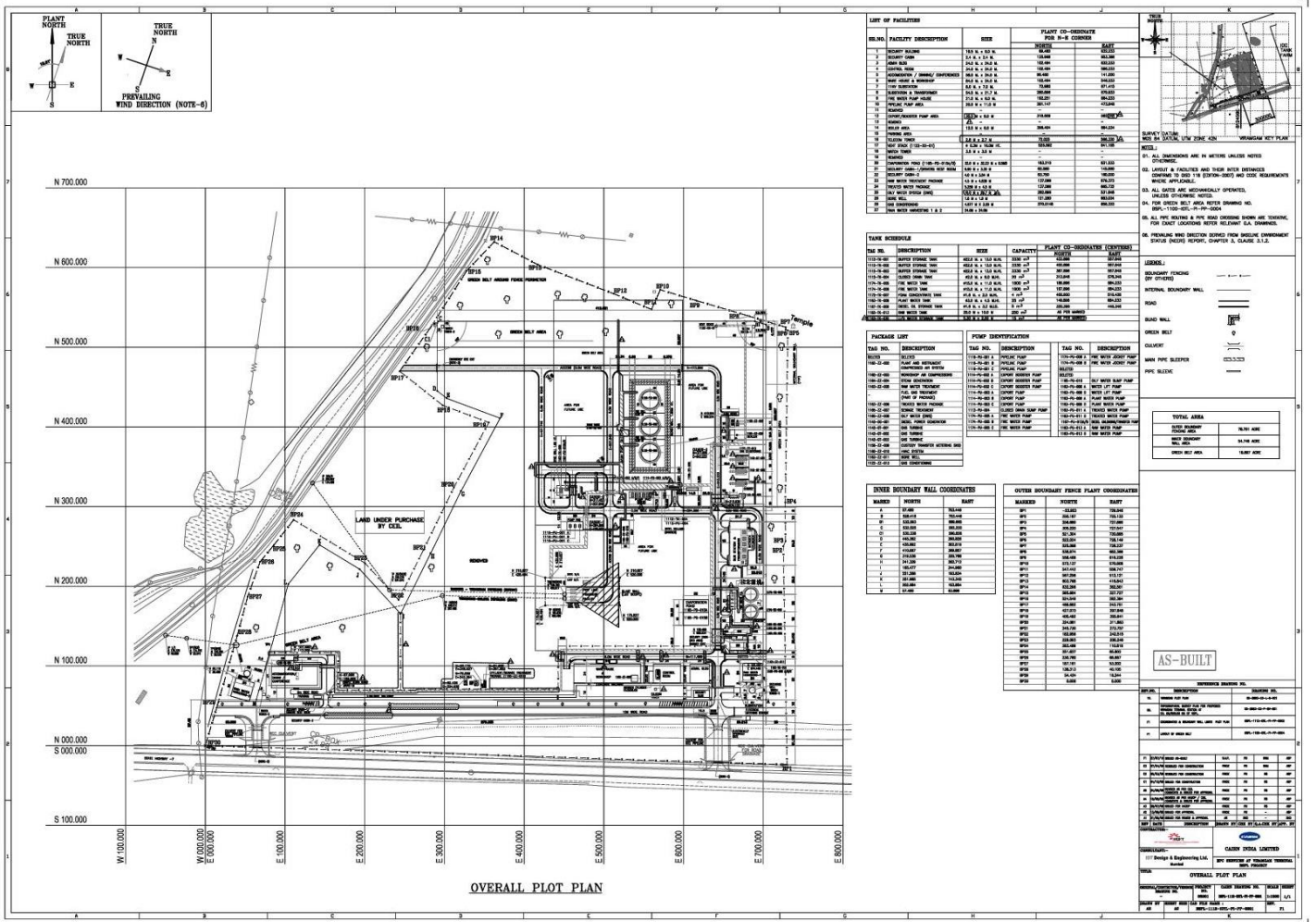


Figure 6: Site Plan showing location of Production Well and Monitoring Well



VGT-PDW01 Well

Figure 7: Geotagged Photographs of the Production Wells

5.0 DETAILS OF THE WATER FLOW METER

The Tube well is fitted with Water Flow Meters with telemetry and same is annually calibrated as well as monitored as per NOC granted. The geotagged photograph of the same is given in Figure 8. Copy of Calibration Certificate is

enclosed in Annexure C. Details of GW Abstraction Data is illustrated in the table 4 given below:

Table 4: Flow Meter Data (July 2022 to September 2024)

GROUND WATER EXTRACTION DATA (JULY 2022- SEPTEMBER 2024)			
Latitude: 23.098051			
Longitude: 72.049235			
Login Credentials			
Link: https://iotaflow.in/overview			
Login Id: Controlroom.Viramgam@cairnindia.com			
Password: Welcome@123			
S.No	Month	Total Abstraction (m3)	Average Abstraction (m3/day)
NOC Year 2022-2023			
1	Jul-22	796.36	25.69
2	Aug-22	825.5	26.63
3	Sep-22	913.73	30.46
4	Oct-22	1097.28	35.4
5	Nov-22	1959.1	65.3
6	Dec-22	1839.16	59.33
7	Jan-23	1284.18	41.42
8	Feb-23	1807.42	64.55
9	Mar-23	1948.8	67.2
10	Apr-23	2032.24	67.74
11	May-23	1870.07	60.32
12	Jun-23	1736.58	57.89
Total Consumption		18110.4	50.2
NOC Year 2023-2024			
1	Jul-23	1581	51
2	Aug-23	1649.2	53.2

3	Sep-23	2028	67.6
4	Oct-23	1494.2	48.2
5	Nov-23	1587	52.9
6	Dec-23	1915.8	61.8
7	Jan-24	2092.5	67.5
8	Feb-24	1769	61.00
9	Mar-24	1798	58
10	Apr-24	2029.1	67.6
11	May-24	1893.8	67.6
12	Jun-24	1901.5	63.5
Total Consumption		21739.1	64.2
NOC Year 2024-2025			
1	Jul-24	628	20.9
2	Aug-24	576.7	19.2
3	Sep-24 (up to 23 rd)	564.1	24.5



VGT-PDW01 Well

Figure 8: Geotagged Photographs of the Water Flowmeter fitted in the production wells

Link of Flow Meter is given below

Login link	https://iotaflow.in/overview
Login ID	Controlroom.Viramgam@cairnindia.com
Password	Welcome@123

6.0 GROUND WATER QUALITY BOTH FOR PRE & POST MONSOON PERIOD FOR THE TUBEWELLS AND PIEZOMETERS CONSTRUCTED WITHIN THE PROJECT AREA.

Detailed laboratory analysis of groundwater quality of the production wells as well as monitoring wells for the pre and post monsoon period has been conducted in NABL accredited lab. A copy of GW Quality Report is enclosed in Annexure E.

7.0 WATER LEVEL DATA FOR THE TUBEWELLS CONSTRUCTED WITHIN THE PROJECT AREA.

The Company has constructed a piezometer with DWLR with telemetry as per NOC Condition for regular ground water level monitoring. The user id and password along with the link of the telemetry system is given below table 5. GW Level data of the monitoring wells are enclosed in Annexure D. Geotagged Photograph of the same is given in figure 9.

Table 5: Water Level Details

S. No	Particulars	Details
1	Link of the Piezometer	https://tpro.telsys.in/
2	User Id	harish.kumar@cairnindia.com
3	Password	Vcairn#22



Viramgam terminal Piezometry fitted with telemetry

Figure 9: Geotagged Photographs of the Water Level Recorder (Piezometer) with Telemetry system

8.0 RAINWATER HARVESTING PLAN AND ARTIFICIAL RECHARGE

Cairn has taken large initiative for water conservation measures all around the study area. Various rainwater harvesting structures were constructed as a part of corporate social responsibility. The various structures constructed are explained in the following sections. Rainwater harvesting and conservation is the process of concentrating rainfall from a catchment to be used in a target area and is very essential for bringing sustainability in the water sector. Harvesting and conserving rainwater would increase its availability in the drought years. There are several kinds of rainwater harvesting structures

prevalent in the area. Some of these harvesting structures depend upon the groundwater while others (tanka, Nadi, khadin etc.) depend on harnessing surface runoff.

The location of all the RWH structures is shown in Figure 10. Company has initiated roof top rainwater harvesting in the nearby schools and about 1500 cum/annum rainwater is harvested.

In addition to the above the company has initiated roof top rainwater harvesting within Viramgam terminal premises and harvested about 8880 cum rainwater.

The Company has adopted recharge in the tune of 10380 cum/annum through roof top rainwater harvesting structures and aids in regular maintenance of the structures with periodic monitoring of the same. Details geotagged photographs of the same are enclosed in Annexure F. The compiled table for detailed RWH adopted by the Company is given in table no. 6 given below:

Table No. 6: RWH Details of the Company

S. No	Type of RWH structures	Number of Structures	Quantum of Rainwater Harvested (cum/annum)
1	School Roof Top RWH	4	1500
2	RWH inside the Plant	2	8880
Total		6	10380



Figure 10: Geotagged Photographs of the Rainwater Harvesting Structures

9.0 WATER CONSERVATION METHODS_RECYCLE, REUSE, RETREATMENT

Cairn has constructed a Sewage Treatment Plant (STP) of 20 m³ /day capacity at Viramgam LQ for treating wastewater generated due to domestic activities. The treatment process / system is designed on the principle of Activated Sludge process with Ultra filtration which ensures the aerobic decomposition of organic matter in presence of active microbial growth in the aeration tank. The treated water volume is ~15m³ /day. The treated water complies with the GPCB discharge standards. The treated water is being re-used for gardening, flushing and green belt development activities. The entire operation is ZERO SURFACE DISCHARGE process. There is no surface disposal of any reject or wastewater. The details of STP are given in table 7. The geotagged photographs of the STP are given in Figure 11. Detailed Water Balance is given in Figure 12.

Table No. 7: ETP/STP Details

S. No	Particulars	Existing (Designed)	Proposed	Total
1	Effluent/Sewerage generated and treated in ETP/STP	15 KLD	0 KLD	15 KLD
		5475 cum/year	0 cum/year	5475 cum/year
2	Available treated Effluent/Sewerage for usage	15 KLD	0 KLD	15 KLD
		5475 cum/year	0 cum/year	5475 cum/year
3	Effluent/Sewerage discharge after treatment	0 KLD	0 KLD	0 KLD
		0 cum/year	0 cum/year	0 cum/year



Figure 11: Geotagged Photographs of STP

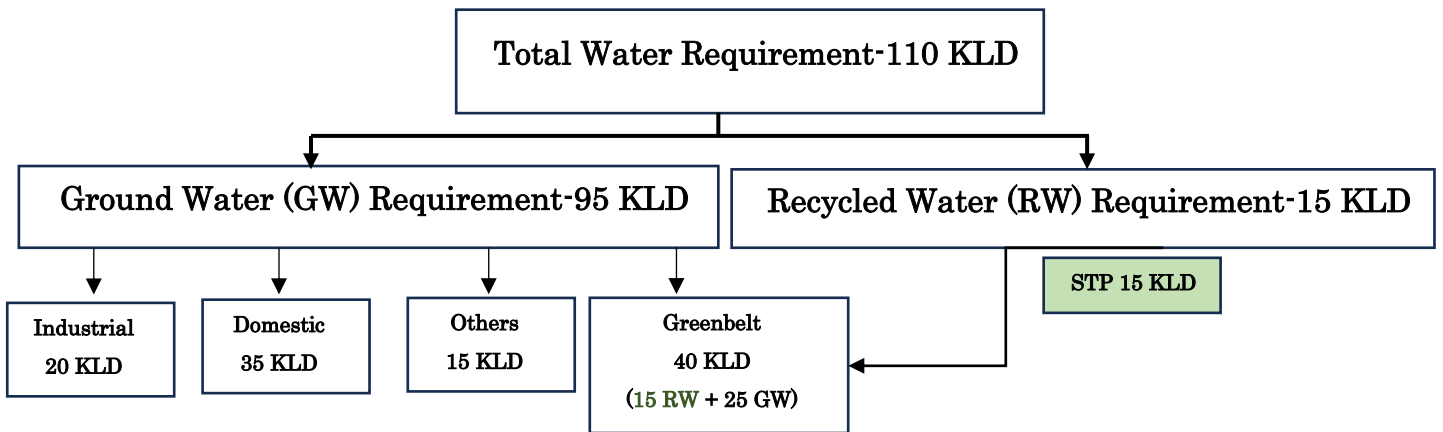


Figure 12: Water Balance Diagram

10.0 DETAILS OF PIEZOMETER

The Company has constructed 1 piezometer with DWLR with telemetry as per NOC Condition for regular ground water level monitoring. The details of the same are given in table 8.

Table 8: Details of Piezometer

S. No	Details	PZ 1
1	Name	VGT-OBW01
2	Location	23.0982, 72.0492
3	Depth (m)	240
4	Diameter (mm)	200
5	Lithology	Sand
6	Monitoring Schedule	Monthly

11.0 WATER SECURITY PLAN FOR THE VILLAGERS

Cairn has taken large initiative for water conservation measures all around the project area. Various rainwater harvesting structures were constructed as a part of corporate social responsibility. The detailed water security plan adopted by the company keeping in view the water scarcity of the area.

12.0 GREENBELT DEVELOPMENT

The Company has taken a large initiative for the development of greenbelt and plantation within the project premises to balance the greenery in the surrounding area. A total of 25000 plant species including trees and shrubs are planted. Details of greenbelt photographs showing the greenbelt plantation are given in Figure 13.



Figure 13: Photographs of Greenbelt Development

ANNUAL SELF COMPLIANCE REPORT

JULY 2024



BHOGAT TERMINAL

APPLICATION NO : 21-4/601/GJ/IND/2009

CGWA NOC NO : CGWA/NOC/IND/REN/2/2023/7387

NOC VALIDITY : 17.07.2021-16.07.2024

GW REQUIREMENT : 190 KLD

1.0 BRIEF INTRODUCTION

Cairn Oil & Gas, operating under Vedanta Limited, manages the Production Sharing Contract (PSC) for the RJ-ON-90/1 onshore block in Rajasthan State. This block extends over Barmer and Jalore districts in southwestern Rajasthan. Through diligent efforts, Cairn has been developing oil and gas fields within this block, playing a significant role in India's crude oil production. Presently, their output contributes to about 25% of the nation's domestic production, thus reducing reliance on oil imports and fostering economic growth, especially in the Barmer district.

To facilitate crude oil transportation, Cairn has erected vital infrastructure, including approximately 680 kilometers of buried, insulated heated crude oil pipelines. Additionally, intermediate crude oil storage and pumping facilities are strategically located at Radhanpur (District – Patan, Gujarat), Viramgam (District - Ahmedabad, Gujarat), Salaya (District - Jamnagar, Gujarat), and Bhogat (District: Jamnagar, Gujarat).

Furthermore, Cairn has established the Bhogat Terminal Station in the village of Bhogat (rural), Taluka: Kalyanpur, District: Devbhumi Dwarka. This facility is dedicated solely to the storage and pumping of crude oil. Environmental clearance for the terminal station was secured from the Ministry of Environment, Forest and Climate Change, Government of India

The study area is situated in Bhogat village within the Kalyanpur block of Devbhumi Dwarka (formerly known as Jamnagar) district in the state of Gujarat, positioned at coordinates 21.9924° N, 69.2416° E. The Terminal lies approximately 30.00 kilometers east of the Dwarka – Porbandar National Highway and about 7.25 kilometers east of the north-south running coastline. It spans an area of approximately 1,225,010 square meters.

The geotagged photographs of the project site are given in Figure 1.



Figure 1: Geotagged Photographs of the Project Site

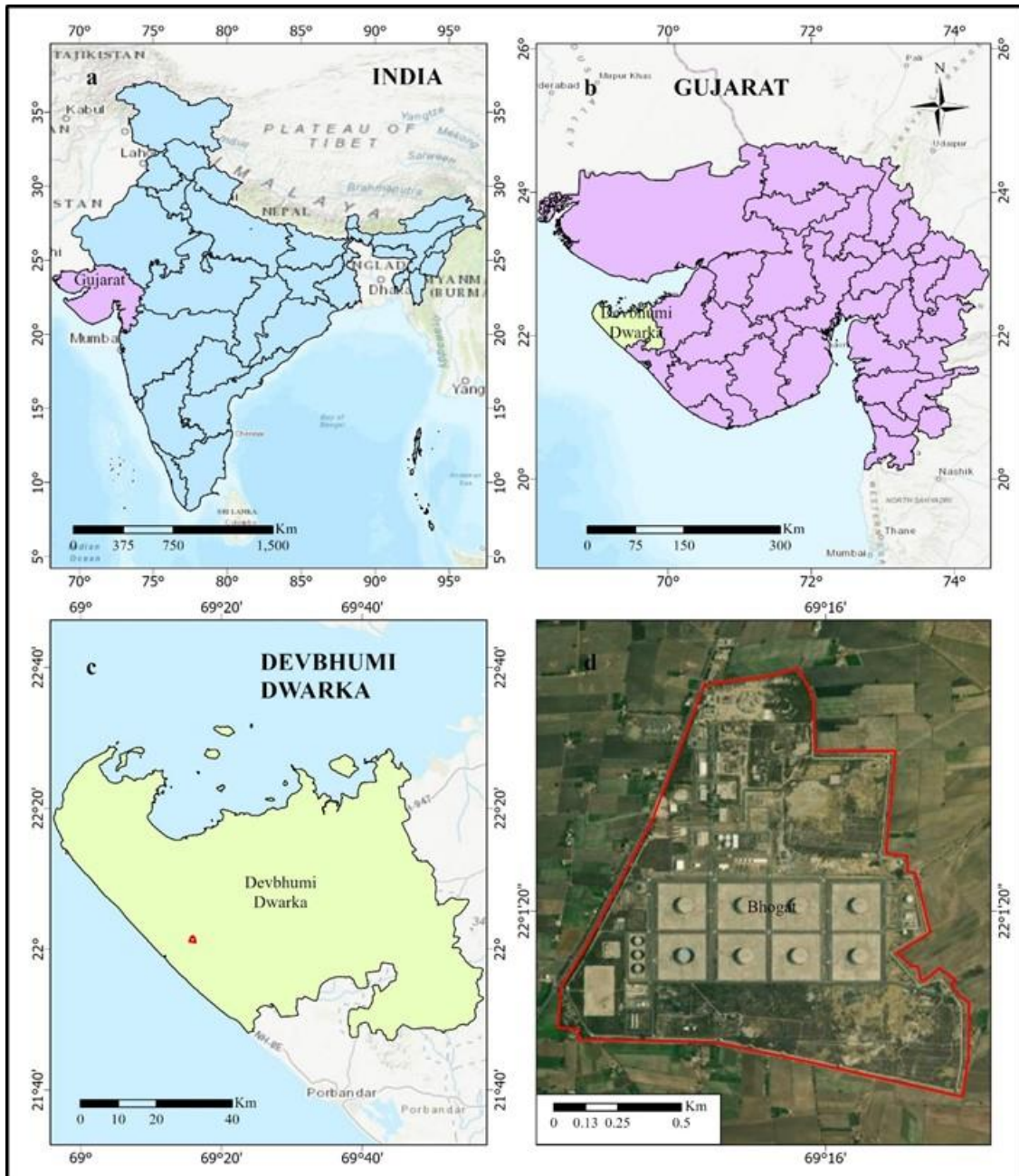
2.0 PROJECT LOCATION

The location map demarcating the state-district-block boundaries is given in Figure 3. The details of the project location are given in the table 1

Table 1: Brief Details of the Project Location

S. No	Particulars	Details
1	Villages	Bhogat
2	Block/ Mandal	Kalyanpur block
3	Tehsil/Taluka	Jamkalyanpur
4	District	Dev Bhomi Dwarka
5	State	Gujarat
6	Toposheet No.	41F/4 & B/16, 41F/8, 41G/I & 41G/5
7	Latitude	21.9924°
8	Longitude	69.2416°
9	Nearest Highway	Dwarka – Porbandar National Highway

The Google Image showing the Bhogat Terminal is given in Figure 3. The topo map of the study area demarcating the core (project site) and buffer zone (5km study area) is given in Figure 4.



Location Map

Project Boundary

Figure 2: Location Map of the Project Site

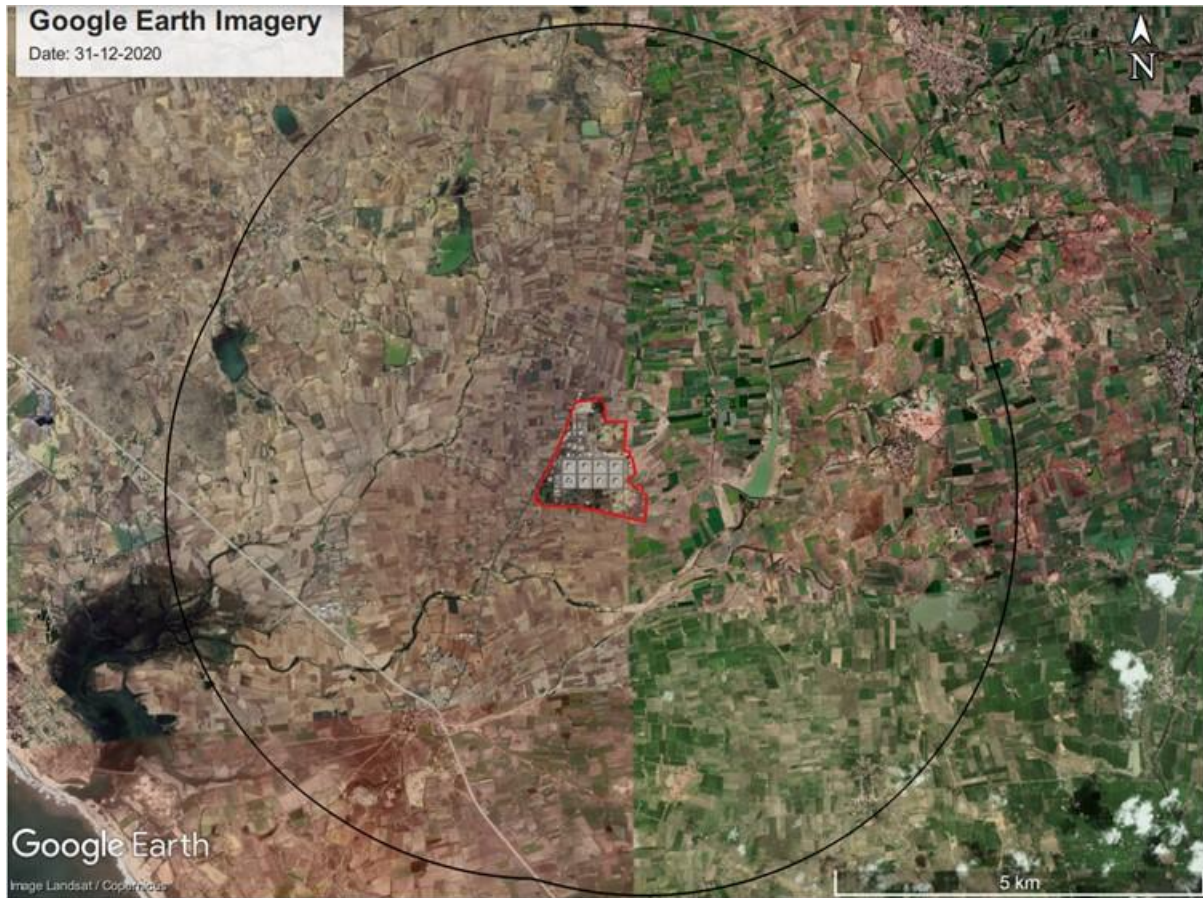


Figure 3: Google Map showing the Bhogat Terminal (Source: Google Imagery)

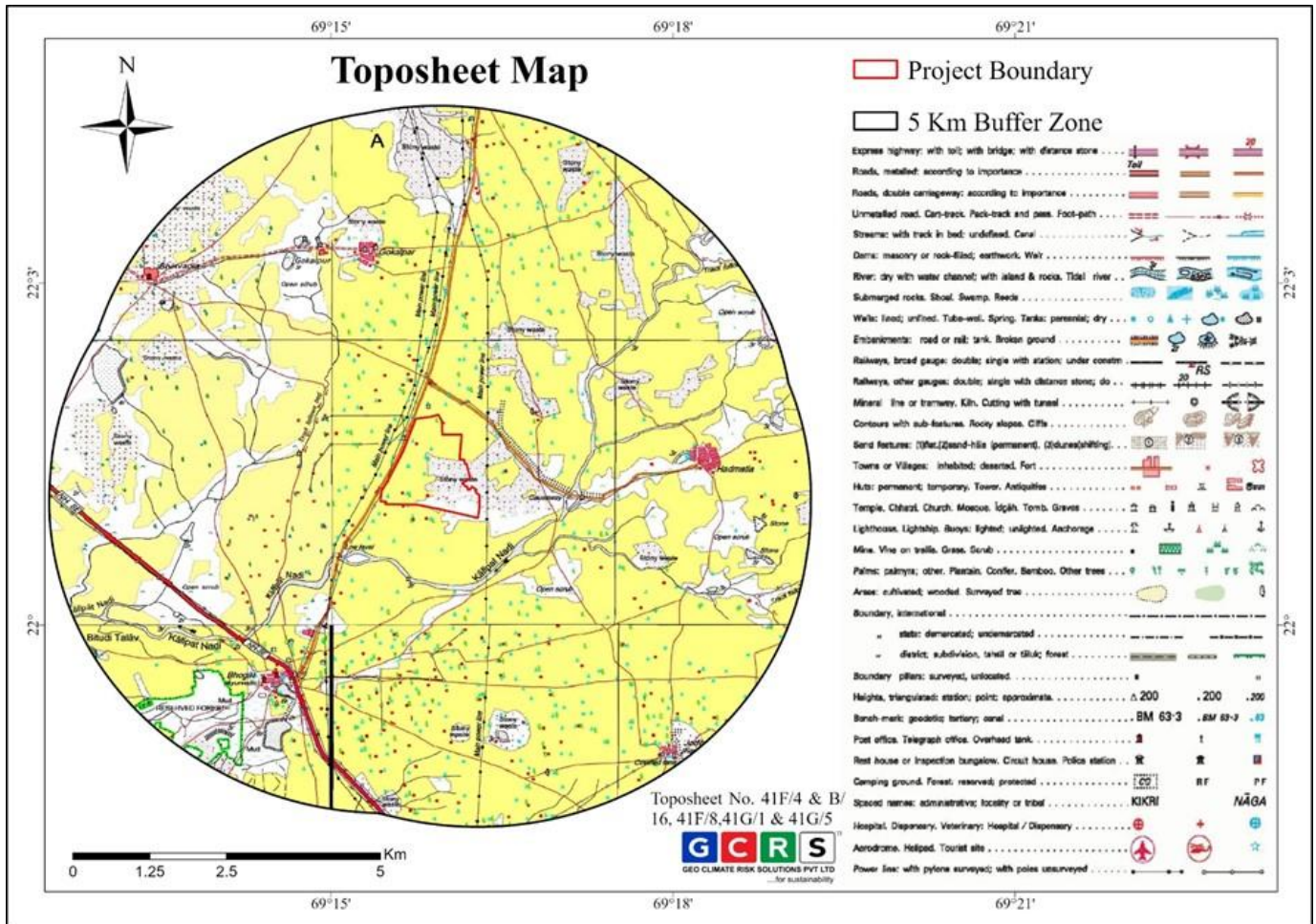


Figure 4: Topo Map demarcating the core (project site) and buffer zone (5km study area) (Source: Survey of India Toposheet)

3.0 COMPLIANCE CONDITIONS OF NOC

Renewal in NOC has been obtained from CGWA vide CGWA NOC NO. CGWA/NOC/IND/REN/2/2023/7387 valid from 17.07.2021 to 16.07.2024 against Application No. 21-4/601/GJ/IND/2009 in the tune of 190 KLD. Copy of NOC is enclosed in **Annexure A**.

The conditions of the NOC along with the present compliance status is illustrated in the table 2 give below:

Table 2: Status of Compliance to NOC Conditions

S. No	NOC Condition	Status of Compliance	Annexure
Mandatory Conditions			
1	Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.	All the GW abstraction structures are fitted with tamper proof digital water flow meter with telemetry. Same has been already intimated to CGWB/CGWA.	Annexure B_Communication Mail to CGWB/CGWB
2	Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.	The Company has calibrated water flow meters every year from an authorized agency. Latest calibration done by Prism Calibration Centre dated 5.1.2024.	Annexure C_Calibration Certificate.
3	Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be	The Company has constructed 1 piezometer with DWLR with telemetry as per NOC Condition for regular ground water level	Annexure D_Piezometer Data

	made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.	monitoring. The user id and password along with the link of the telemetry system has been shared to CGWB/CGWA.	
4	Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analyzed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.	The Company has monitored Ground water quality of all the abstraction structures regularly in pre and post monsoon. The samples are analyzed in the NABL accredited lab and same is regularly forwarded to CGWB/CGWA.	Annexure E_GW Quality Report
5	In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.	This is an Industrial proposal hence the same is not applicable.	
6	In case of mining project, the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.	This is an Industrial proposal hence the same is not applicable.	

7	The firm shall report compliance of the NOC conditions online on the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.	Noted and same is being complied.	
8	Industries abstracting ground water in excess of 100 m ³ /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.	The Company has undertaken Annual Water Audit Report through certified auditor (FICCI) and adopted methods to conserve Ground Water through the best appropriate means.	Annexure F_Water Audit Report.
9	Application for renewal can be submitted online 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.	Noted and same will be complied	
10	This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.	Noted.	

General conditions.

11	No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).	Noted.	
12	The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).	Noted. Presently the Company is fulfilling the requirement from the quantum permitted in NOC.	
13	Proponents shall install roof top rainwater harvesting in the premise as per the existing building bye laws in the premise.	The Company has adopted roof top rainwater harvesting in the nearby school buildings within the study area and about 1500 cum/annum rainwater harvesting has been done.	Annexure G_Photographs of Roof Top Rainwater Harvesting
14	The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.	Noted.	
15	In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall	The industry is not water polluting; hence the Company has adopted recharge in the tune of 49626 cum/annum through roof top rainwater harvesting	Annexure H_Details of RWH Plan

	be stored and put to beneficial use by the firm.	structures, Khadins, Village Ponds and RWH inside Plant (Well Pads).	
16	Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated wastewater.	Noted and is being complied	
17	Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tube well(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.	Noted. The entire assessment block is saline but during last 2years ground water withdrawal in the study area is found to be fresh. The samples are analyzed in the NABL accredited lab.	Annexure E_GW Quality Report
18	Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.	This is an Industrial proposal hence the same is not applicable.	
19	In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.	Noted	
20	This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.	Noted	

21	The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.	Noted	
22	In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.	Noted	
23	This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.	Noted	
24	Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of up to 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.	The Company has adopted recharge in the tune of 10380 cum/annum through roof top rainwater harvesting structures and RWH inside Plant and aids in regular maintenance of the structures with periodic monitoring of the same.	Annexure H_Details of RWH Plan
25	Industries which are likely to cause ground water pollution e.g. Tanning,	This industry does not fall in the list of ground water	

	Slaughterhouses, Dye, Chemical/Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.	polluting industries as per CPCB list. Hence the same is not applicable.	
26	In case of new infrastructure projects having ground water abstraction of more than 20 m ³ /day, the firm/entity shall ensure implementation of dual water supply system in the projects.	This is an Industrial proposal hence the same is not applicable.	
27	In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.	This is an Industrial proposal hence the same is not applicable.	
28	In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.	Noted	
29	The NOC issued is conditional subject to the conditions mentioned in the public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.	Noted	

30	This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).	Noted	
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4.0 DETAILS OF THE TUBEWELLS/ BOREWELLS

There is a total of 9 production well (Dug wells and Tube wells) as granted in NOC for abstraction of Ground Water to meet the industrial requirement of the company. The details of the existing tube well are given in Table 3. The design of the Tube Well is shown in Figure 5. The site plan showing the location of the tube wells is given in Figure 6 and geotagged photograph of the same is given in Figure 7.

Table No. 3

S. No	Particulars	Dug Well				
		Dug Well 1	Dug Well 2	Dug Well 6	Dug Well 8	Dug Well 10
1	Name					
2	Latitude & Longitude	22.0240	22.0239	22.0200	22.0187	22.0161
		69.2665	69.2684	69.2695	69.2713	69.2710
3	Drilling Depth (m)	11.02	16.45	17.16	12.48	12.95
4	Diameter (mm)	6900	6900	6900	6900	6900
5	Depth to water level (mbgl)	8.27	8.37	8.38	8.50	8.64
6	Mode of Lift	Submersible				
7	Horsepower of the Pump	10	10	14	12.50	10
8	Discharge of tube wells (cum/hour)	30	30	30	30	30
9	Operational hr./day	1	1	1	1	1
10	Operation day/year	365	365	365	365	365

Tubewells are not in operation

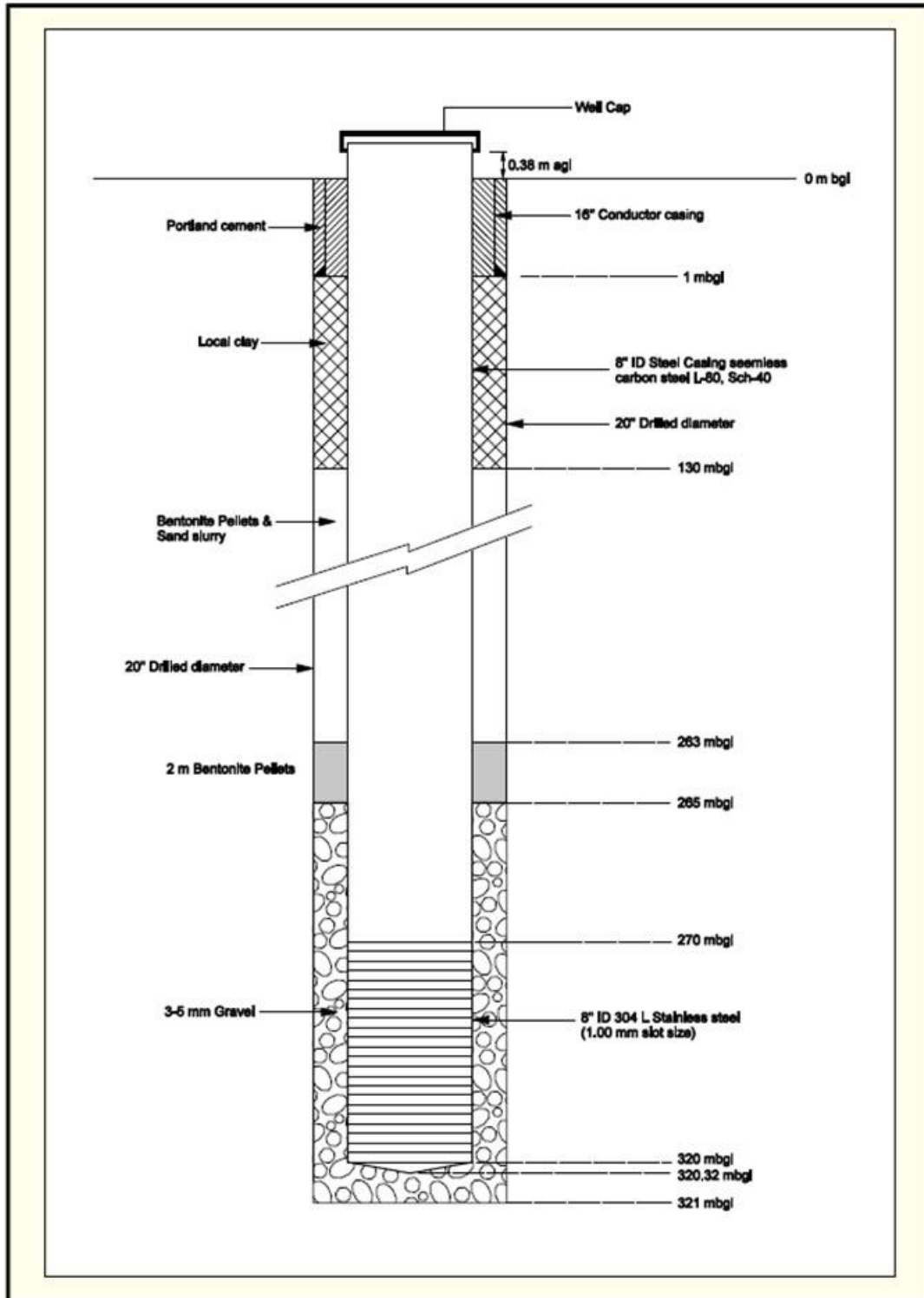


Figure 5: Design of Tube Well (Bhogat) (Source: CAIRN Oil & Gas Vedanta Limited)

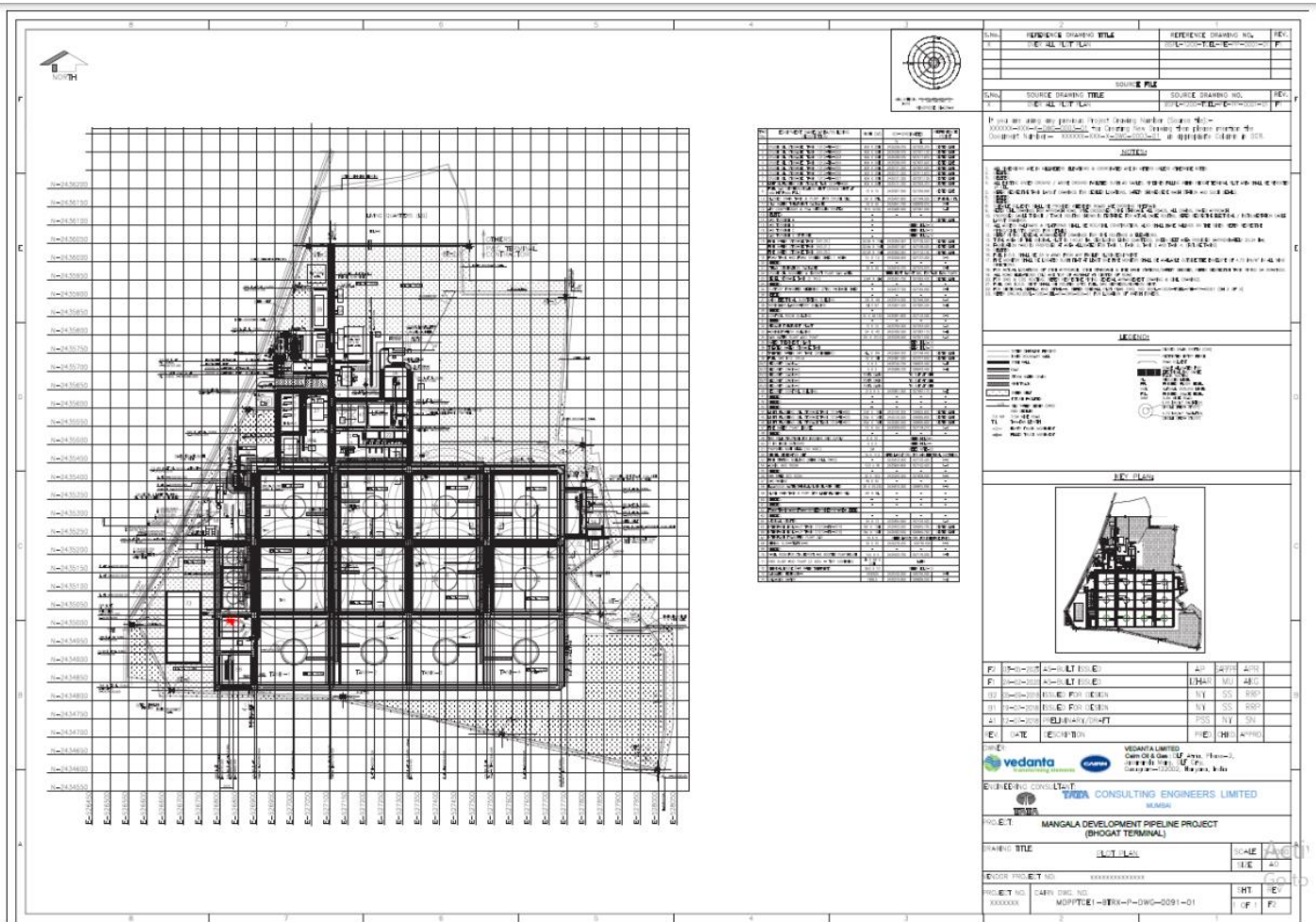


Figure 6: Site Plan showing location of Production Well and Monitoring Well

Geotagged Photos of Dug Wells





DUG WELL 6



DUG WELL 8



DUG WELL 10

Figure 7: Geotagged Photographs of the Production Wells

5.0 DETAILS OF THE WATER FLOW METER

The Tube well is fitted with Water Flow Meters with telemetry and same is annually calibrated as well as monitored as per NOC granted. The geotagged photograph of the same is given in Figure 8. Copy of Calibration Certificate is enclosed in Annexure C. Details of GW Abstraction Data is illustrated in the table 4 given below:

Table 4: Flow Meter Data (July 2022 to June 2024)

GROUND WATER EXTRACTION DATA (JULY 2022- JUNE 2024)

Bhogat Dug well Flowmeter Reading

Dugwell-1

Month	Initial Reading - m ³	Final Reading - m ³	Consumption - m ³	Daily Average	Water Quality	Fresh water-Consumption (m ³)	Saline water-Consumption (m ³)
Jul-22	1607.95	2,212.35	604.4	20.15	Fresh<5000 μS/cm	604.4	0
Aug-22	2,212.35	3,198.61	986.26	32.88	Fresh<5000 μS/cm	986.26	0
Sep-22	3198.61	3,991.30	792.69	26.42	Fresh<5000 μS/cm	792.69	0
Oct-22	3991.3	4,373.57	382.27	12.74	Fresh<5000 μS/cm	382.27	0
Nov-22	4373.57	4,547.49	173.92	5.80	Fresh<5000 μS/cm	173.92	0
Dec-22	4547.49	5,056.17	508.68	16.96	Fresh<5000 μS/cm	508.68	0
Jan-23	5056.17	5,814.55	758.38	25.28	Saline>5000 μS/cm	0	758.38
Feb-23	5814.55	6,279.44	464.89	15.50	Saline>5000 μS/cm	0	464.89
Mar-23	6279.44	6,707.84	428.4	14.28	Saline>5000 μS/cm	0	428.4
Apr-23	6707.84	7,040.36	332.52	11.08	Saline>5000 μS/cm	0	332.52
May-23	7040.36	7,303.17	262.81	8.76	Saline>5000 μS/cm	0	262.81
June-23	7303.17	8,287.87	984.7	32.82	Saline>5000 μS/cm	0	984.7
Jul-23	8,287.87	9,024.88	737.01	24.57	Fresh<5000 μS/cm	737.01	0
Aug-23	9024.88	9,373.70	348.82	11.63	Fresh<5000 μS/cm	348.82	0

Sep-23	9373.7	10,072.40	698.7	23.29	Fresh<5000 µS/cm	698.7	0
Oct-23	10072.4	10,610.41	538.01	17.93	Fresh<5000 µS/cm	538.01	0
Nov-23	10610.41	11,029.02	418.61	13.95	Fresh<5000 µS/cm	418.61	0
Dec-23	11029.02	11,625.61	596.59	19.89	Fresh<5000 µS/cm	596.59	0
Jan-24	11625.61	12,168.13	542.52	18.08	Saline>5000 µS/cm	0	542.52
Feb-24	12168.13	12,537.22	369.09	12.30	Saline>5000 µS/cm	0	369.09
Mar-24	12537.22	12,951.38	414.16	13.81	Saline>5000 µS/cm	0	414.16
Apr-24	12951.38	13,241.46	290.08	9.67	Saline>5000 µS/cm	0	290.08
May-24	13241.46	13,481.18	239.72	7.99	Saline>5000 µS/cm	0	239.72
June-24	13481.18	13,637.40	156.22	5.21	Saline>5000 µS/cm	0	156.22
Total water Consumption - m3 (July 2023-June 2024)			5349.53				
Daily Average (KLD)			15				
Bhogat Dug well Flowmeter Reading							
Dugwell-2							
Month	Initial Reading - m ³	Final Reading - m ³	Consumption - m ³	Daily Average	Water Quality	Fresh water- Consumption (m3)	Saline water- Consumption (m3)
Jul-22	1501.33	2,508.86	1007.53	33.58	Fresh<5000 µS/cm	1007.53	0
Aug-22	2,508.86	4,015.85	1506.99	50.23	Fresh<5000 µS/cm	1506.99	0
Sep-22	4015.85	5,052.87	1037.02	34.57	Fresh<5000 µS/cm	1037.02	0
Oct-22	5052.87	6,092.85	1039.98	34.67	Fresh<5000 µS/cm	1039.98	0

Nov-22	6092.85	6,092.85	0	0.00	Fresh<5000 µS/cm	0	0
Dec-22	6092.85	6,092.85	0	0.00	Fresh<5000 µS/cm	0	0
Jan-23	6092.85	6,092.85	0	0.00	Saline>5000 µS/cm	0	0
Feb-23	6092.85	6,551.04	458.19	15.27	Saline>5000 µS/cm	0	458.19
Mar-23	6551.01	6,832.14	281.13	9.37	Saline>5000 µS/cm	0	281.13
Apr-23	6832.14	7,002.93	170.79	5.69	Saline>5000 µS/cm	0	170.79
May-23	7002.93	7,130.27	127.34	4.24	Saline>5000 µS/cm	0	127.34
June-23	7130.27	7,412.87	282.6	9.42	Saline>5000 µS/cm	0	282.6
Jul-23	7412.87	7524.48	111.61	3.72	Fresh<5000 µS/cm	111.61	0
Aug-23	7524.48	7563.64	39.16	1.31	Fresh<5000 µS/cm	39.16	0
Sep-23	7563.64	7694.5	130.86	4.36	Fresh<5000 µS/cm	130.86	0
Oct-23	7694.5	7873.64	179.14	5.97	Fresh<5000 µS/cm	179.14	0
Nov-23	7873.64	8020.33	146.69	4.89	Fresh<5000 µS/cm	146.69	0
Dec-23	8020.33	8285.4	265.07	8.84	Fresh<5000 µS/cm	265.07	0
Jan-24	8285.4	8581.79	296.39	9.88	Saline>5000 µS/cm	0	296.39
Feb-24	8581.79	8801.41	219.62	7.32	Saline>5000 µS/cm	0	219.62
Mar-24	8801.41	9095.92	294.51	9.82	Saline>5000 µS/cm	0	294.51
Apr-24	9095.92	9384.46	288.54	9.62	Saline>5000 µS/cm	0	288.54

May-24	9384.46	9570.47	186.01	6.20	Saline>5000 μS/cm	0	186.01
June-24	9570.47	9679.09	108.62	3.62	Saline>5000 μS/cm	0	108.62
Total water Consumption - m3 (July 2023-June 2024)			2266.22				
Daily Average (KLD)			6.20				
Bhogat Dug well Flowmeter Reading							
Dugwell-6							
Month	Initial Reading - m ³	Final Reading - m ³	Consumption - m ³	Daily Average	Water Quality	Fresh water-Consumption (m3)	Saline water-Consumption (m3)
Jul-22	5594.04	7,715.61	2121.57	70.72	Fresh<5000 μS/cm	2121.57	0
Aug-22	7,715.61	9,352.08	1636.47	54.55	Fresh<5000 μS/cm	1636.47	0
Sep-22	9352.08	10,757.85	1405.77	46.86	Fresh<5000 μS/cm	1405.77	0
Oct-22	10757.85	11,525.14	767.29	25.58	Fresh<5000 μS/cm	767.29	0
Nov-22	11525.14	12,389.20	864.06	28.80	Fresh<5000 μS/cm	864.06	0
Dec-22	12,389.20	13,858.01	1468.81	48.96	Fresh<5000 μS/cm	1468.81	0
Jan-23	13858.01	15,565.64	1707.63	56.92	Saline>5000 μS/cm	0	1707.63
Feb-23	15565.64	16,784.00	1218.36	40.61	Saline>5000 μS/cm	0	1218.36
Mar-23	16784	18,074.16	1290.16	43.01	Saline>5000 μS/cm	0	1290.16
Apr-23	18074.16	19,164.45	1090.29	36.34	Saline>5000 μS/cm	0	1090.29
May-23	19164.45	20,278.72	1114.27	37.14	Saline>5000 μS/cm	0	1114.27
June-23	20278.72	20,284.76	6.04	0.20	Saline>5000 μS/cm	0	6.04

Jul-23	20284.76	20470.34	185.58	6.19	Fresh<5000 µS/cm	185.58	0
Aug-23	20470.34	20904.98	434.64	14.49	Fresh<5000 µS/cm	434.64	0
Sep-23	20904.98	22516.31	1611.33	53.71	Fresh<5000 µS/cm	1611.33	0
Oct-23	22516.31	23739.24	1222.93	40.76	Fresh<5000 µS/cm	1222.93	0
Nov-23	23739.24	24366.12	626.88	20.90	Fresh<5000 µS/cm	626.88	0
Dec-23	24366.12	25583.63	1217.51	40.58	Fresh<5000 µS/cm	1217.51	0
Jan-24	25583.63	27084.31	1500.68	50.02	Saline>5000 µS/cm	0	1500.68
Feb-24	27084.31	27988.71	904.4	30.15	Saline>5000 µS/cm	0	904.4
Mar-24	27988.71	29192.53	1203.82	40.13	Saline>5000 µS/cm	0	1203.82
Apr-24	29192.53	30288.19	1095.66	36.52	Saline>5000 µS/cm	0	1095.66
May-24	30288.19	31248.97	960.78	32.03	Saline>5000 µS/cm	0	960.78
June-24	31248.97	31759.65	510.68	17.02	Saline>5000 µS/cm	0	510.68
Total water Consumption - m3 (July 2023-June 2024)			11474.89				
Daily Average (KLD)			32				
Bhogat Dug well Flowmeter Reading							
Dugwell-8							
Month	Initial Reading - m ³	Final Reading - m ³	Consumption - m ³	Daily Average	Water Quality	Fresh water-Consumption (m3)	Saline water-Consumption (m3)
Jul-22	1010.6	1,507.60	497	16.57	Fresh<5000 µS/cm	497	0
Aug-22	1,507.60	2,858.30	1350.7	45.02	Fresh<5000 µS/cm	1350.7	0

Sep-22	2858.3	3,539.01	680.71	22.69	Fresh<5000 µS/cm	680.71	0
Oct-22	3539.01	3,645.51	106.5	3.55	Fresh<5000 µS/cm	106.5	0
Nov-22	3645.51	4,393.48	747.97	24.93	Fresh<5000 µS/cm	747.97	0
Dec-22	4393.48	4,836.99	443.51	14.78	Fresh<5000 µS/cm	443.51	0
Jan-23	4836.99	5,017.09	180.1	6.00	Saline>5000 µS/cm	0	180.1
Feb-23	5017.09	5,171.03	153.94	5.13	Saline>5000 µS/cm	0	153.94
Mar-23	5171.03	5,171.03	0	0.00	Saline>5000 µS/cm	0	0
Apr-23	5171.03	5,456.00	284.97	9.50	Saline>5000 µS/cm	0	284.97
May-23	5456	5,482.74	26.74	0.89	Saline>5000 µS/cm	0	26.74
June-23	5482.72	5,821.82	339.1	11.30	Saline>5000 µS/cm	0	339.1
Jul-23	5821.82	5826.11	4.29	0.14	Fresh<5000 µS/cm	4.29	0
Aug-23	5826.11	5938.77	112.66	3.76	Fresh<5000 µS/cm	112.66	0
Sep-23	5938.77	6310.2	371.43	12.38	Fresh<5000 µS/cm	371.43	0
Oct-23	6310.2	6642.76	332.56	11.09	Fresh<5000 µS/cm	332.56	0
Nov-23	6642.76	6870.99	228.23	7.61	Fresh<5000 µS/cm	228.23	0
Dec-23	6870.99	7287.98	416.99	13.90	Fresh<5000 µS/cm	416.99	0
Jan-24	7287.98	7461.9	173.92	5.80	Saline>5000 µS/cm	0	173.92
Feb-24	7461.9	7461.9	0	0.00	Saline>5000 µS/cm	0	0

Mar-24	7461.9	7635.31	173.41	5.78	Saline>5000 µS/cm	0	173.41
Apr-24	7635.31	7635.31	0	0.00	Saline>5000 µS/cm	0	0
May-24	7635.31	7635.31	0	0.00	Saline>5000 µS/cm	0	0
June-24	7635.31	7635.31	0	0.00	Saline>5000 µS/cm	0	0
Total water Consumption - m3 (July 2023-June 2024)			1813.49				
Daily Average (KLD)			5				
Bhogat Dug well Flowmeter Reading							
Dugwell-10							
Month	Initial Reading - m ³	Final Reading - m ³	Consumption - m ³	Daily Average	Water Quality	Fresh water-Consumption (m3)	Saline water-Consumption (m3)
Jul-22	909.31	909.31	0	0.00	Fresh<5000 µS/cm	0	0
Aug-22	909.31	909.33	0.02	0.00	Fresh<5000 µS/cm	0.02	0
Sep-22	909.33	923.8	14.47	0.48	Fresh<5000 µS/cm	14.47	0
Oct-22	923.8	923.81	0.01	0.00	Fresh<5000 µS/cm	0.01	0
Nov-22	923.81	923.82	0.01	0.00	Fresh<5000 µS/cm	0.01	0
Dec-22	923.82	989.88	66.06	2.20	Fresh<5000 µS/cm	66.06	0
Jan-23	989.88	1169.18	179.3	5.98	Saline>5000 µS/cm	0	179.3
Feb-23	1169.18	1356.44	187.26	6.24	Saline>5000 µS/cm	0	187.26
Mar-23	1356.44	1722.53	366.09	12.20	Saline>5000 µS/cm	0	366.09
Apr-23	1722.53	1887.74	165.21	5.51	Saline>5000 µS/cm	0	165.21

May-23	1887.74	1887.74	0	0.00	Saline>5000 µS/cm	0	0
June-23	1877.74	1877.74	0	0.00	Saline>5000 µS/cm	0	0
Jul-23	1877.74	1877.74	0	0.00	Fresh<5000 µS/cm	0	0
Aug-23	1877.74	1877.74	0	0.00	Fresh<5000 µS/cm	0	0
Sep-23	1877.74	1907.65	29.91	1.00	Fresh<5000 µS/cm	29.91	0
Oct-23	1907.65	1937.33	29.68	0.99	Fresh<5000 µS/cm	29.68	0
Nov-23	1937.33	1937.33	0	0.00	Fresh<5000 µS/cm	0	0
Dec-23	1937.33	1937.33	0	0.00	Fresh<5000 µS/cm	0	0
Jan-24	1937.33	1937.33	0	0.00	Saline>5000 µS/cm	0	0
Feb-24	1937.33	1937.33	0	0.00	Saline>5000 µS/cm	0	0
Mar-24	1937.33	1937.33	0	0.00	Saline>5000 µS/cm	0	0
Apr-24	1937.33	1937.33	0	0.00	Saline>5000 µS/cm	0	0
May-24	1937.33	1937.33	0	0.00	Saline>5000 µS/cm	0	0
June-24	1937.33	1937.33	0	0.00	Saline>5000 µS/cm	0	0
Total water Consumption - m3 (July 2023-June 2024)			59.59				
Daily Average (KLD)			0.16				
Total water Consumption - m3 from all 5 wells (wef July 2023-June 2024)			20963.72				
Daily Average from 5 dug wells (KLD)			60				

Geotagged photos of Water Flow Meter



DUG WELL 1



DUG WELL 2



DUG WELL 6



DUG WELL 8



DUG WELL 10

Figure 8: Geotagged Photographs of the Water Flowmeter fitted in the production wells

Link of Flow Meter is given below	
Login link	https://iotaflow.in/login
Login ID	controlroom.bhogatterminal@cairnindia.com
Password	cairn@123

6.0 GROUND WATER QUALITY BOTH FOR PRE & POST MONSOON PERIOD FOR THE TUBEWELLS AND PIEZOMETERS CONSTRUCTED WITHIN THE PROJECT AREA.

Detailed laboratory analysis of groundwater quality of the production wells as well as monitoring wells for the pre and post monsoon period has been conducted in NABL accredited lab. A copy of GW Quality Report is enclosed in Annexure E.

7.0 WATER LEVEL DATA FOR THE TUBEWELLS CONSTRUCTED WITHIN THE PROJECT AREA.

The Company has constructed a piezometer with DWLR with telemetry as per NOC Condition for regular ground water level monitoring. The user id and password along with the link of the telemetry system is given below table 5. GW Level data of the monitoring wells are enclosed in Annexure D. Geotagged Photograph of the same is given in figure 9.

Table 5: Water Level Details

S. No	Particulars	Details
1	Link of the Piezometer	https://tpro.telsys.in/
2	User Id	harish.kumar@cairnindia.com
3	Password	Vcairn#22

Annexure I_Geotagged Piezometer Photographs

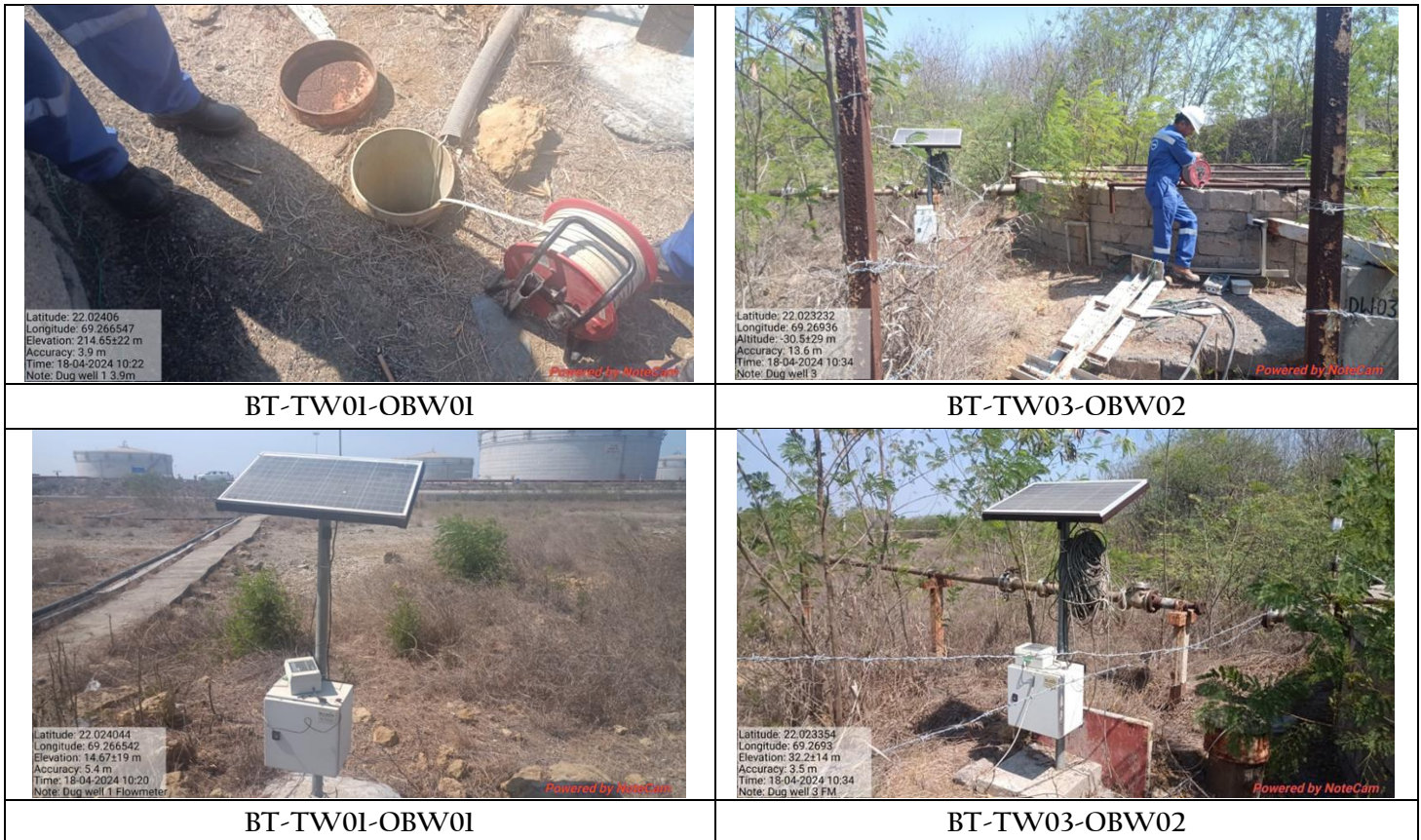


Figure 9: Geotagged Photographs of the Water Level Recorder (Piezometer) with Telemetry system

8.0 RAINWATER HARVESTING PLAN AND ARTIFICIAL RECHARGE

Cairn has taken large initiative for water conservation measures all around the study area. Various rainwater harvesting structures were constructed as a part of corporate social responsibility. The various structures constructed are explained in the following sections. Rainwater harvesting and conservation is the process of concentrating rainfall from a catchment to be used in a target area and is very essential for bringing sustainability in the water sector. Harvesting and conserving rainwater would increase its availability in the drought years. There are several kinds of rainwater harvesting structures prevalent in the area. Some of these harvesting structures depend upon the groundwater while others (tanka, Nadi, khadin etc.) depend on harnessing surface runoff.

The Company has adopted recharge in the tune of 233520.4 cum/annum through roof top rainwater harvesting structures and aids in regular maintenance of the structures with periodic monitoring of the same. Details geotagged photographs of the same are enclosed in Annexure F. The compiled table for detailed RWH adopted by the Company is given in table no. 6 given below:

Table No. 6: RWH Details of the Company

S. No	Type of RWH structures	Quantum of Rainwater Harvested (cum/annum)
1	Artificial Recharge Structures	114871.06
2	Recharge Ponds and Reservoir	16000.00
Total		233520.4





Recharge Pit



Recharge pit near LQ Watchtower



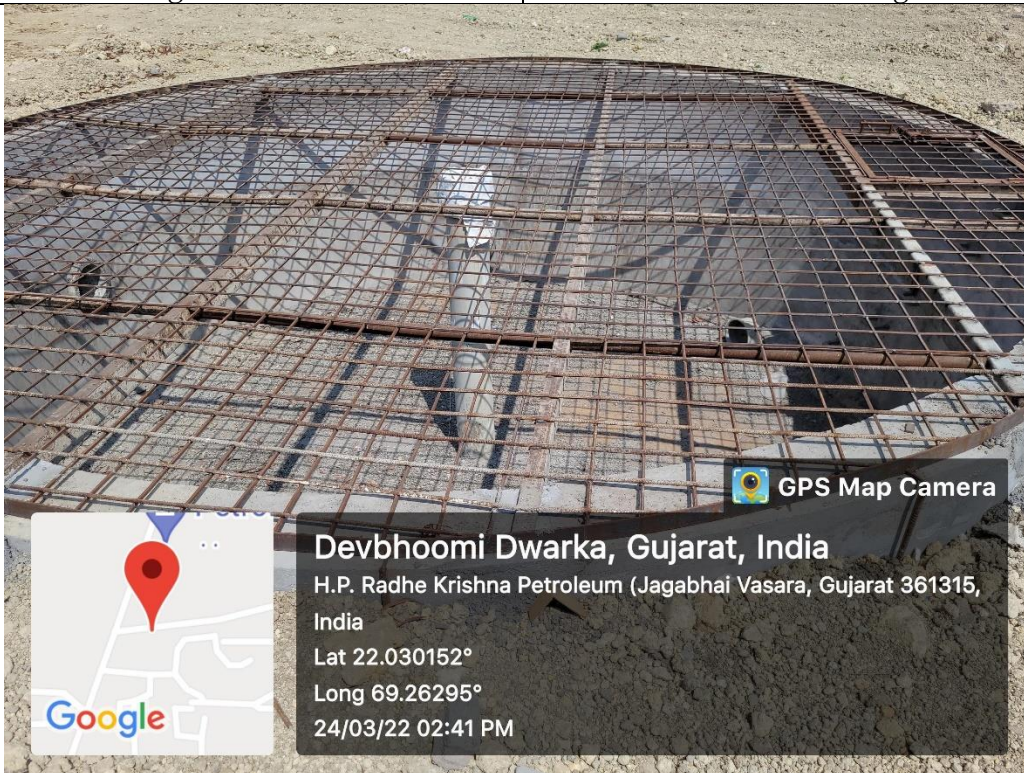
Recharge Pit



Recharge Pit



Recharge Pit



Recharge pit behind LQ Admin



Recharge Pit

Figure 10: Geotagged Photographs of the Rainwater Harvesting Structures

9.0 WATER CONSERVATION METHODS_RECYCLE, REUSE, RETREATMENT

Cairn has constructed Sewage Treatment Plant (STP) of 30 m³ /day capacity at Bhogat LQ for treating wastewater generated due to domestic activities. The treatment process / system is designed on the principle of Activated Sludge process with Ultra filtration which ensures the aerobic decomposition of organic matter in presence of active microbial growth in the aeration tank. The treated water volume is ~16m³ /day. The treated water complies with the GPCB discharge standards. The treated water is being re-used for gardening, flushing and green belt development activities. The entire operation is ZERO SURFACE DISCHARGE process. There is no surface disposal of any reject or wastewater. The details of STP are given in table 7. The geotagged photographs of the STP are given in Figure 11. Detailed Water Balance is given in Figure 12.

Table No. 7: ETP/STP Details

S. No	Particulars	Existing (Designed)	Proposed	Total
1	Effluent/Sewerage generated and treated in ETP/STP	16 KLD	0 KLD	16 KLD
		5840cum/year	0 cum/year	5840cum/year
2	Available treated Effluent/Sewerage for usage	16 KLD	0 KLD	16 KLD
		5840cum/year	0 cum/year	5840cum/year
3	Effluent/Sewerage discharge after treatment	0 KLD	0 KLD	0 KLD
		0 cum/year	0 cum/year	0 cum/year





Figure 11: Geotagged Photographs of STP

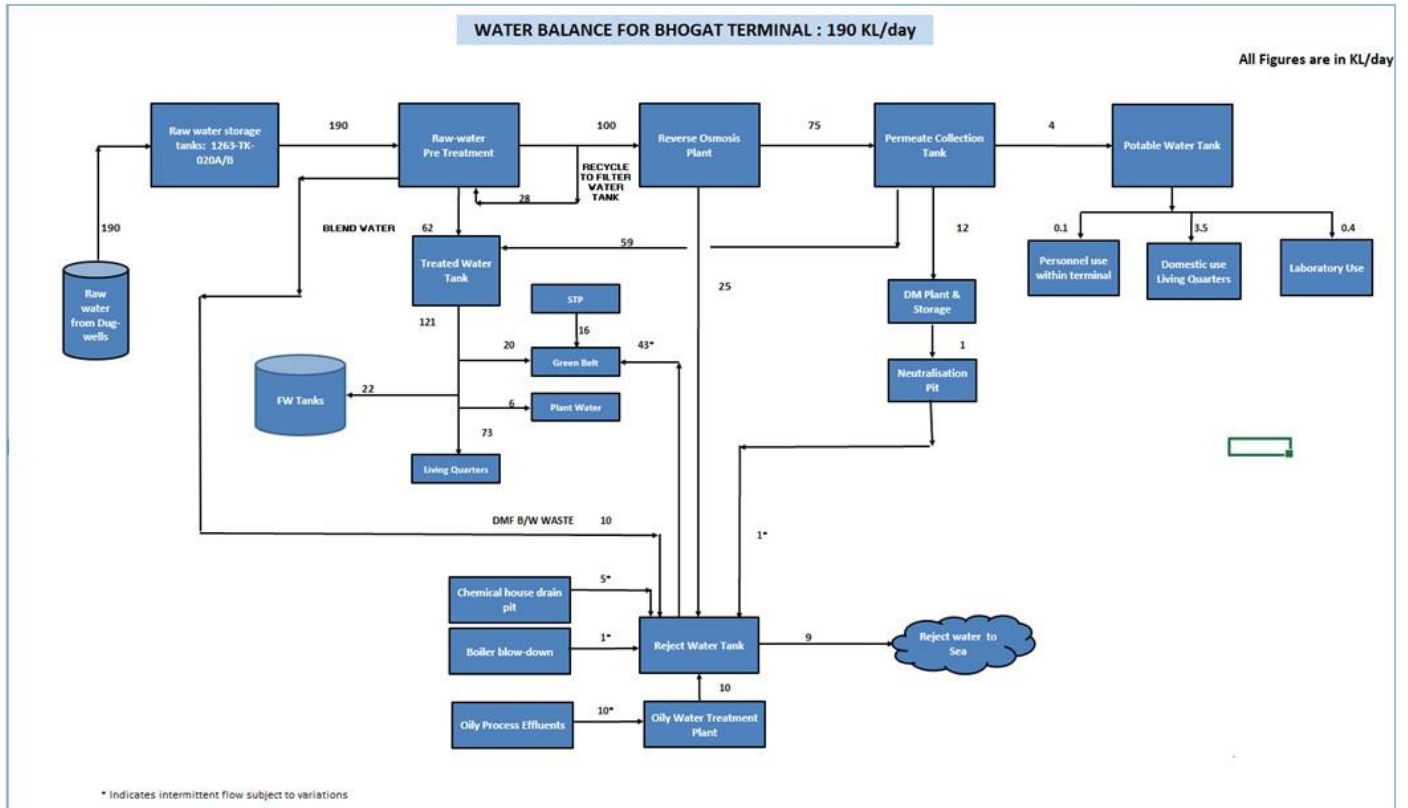


Figure 12: Water Balance Diagram

10.0 DETAILS OF PIEZOMETER

The Company has constructed 2 piezometers with DWLR with telemetry as per NOC Condition for regular ground water level monitoring. The details of the same are given in table 8.

Table 8: Details of Piezometer

S. No	Details	PZ 1	PZ 2
1	Name	BT-TW01	BT-TW03
2	Location	22.0240 69.2665	22.0232 69.2693
3	Depth (m)	200	200
4	Diameter (mm)	250	250
5	Lithology	Sand	Sand
6	Monitoring Schedule	Monthly	Monthly

11.0 WATER SECURITY PLAN FOR THE VILLAGERS

Cairn has taken large initiative for water conservation measures all around Barmer area. Various rainwater harvesting structures were constructed as a part of corporate social responsibility. The detailed water security plan adopted by the company keeping in view the water scarcity of the area.

12.0 GREENBELT DEVELOPMENT

The Company has taken a large initiative for the development of greenbelt and plantation within the project premises to balance the greenery in the surrounding area. A total of 50000 plant species including trees and shrubs are planted. Details of greenbelt photographs showing the greenbelt plantation are given in Figure 13.



Figure 13: Photographs of Greenbelt Development

ANNUAL SELF COMPLIANCE REPORT

JUNE 2024



RADHANPUR TERMINAL

APPLICATION NO : 21-4/1147/GJ/IND/2013
CGWA NOC NO : CGWA/NOC/IND/REN/2/2021/6383
NOC VALIDITY : 25.06.2021-24.06.2024
GW REQUIREMENT : 43 KLD

1.0 BRIEF INTRODUCTION

Cairn Oil & Gas, operating under Vedanta Limited, manages the Production Sharing Contract (PSC) for the RJ-ON-90/1 onshore block in Rajasthan State. This block extends over Barmer and Jalore districts in southwestern Rajasthan. Through diligent efforts, Cairn has been developing oil and gas fields within this block, playing a significant role in India's crude oil production. Presently, their output contributes to about 25% of the nation's domestic production, thus reducing reliance on oil imports and fostering economic growth, especially in the Barmer district.

To facilitate crude oil transportation, Cairn has erected vital infrastructure, including approximately 680 kilometers of buried, insulated heated crude oil pipelines. Additionally, intermediate crude oil storage and pumping facilities are strategically located at Radhanpur (District – Patan, Gujarat), Viramgam (District - Ahmedabad, Gujarat), Salaya (District - Jamnagar, Gujarat), and Bhogat (District: Jamnagar, Gujarat).

Furthermore, Cairn has established the Radhanpur Terminal Station in the village of Radhanpur (rural) (Premnagar), Taluka: Radhanpur, District: Patan. This facility is dedicated solely to the storage and pumping of crude oil. Environmental clearance for the terminal station was secured from the Ministry of Environment, Forest and Climate Change, Government of India

The study area is situated in Radhanpur (rural) (Premnagar) village within the Radhanpur block of Patan district in the state of Gujarat, positioned at coordinates 23.812095° N, 71.619167° E. It spans an area of approximately 1,225,010 square meters.

The geotagged photographs of the project site are given in Figure 1.

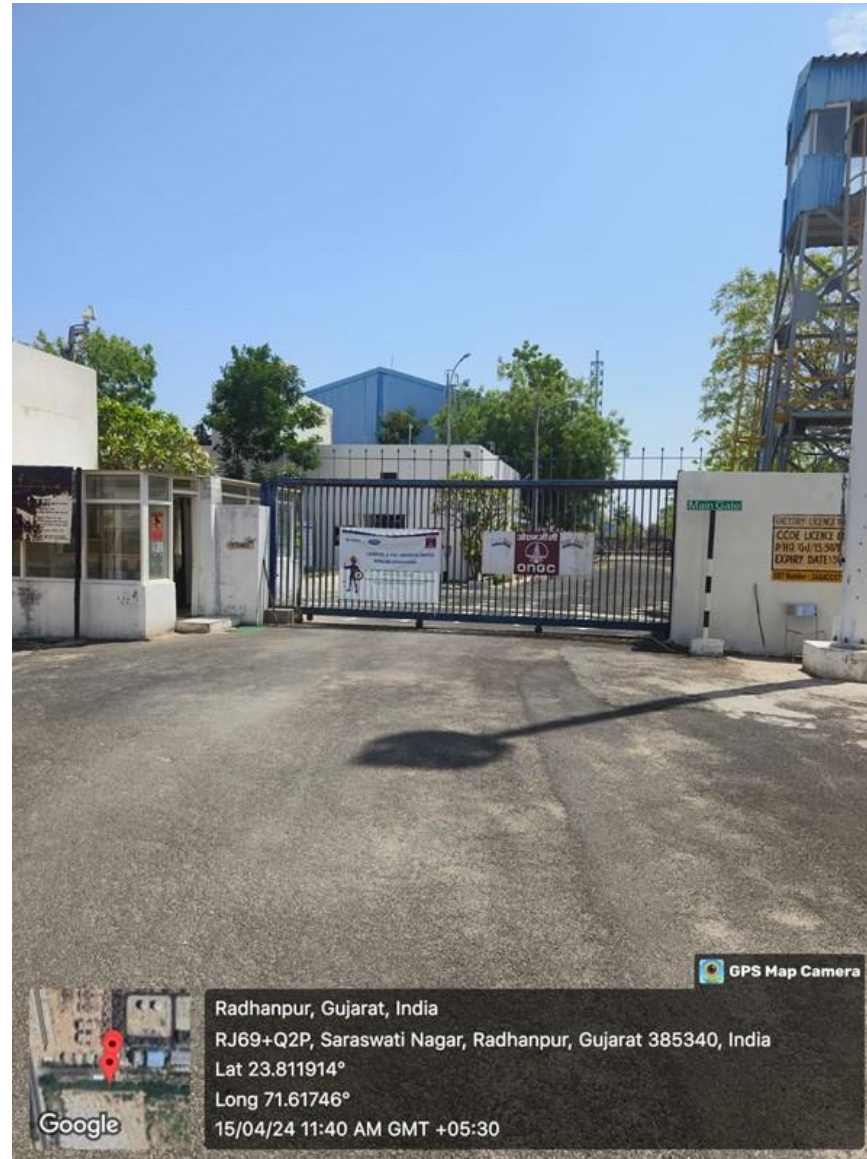


Figure 1: Geotagged Photographs of the Project Site

2.0 PROJECT LOCATION

The location map demarcating the state-district-block boundaries is given in Figure 3. The details of the project location are given in the table 1

Table 1: Brief Details of the Project Location

S. No	Particulars	Details
1	Villages	Radhanpur (rural) (Premnagar)
2	Block/ Mandal	Radhanpur
3	Tehsil/Taluka	Radhanpur
4	District	Patan
5	State	Gujarat
6	Toposheet No.	41M/09
7	Latitude	23.812095° N
8	Longitude	71.619167° E
9	Nearest Highway	SH 55
10	Nearest Railway Station	Patan Railway Station
11	Nearest Bus Stand	Radhanpur Bus Stand

The Google Image showing the Radhanpur Terminal is given in Figure 3. The topo map of the study area demarcating the core (project site) and buffer zone (5km study area) is given in Figure 4.

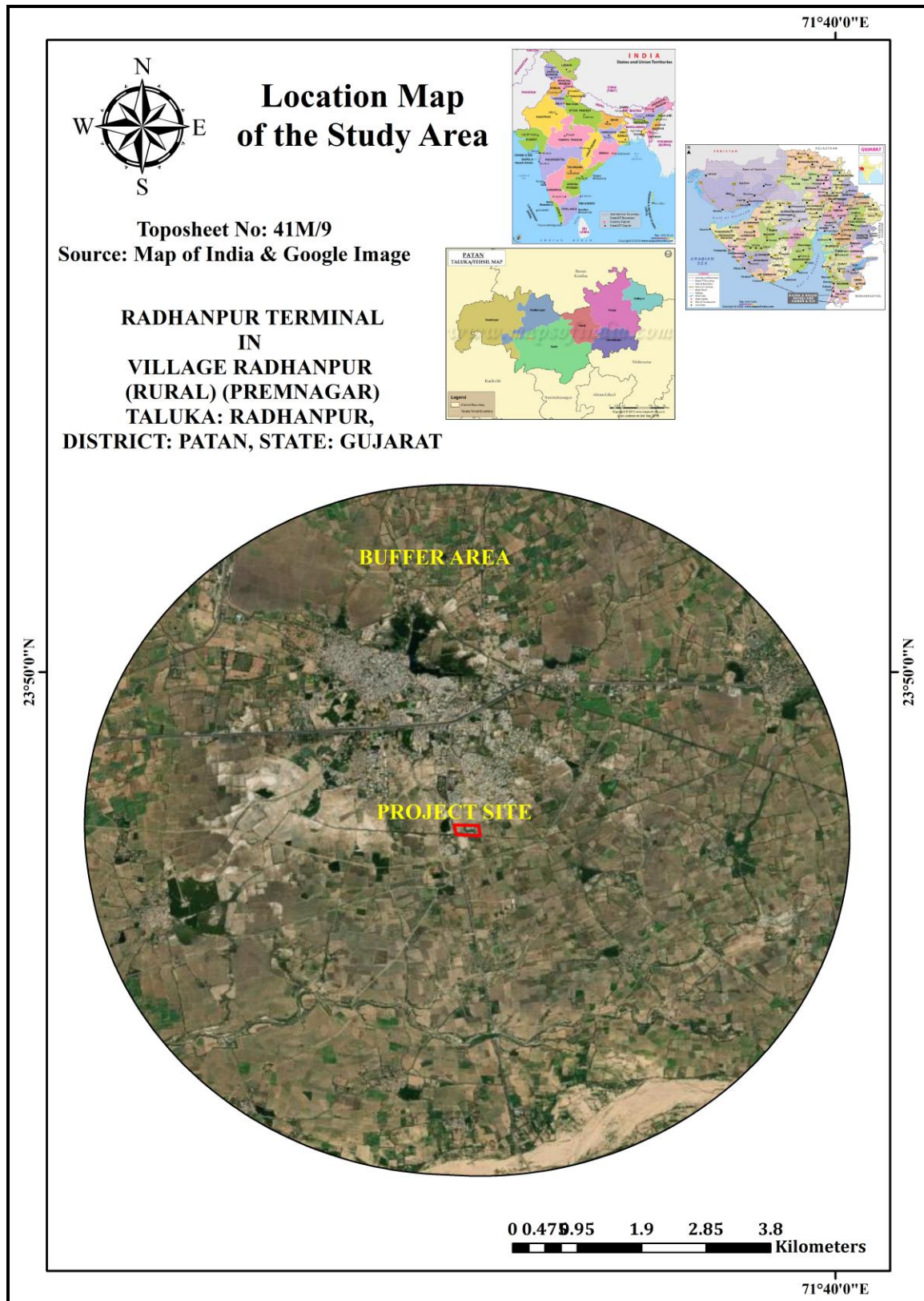


Figure 2: Location Map of the Project Site

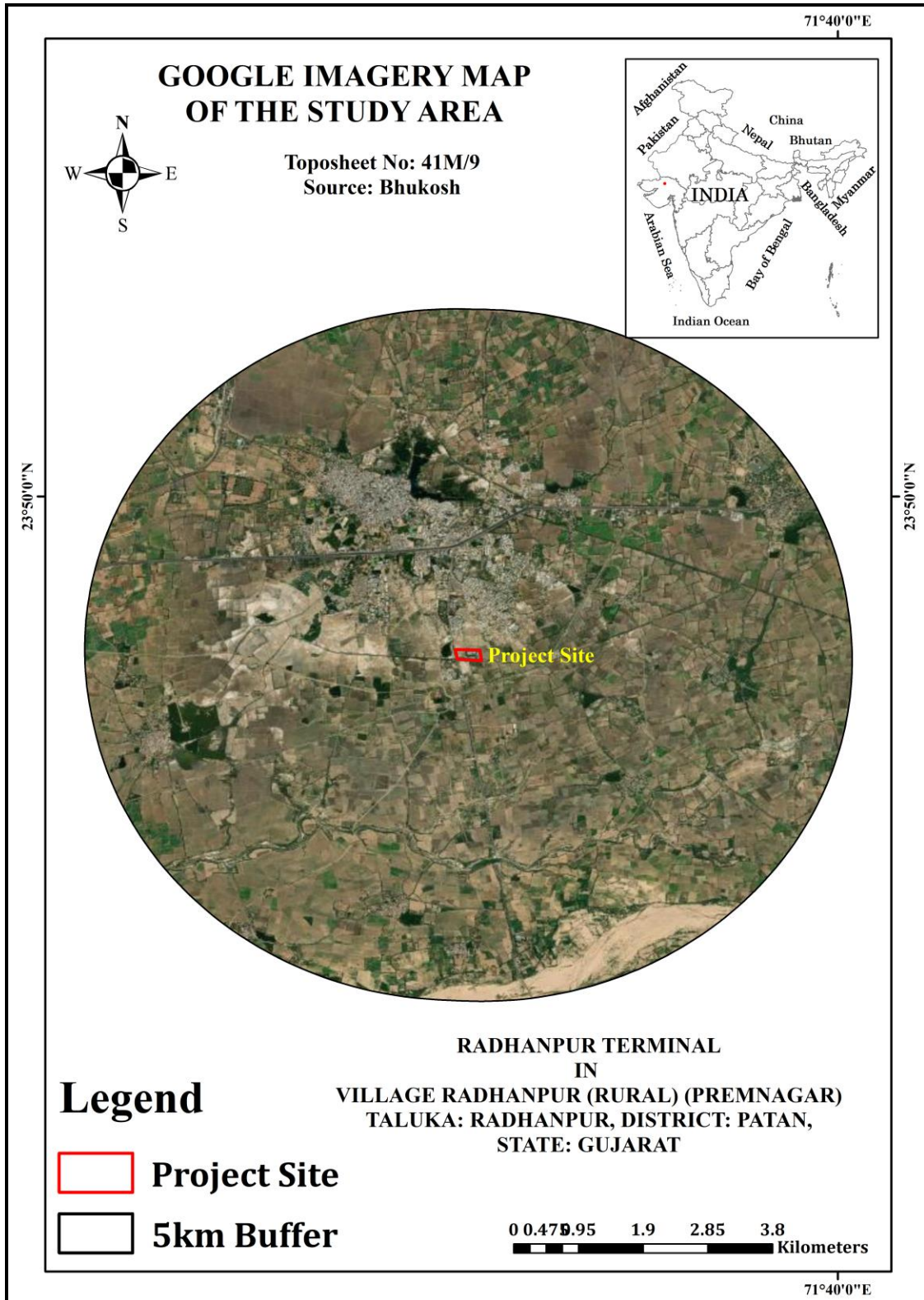


Figure 3: Google Map showing the Radhanpur Terminal (Source: Google Imagery)

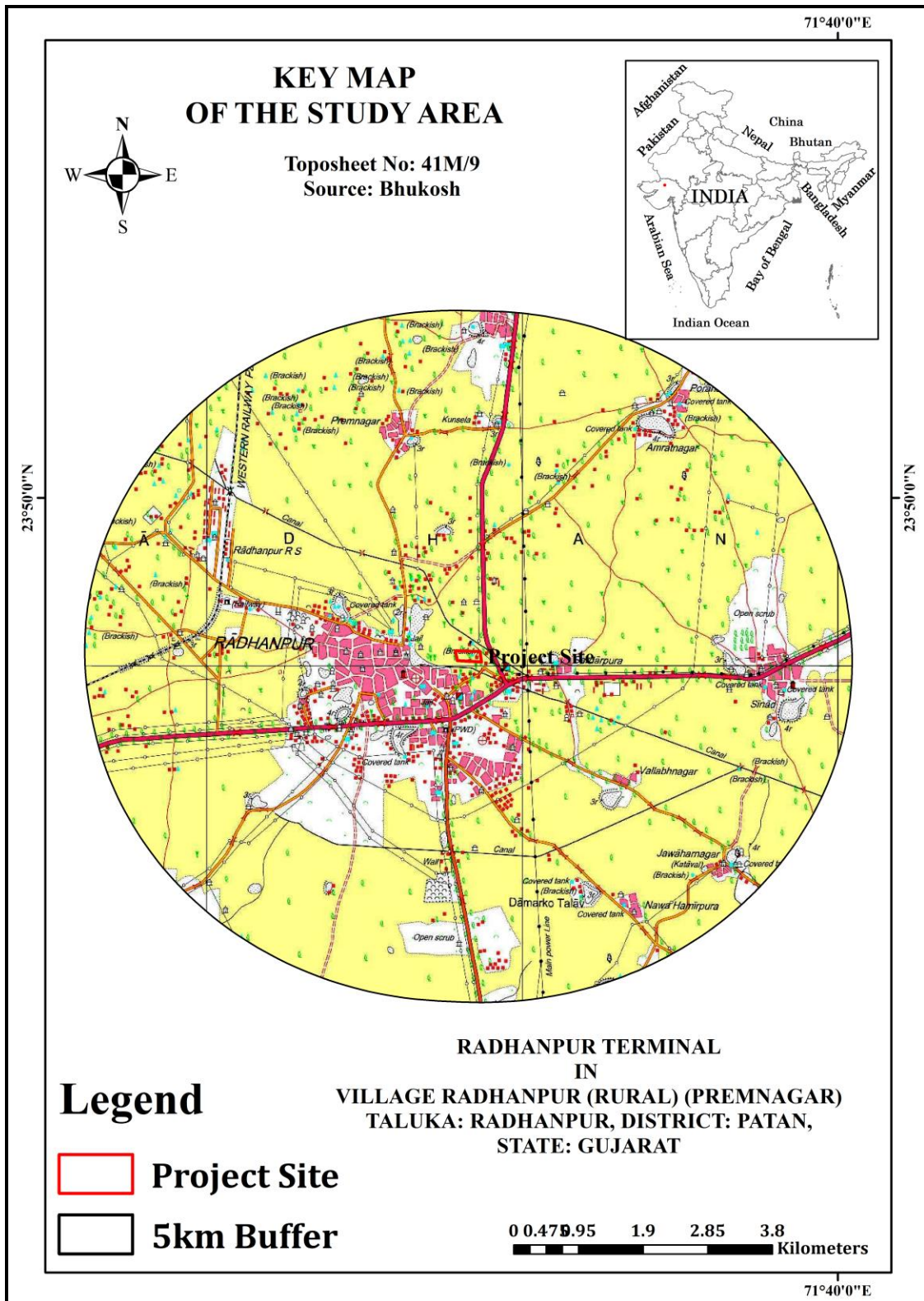


Figure 4: Topo Map demarcating the core (project site) and buffer zone (5km study area) (Source: Survey of India Toposheet)

3.0 COMPLIANCE CONDITIONS OF NOC

Renewal in NOC has been obtained from CGWA vide CGWA NOC NO. CGWA/NOC/IND/REN/2/2021/6383 valid from 25.06.2021 to 24.06.2024 against Application No. 21-4/1147/GJ/IND/2013 in the tune of 43 KLD. Copy of NOC is enclosed in **Annexure A**.

The conditions of the NOC along with the present compliance status is illustrated in the table 2 give below:

Table 2: Status of Compliance to NOC Conditions

S. No	NOC Condition	Status of Compliance	Annexure
Mandatory Conditions			
1	Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.	All the GW abstraction structures are fitted with tamper proof digital water flow meter with telemetry. Same has been already intimated to CGWB/CGWA.	Annexure B_Communication Mail to CGWB/CGWB
2	Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.	The Company has calibrated water flow meters every year from an authorized agency. Latest calibration done by Prism Calibration Centre dated 8.1.2024.	Annexure C_Calibration Certificate.
3	Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be	The Company has constructed 1 piezometers with DWLR with telemetry as per NOC Condition for regular ground water level	Annexure D_Piezometer Data

	made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.	monitoring. The user id and password along with the link of the telemetry system has been shared to CGWB/CGWA.	
4	Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analyzed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.	The Company has monitored Ground water quality of all the abstraction structures regularly in pre and post monsoon. The samples are analyzed in the NABL accredited lab and same is regularly forwarded to CGWB/CGWA.	Annexure E_GW Quality Report
5	In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.	This is an Industrial proposal hence the same is not applicable.	
6	In case of mining project, the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.	This is an Industrial proposal hence the same is not applicable.	

7	The firm shall report compliance of the NOC conditions online on the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.	Noted and same is being complied.	
8	Industries abstracting ground water in excess of 100 m ³ /d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.	The abstraction is only in the tune of 43 KLD hence the same is not applicable.	
9	Application for renewal can be submitted online 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.	Noted and same will be complied	
10	This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.	Noted.	

General conditions.

11	No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).	Noted.	
12	The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).	Noted. Presently the Company is fulfilling the requirement from the quantum permitted in NOC.	
13	Proponents shall install roof top rainwater harvesting in the premise as per the existing building bye laws in the premise.	The Company has adopted roof top rainwater harvesting in the nearby school buildings within the study area and about 1500 cum/annum rainwater harvesting has been done.	Annexure F_Photographs of Roof Top Rainwater Harvesting
14	The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.	Noted.	
15	In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall	The industry is not water polluting; hence the Company has adopted recharge in the tune of 10380 cum/annum through roof top rainwater harvesting	Annexure F_Details of RWH Plan

	be stored and put to beneficial use by the firm.	structures and RWH inside Plant.	
16	Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated wastewater.	Noted and is being complied	
17	Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tube well(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.	Noted. The entire assessment block is saline but during last 2years ground water withdrawal in the study area is found to be fresh. The samples are analyzed in the NABL accredited lab.	Annexure E_GW Quality Report
18	Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.	This is an Industrial proposal hence the same is not applicable.	
19	In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.	Noted	
20	This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.	Noted	
21	The issue of this NOC does not imply that other statutory / administrative	Noted	

	clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.		
22	In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.	Noted	
23	This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.	Noted	
24	Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of up to 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.	The Company has adopted recharge in the tune of 10380 cum/annum through roof top rainwater harvesting structures and RWH inside Plant and aids in regular maintenance of the structures with periodic monitoring of the same.	Annexure F_Details of RWH Plan
25	Industries which are likely to cause ground water pollution e.g. Tanning, Slaughterhouses, Dye, Chemical/ Petrochemical, Coal washeries,	This industry does not fall in the list of ground water polluting industries as per	

	pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.	CPCB list. Hence the same is not applicable.	
26	In case of new infrastructure projects having ground water abstraction of more than 20 m ³ /day, the firm/entity shall ensure implementation of dual water supply system in the projects.	This is an Industrial proposal hence the same is not applicable.	
27	In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.	This is an Industrial proposal hence the same is not applicable.	
28	In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.	Noted	
29	The NOC issued is conditional subject to the conditions mentioned in the public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.	Noted	

30	This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).	Noted	
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4.0 DETAILS OF THE TUBEWELLS/ BOREWELLS

There is a production well (Tube well) as granted in NOC for abstraction of Ground Water to meet the industrial requirement of the company. The details of the existing tube well are given in Table 3. The design of the Tube Well is shown in Figure 5. The site plan showing the location of the tube wells is given in Figure 6 and geotagged photograph of the same is given in Figure 7.

Table No. 3

S. No	Particulars	Tube Well 1
1	Name	RDT PDW01 Well
2	Latitude & Longitude	23.812095 71.619167
3	Drilling Depth (m)	320
4	Diameter (mm)	200
5	Depth to water level (mbgl)	91
6	Mode of Lift	Submersible
7	Horsepower of the Pump	10
8	Discharge of tube wells (cum/hour)	10
9	Operational hr./day	4
10	Operation day/year	365

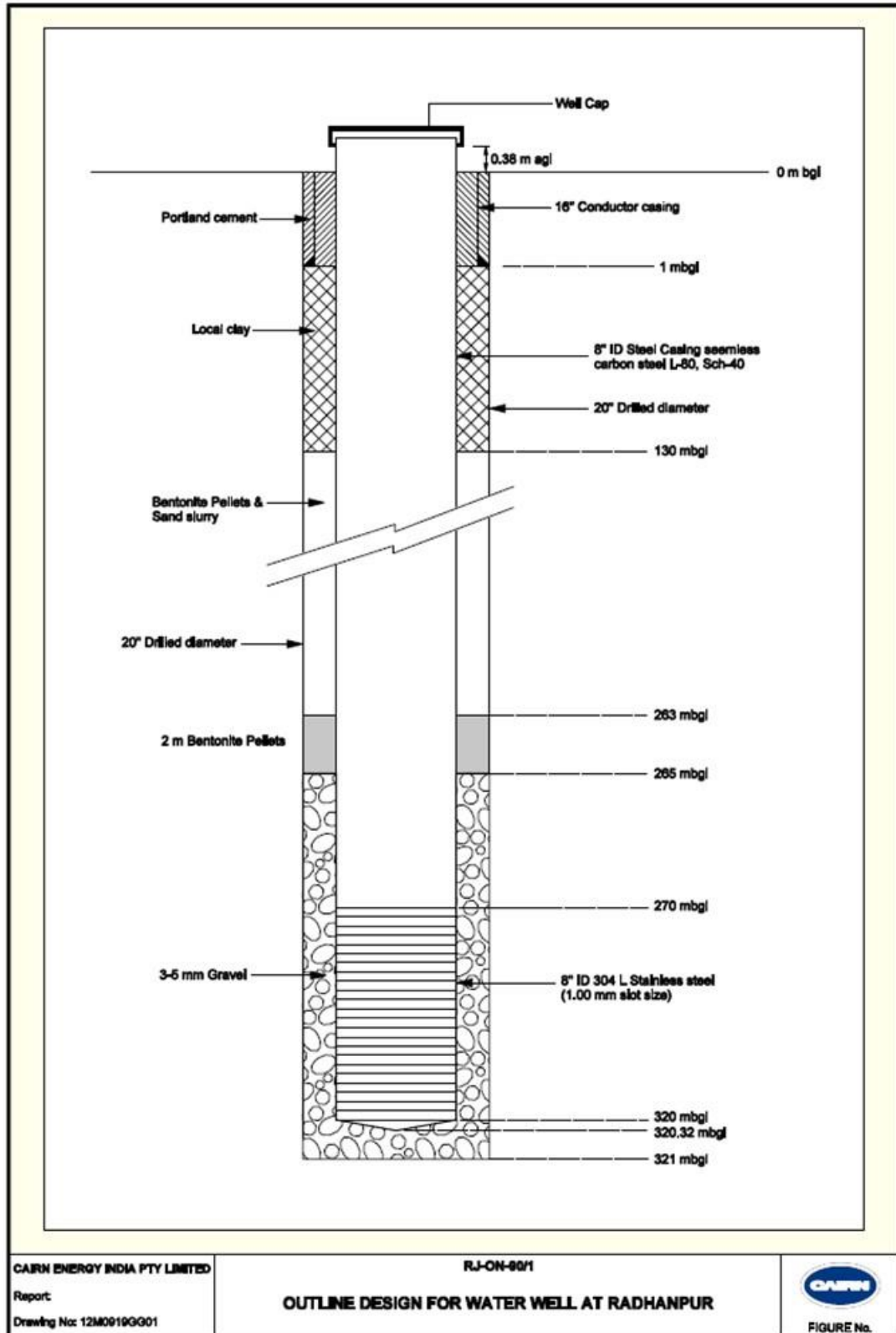


Figure 5: Design of Tube Well (Radhanpur) (Source: CAIRN Oil & Gas Vedanta Limited)

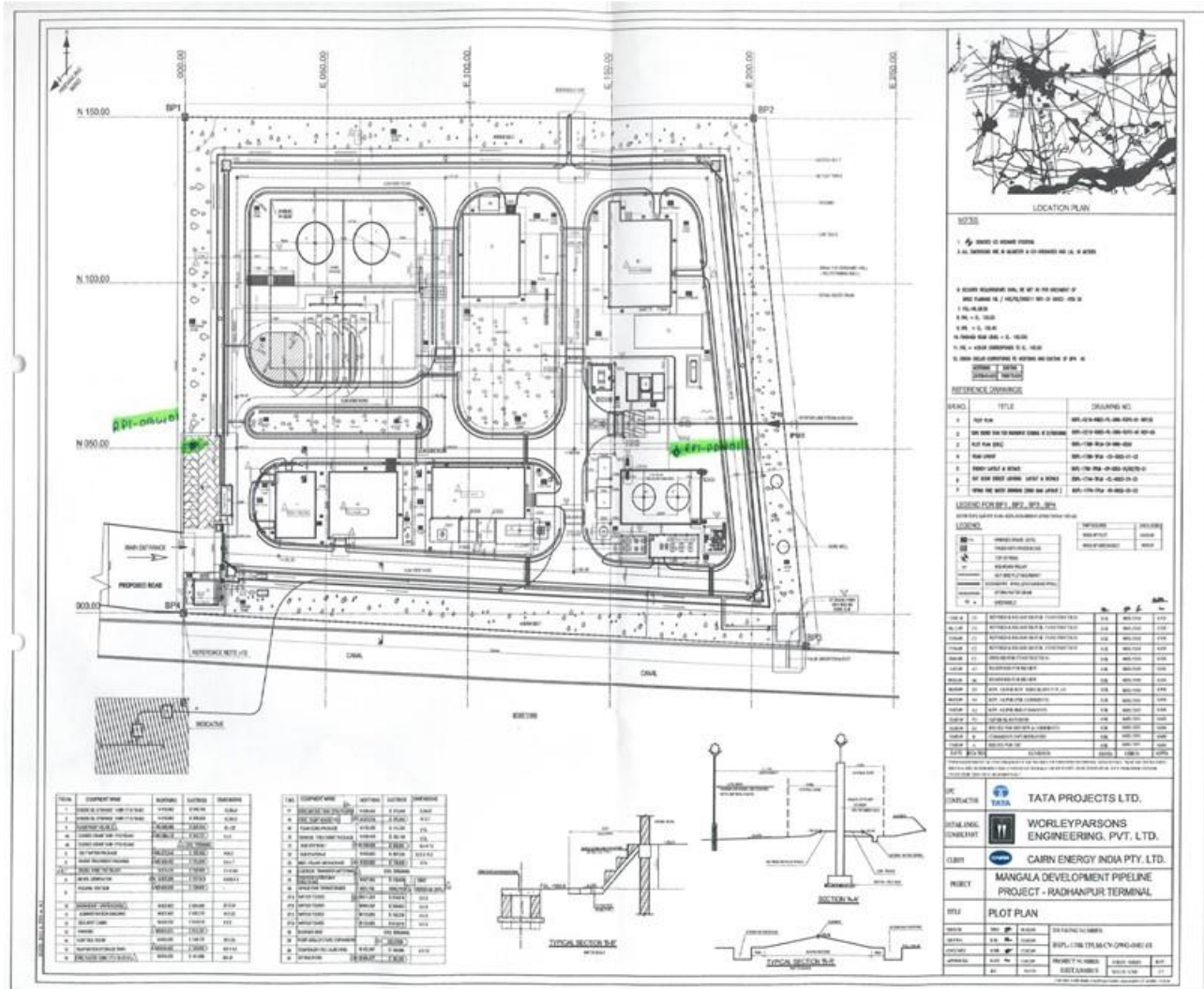


Figure 6: Site Plan showing location of Production Well and Monitoring Well



RDT PDW01 Well

Figure 7: Geotagged Photographs of the Production Wells

5.0 DETAILS OF THE WATER FLOW METER

The Tube well is fitted with Water Flow Meters with telemetry and same is annually calibrated as well as monitored as per NOC granted. The geotagged photograph of the same is given in Figure 8. Copy of Calibration Certificate is enclosed in Annexure C. Details of GW Abstraction Data is illustrated in the table 4 given below:

Table 4: Flow Meter Data (July 2021 to June 2024)

Month	Initial Reading	Final Reading	Consumption during the month (m3/month)	Average Water conservation per day (m3/day)	Comment
Jul-21	1440	1636	196	7	
Aug-21	1636	1907	271	9	
Sep-21	1907	1989	82	3	
Oct-21	1989	2174	185	6	
Nov-21	2174	2400	226	8	
Dec-21	2400	2533	133	4	
Jan-22	2533	2744	211	7	
Feb-22	2744	3082	338	11	
Mar-22	0	295	295	10	Meter changed*
Apr-22	295	550	255	9	
May-22	550	920	370	12	
Jun-22	920	1215.6	295.58	10	
Jul-22	1215.58	1364.6	149.03	5	
Aug-22	1364.61	1444.1	79.47	3	
Sep-22	1444.08	1681.3	237.26	8	
Oct-22	1681.34	1939.2	257.86	9	
Nov-22	1939.2	2290.2	351.01	12	
Dec-22	2290.21	2593.1	302.85	10	
Jan-23	2593.06	2910.5	317.45	11	
Feb-23	2910.51	3110.9	200.42	7	
Mar-23	3110.93	3505	394.04	13	
Apr-23	3504.97	3779.1	274.09	9	
May-23	3779.06	3950.7	171.62	6	

Jun-23	3950.68	3998.3	47.62	2	
Jul-23	3998.3	4063.9	65.55	2	
Aug-23	4063.85	4151.4	87.55	3	
Sep-23	4151.4	4236.7	85.3	3	
Oct-23	4236.7	4314.8	78.06	3	
Nov-23	4314.76	4424.4	109.68	4	
Dec-23	4424.44	4522	97.52	3	
Jan-24	4521.96	4612.5	90.56	3	
Feb-24	4612.52	4696.2	83.72	3	
Mar-24	4696.24	4813.3	117.03	4	
Apr-24	4813.27	4906.7	93.41	3	
May-24	4906.68	5906.7	1000	33	
Jun-24	5906.58	6135	228.42	8	

*** Present Flow Meter Details URL: <https://iotaflow.in/overview>**

User Id: harish.kumar@cairnindia.com

Password: Vcairn#22



RDT PDW01 Well

Figure 8: Geotagged Photographs of the Water Flowmeter fitted in the production wells

Link of Flow Meter is given below

Login link	https://iotaflow.in/login
Login ID	Controlroom.Radhanpur@cairnindia.com
Password	vedanta@123

6.0 GROUND WATER QUALITY BOTH FOR PRE & POST MONSOON PERIOD FOR THE TUBEWELLS AND PIEZOMETERS CONSTRUCTED WITHIN THE PROJECT AREA.

Detailed laboratory analysis of groundwater quality of the production wells as well as monitoring wells for the pre and post monsoon period has been conducted in NABL accredited lab. A copy of GW Quality Report is enclosed in Annexure E.

7.0 WATER LEVEL DATA FOR THE TUBEWELLS CONSTRUCTED WITHIN THE PROJECT AREA.

The Company has constructed a piezometer with DWLR with telemetry as per NOC Condition for regular ground water level monitoring. The user id and password along with the link of the telemetry system is given below table 5. GW Level data of the monitoring wells are enclosed in Annexure D. Geotagged Photograph of the same is given in figure 9.

Table 5: Water Level Details

S. No	Particulars	Details
1	Link of the Piezometer	https://tpro.telsys.in/
2	User Id	harish.kumar@cairnindia.com
3	Password	Vcairn#22



Radhanpur terminal Piezometry fitted with telemetry

Figure 9: Geotagged Photographs of the Water Level Recorder (Piezometer) with Telemetry system

8.0 RAINWATER HARVESTING PLAN AND ARTIFICIAL RECHARGE

Cairn has taken large initiative for water conservation measures all around the study area. Various rainwater harvesting structures were constructed as a part of corporate social responsibility. The various structures constructed are explained in the following sections. Rainwater harvesting and conservation is the process of concentrating rainfall from a catchment to be used in a target area and is very essential for bringing sustainability in the water sector. Harvesting and conserving rainwater would increase its availability in the drought years. There are several kinds of rainwater harvesting structures prevalent in the area. Some of these harvesting structures depend upon the

groundwater while others (tanka, Nadi, khadin etc.) depend on harnessing surface runoff.

The location of all the RWH structures is shown in Figure 10. Company has initiated roof top rainwater harvesting in the nearby schools and about 1500 cum/annum rainwater is harvested.

In addition to the above the company has initiated roof top rainwater harvesting within Radhanpur terminal premises and harvested about 8880 cum rainwater.

The Company has adopted recharge in the tune of 10380 cum/annum through roof top rainwater harvesting structures and aids in regular maintenance of the structures with periodic monitoring of the same. Details geotagged photographs of the same are enclosed in Annexure F. The compiled table for detailed RWH adopted by the Company is given in table no. 6 given below:

Table No. 6: RWH Details of the Company

S. No	Type of RWH structures	Number of Structures	Quantum of Rainwater Harvested (cum/annum)
1	School Roof Top RWH	4	1500
2	RWH inside the Plant	2	8880
Total		6	10380



Figure 10: Geotagged Photographs of the Rainwater Harvesting Structures

9.0 WATER CONSERVATION METHODS_RECYCLE, REUSE, RETREATMENT

Cairn has constructed Sewage Treatment Plant (STP) of 18 m³ /day capacity at Radhanpur LQ for treating wastewater generated due to domestic activities. The treatment process / system is designed on the principle of Activated Sludge process with Ultra filtration which ensures the aerobic decomposition of organic matter in presence of active microbial growth in the aeration tank. The treated water volume is ~15m³ /day. The treated water complies with the GPCB discharge standards. The treated water is being re-used for gardening, flushing and green belt development activities. The entire operation is ZERO SURFACE DISCHARGE process. There is no surface disposal of any reject or wastewater. The details of STP are given in table 7. The geotagged photographs of the STP are given in Figure 11. Detailed Water Balance is given in Figure 12.

Table No. 7: ETP/STP Details

S. No	Particulars	Existing (Designed)	Proposed	Total
1	Effluent/Sewerage generated and treated in ETP/STP	18 KLD	0 KLD	18 KLD
		6570 cum/year	0 cum/year	6570 cum/year
2	Available treated Effluent/Sewerage for usage	15 KLD	0 KLD	15 KLD
		5475 cum/year	0 cum/year	5475 cum/year
3	Effluent/Sewerage discharge after treatment	3 KLD	0 KLD	3 KLD
		1095 cum/year	0 cum/year	1095 cum/year



Figure 11: Geotagged Photographs of STP

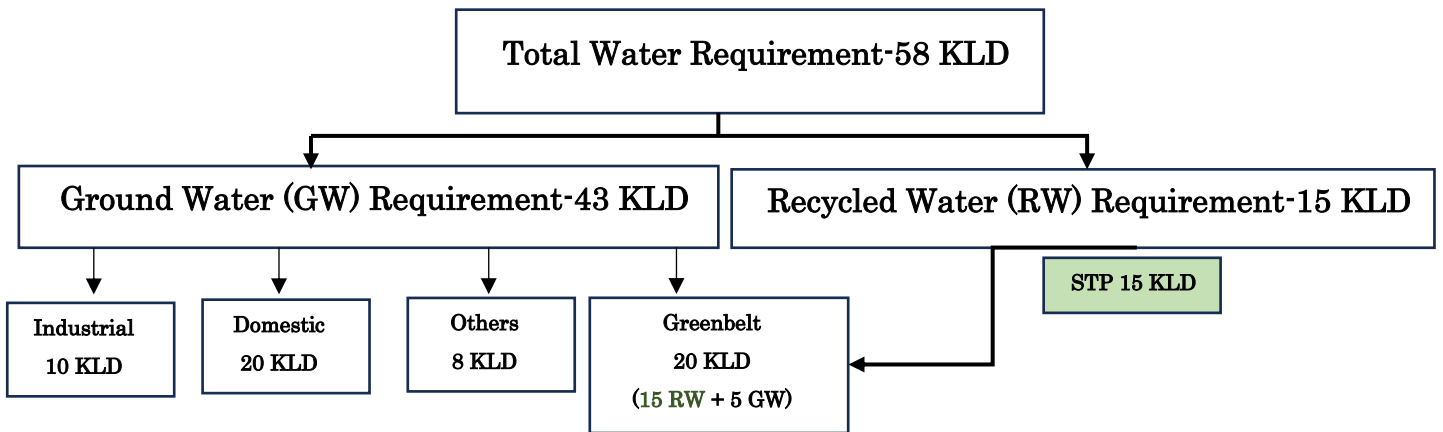


Figure 12: Water Balance Diagram

10.0 DETAILS OF PIEZOMETER

The Company has constructed 1 piezometer with DWLR with telemetry as per NOC Condition for regular ground water level monitoring. The details of the same are given in table 8.

Table 8: Details of Piezometer

S. No	Details	PZ 1
1	Name	RDT-OBW01
2	Location	23.81222 71.617511
3	Depth (m)	50
4	Diameter (mm)	400
5	Lithology	Sand
6	Monitoring Schedule	Monthly

11.0 WATER SECURITY PLAN FOR THE VILLAGERS

Cairn has taken large initiative for water conservation measures all around Barmer area. Various rainwater harvesting structures were constructed as a part of corporate social responsibility. The detailed water security plan adopted by the company keeping in view the water scarcity of the area.

12.0 GREENBELT DEVELOPMENT

The Company has taken a large initiative for the development of greenbelt and plantation within the project premises to balance the greenery in the surrounding area. A total of 15000 plant species including trees and shrubs are planted. Details of greenbelt photographs showing the greenbelt plantation are given in Figure 13.



Figure 13: Photographs of Greenbelt Development



(भूजल निकासी हेतु अनापत्ति प्रमाण पत्र)

NO OBJECTION CERTIFICATE (NOC) FOR GROUND WATER ABSTRACTION

Project Name:	M/s Vedanta Ltd.		
Project Address:	M/s Vedanta Ltd., (formerly As M/s Cairn Energy India Pvt. Ltd.)		
Village:	Radhanpur (rural) (premnagar)	Block:	Radhanpur
District:	Patan	State:	Gujarat
Pin Code:			
Communication Address:	Radhanpur Terminal, Opposite locl Terminal, Survey No.332/333/334, Radhanpur- Mehsana Highway, Patan, Patan, Gujarat - 385340		
Address of CGWB Regional Office :	Central Ground Water Board West Central Region, Swami Narayan College, Building, Shah Alam Tolnaka, Ahmadabad, Gujarat - 380022		

1. NOC No.:	CGWA/NOC/IND/REN/2/2021/6383												
2. Application No.:	21-4/1147/GJ/IND/2013						3. Category: (GWRE 2020)	Saline					
4. Project Status:	Existing Ground Water						5. NOC Type:	Renewal					
6. Valid from:	25/06/2021						7. Valid up to:	24/06/2024					
8. Ground Water Abstraction Permitted:													
	Fresh Water		Saline Water				Dewatering		Total				
	m ³ /day	m ³ /year	m ³ /day	m ³ /year			m ³ /day	m ³ /year	m ³ /day	m ³ /year			
			43.00	15695.00									
9. Details of ground water abstraction /Dewatering structures													
	Total Existing No.: 1						Total Proposed No.: 0						
	DW	DCB	BW	TW	MP	MPu	DW	DCB	BW	TW	MP	MPu	
Abstraction Structure*	0	0	0	1	0	0	0	0	0	0	0	0	
*DW- Dug Well; DCB-Dug-cum-Bore Well; BW-Bore Well; TW-Tube Well; MP-Mine Pit;MPu-Mine Pumps													
10. Ground Water Abstraction/Restoration Charges paid (Rs.):													
11. Number of Piezometers(Observation wells) to be constructed/ monitored & Monitoring mechanism.	No. of Piezometers						Monitoring Mechanism						
							Manual	DWLR**	DWLR With Telemetry				
**DWLR - Digital Water Level Recorder	1						1	0	0				

(Compliance Conditions given overleaf)

This is an auto generated document & need not to be signed.

Validity of this NOC shall be subject to compliance of the following conditions:

Mandatory conditions:

- 1) Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate.
- 2) Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year.
- 3) Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to CGWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines.
- 4) Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells / dug wells shall be collected during April/May every year and analysed in NABL accredited laboratories for basic parameters (cations and anions), heavy metals, pesticides/ organic compounds etc. Water quality data shall be made available to CGWA through the web portal.
- 5) In case of mining projects, additional key wells shall be established in consultation with the Regional Director, CGWB for ground water level monitoring four (4) times a year (January, May, August and November) in core as well as buffer zones of the mine.
- 6) In case of mining project the firm shall submit water quality report of mine discharge/ seepage from Govt. approved/ NABL accredited lab.
- 7) The firm shall report compliance of the NOC conditions online in the website (www.cgwa-noc.gov.in) within one year from the date of issue of this NOC.
- 8) Industries abstracting ground water in excess of 100 m³/d shall undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.
- 9) Application for renewal can be submitted online from 90 days before the expiry of NOC. Ground water withdrawal, if any, after expiry of NOC shall be illegal & liable for legal action as per provisions of Environment (Protection) Act, 1986.
- 10) This NOC is subject to prevailing Central/State Government rules/laws/norms or Court orders related to construction of tube well/ground water abstraction structure / recharge or conservation structure/discharge of effluents or any such matter as applicable.

General conditions:

- 11) No additional ground water abstraction and/or de-watering structures shall be constructed for this purpose without prior approval of the Central Ground Water Authority (CGWA).
- 12) The proponent shall seek prior permission from CGWA for any increase in quantum of groundwater abstraction (more than that permitted in NOC for specific period).
- 13) Proponents shall install roof top rain water harvesting in the premise as per the existing building bye laws in the premise.
- 14) The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising thereupon.
- 15) In case of industries that are likely to contaminate the ground water, no recharge measures shall be taken up by the firm inside the plant premises. The runoff generated from the rooftop shall be stored and put to beneficial use by the firm.
- 16) Wherever feasible, requirement of water for greenbelt (horticulture) shall be met from recycled / treated waste water.
- 17) Wherever the NOC is for abstraction of saline water and the existing wells (s) is /are yielding fresh water, the same shall be sealed and new tubewell(s) tapping saline water zone shall be constructed within 3 months of the issuance of NOC. The firm shall also ensure safe disposal of saline residue, if any.
- 18) Unexpected variations in inflow of ground water into the mine pit, if any, shall be reported to the concerned Regional Director, Central Ground Water Board.
- 19) In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
- 20) This NOC does not absolve the proponents of their obligation / requirement to obtain other statutory and administrative clearances from appropriate authorities.
- 21) The issue of this NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and take decisions independently of the NOC.
- 22) In case of change of ownership, new owner of the industry will have to apply for incorporation of necessary changes in the No Objection Certificate with documentary proof within 60 days of taking over possession of the premises.
- 23) This NOC is being issued without any prejudice to the directions of the Hon'ble NGT/court orders in cases related to ground water or any other related matters.
- 24) Proponents, who have installed/constructed artificial recharge structures in compliance of the NOC granted to them previously and have availed rebate of upto 50% (fifty percent) in the ground water abstraction charges/ground water restoration charges, shall continue to regularly maintain artificial recharge structures.
- 25) Industries which are likely to cause ground water pollution e.g. Tanning, Slaughter Houses, Dye, Chemical/ Petrochemical, Coal washeries, pharmaceutical, other hazardous units etc. (as per CPCB list) need to undertake necessary well head protection measures to ensure prevention of ground water pollution as per Annexure III of the guidelines.
- 26) In case of new infrastructure projects having ground water abstraction of more than 20 m³/day, the firm/entity shall ensure implementation of dual water supply system in the projects.
- 27) In case of infrastructure projects, paved/parking area must be covered with interlocking/perforated tiles or other suitable measures to ensure groundwater infiltration/harvesting.
- 28) In case of coal and other base metal mining projects, the project proponent shall use the advance dewatering technology (by construction of series of dewatering abstraction structures) to avoid contamination of surface water.
- 29) The NOC issued is conditional subject to the conditions mentioned in the Public notice dated 27.01.2021 failing which penalty/EC/cancellation of NOC shall be imposed as the case may be.
- 30) This NOC is issued subject to the clearance of Expert Appraisal Committee (EAC) (if applicable).

(Non-compliance of the conditions mentioned above is likely to result in the cancellation of NOC and legal action against the proponent.)

PALLABITA GHOSH

From: Ranjan Sinha
Sent: Friday, June 2, 2023 2:15 PM
To: rdwcr-cgwb@nic.in
Cc: Central Ground Water Authority; Vivek Shankar; PALLABITA GHOSH; Harish Kumar
Subject: RE: NOCAP- Submit Self Compliance for Application No- 21-4/1147/GJ/IND/2013
Attachments: Self Compliance 2023 Radhanpur.pdf

Subject: Regarding submission of Radhanpur Terminal (Application No. 21-4/1147/GJ/IND/2013) Annual Self Compliance Report

Respected Sir,

With reference to the aforesaid subject, we would like to inform you that our proposal for M/S VEDANTA LTD application no. 21-4/1147/GJ/IND/2013 has been approved vide NOC NO. CGWA/NOC/IND/REN/2/2021/6383 for the validity of 25.06.2021-24.06.2024.

Now as per guidelines we have already submitted online self-compliance on 23rd June 2022. Now to fulfill the compliance the authority the Self-Compliance report has been prepared with all the updated data for the year June 2022-May 2023 and same has been enclosed as Annexure *(Attached as Self Compliance 2023 Radhanpur)*. The link of flow meter and piezometer with user id and password has been mentioned in the enclosed Self Compliance Report 2023.

This is for your kind reference.

Thanks & Regards

Dr. Ranjan Sinha
Deputy General Manager
Sub-Surface, Cairn Oil & Gas, Vedanta Ltd.
ASF Center, Tower A, Rao-Gajraj Singh Road,
Sector-18, Phase-IV, Udyog Vihar,
Gurugram, Haryana, 122 016
T: +91-0124 4593010 | Mobile:+91 9717891276
E-mail: Ranjan.sinha@cairnindia.com
www.cairnindia.com



From: Ranjan Sinha
Sent: Thursday, June 23, 2022 10:50 AM
To: rdwcr-cgwb@nic.in
Cc: Pinaki Majumdar <Pinaki.Majumdar@cairnindia.com>; Samir Kulkarni <Samir.Kulkarni@cairnindia.com>; Pranav Patel <Pranav.Patel@cairnindia.com>; Harish Kumar <Harish.Kumar@cairnindia.com>
Subject: RE: NOCAP- Submit Self Compliance for Application No- 21-4/1147/GJ/IND/2013

Sir,

With respect to the subject mentioned, the self-compliances have been submitted through online NOCAP portal.

The online generated self-compliance report after submission is attached herewith. The required data and reports have also been submitted online.

The credentials of digital flow meter and AWLR with telemetry system is given below:

Flow meter credential:

Link - <https://hes32-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.iotaflow.in&umid=8de91a4d-42a6-4ac7-b6b7-b0243ad1ddb9&auth=006b79cd81f696572e7c919e5a4c054c9381edfc-6edbbf33cf3a35275ab177cc76b338208f230e95>
Login ID - Controlroom.Radhanpur@cairnindia.com
Password - vedanta@123

AWLR Credential :

URL - <https://tpro.telsys.in/>
User- harish.kumar@cairnindia.com
Pass- Vcairn#22

With Regards

Ranjan

From: no-reply-cgwa@gov.in <no-reply-cgwa@gov.in>

Sent: Monday, June 20, 2022 7:04 PM

To: Ranjan Sinha <Ranjan.Sinha@cairnindia.com>

Subject: NOCAP- Submit Self Compliance for Application No- 21-4/1147/GJ/IND/2013

External Sender: Use caution with links/attachments

Dear RANJAN SINHA / ranjan.sinha@cairnindia.com,

You are requested to submit self-compliance report about compliance of NOC conditions issued by Central Ground Water Authority, New Delhi to M/S VEDANTA LTD. vide. NOC No. CGWA/NOC/IND/REN/2/2021/6383 ,dated 25/06/2021, within a period of one year from date of issuance of NOC Online. Please login with your registered UserName and Password on online NOCAP system for needful.

This is an auto-generated email. Do not reply to this email.

Sensitivity: Internal (C3)



Prism Calibration Centre

www.prismcalibration.com, www.eindustries.in

E-mail : info@prismcalibration.com, info@eindustries.in



CC-2480

NABL Accredited Calibration Lab

Page No.:1 of 1

CALIBRATION CERTIFICATE

Calibrated for (Name & Address)

VEDANTA LIMITED - CAIRN OIL & GAS

Radhanpur Terminal, Opp. to IOCL Terminal [Mehsarta Highway,
Radhanpur -, Dist. Patan Gujrat India 385340

Condition of Item On received

: Satisfactory

ULR Number

: CC248024000001444F

Issue Date

:10/01/2024

Certificate No.

:20240108-70-1

Item Received Date.

:08/01/2024

Calibration Date.

:08/01/2024

Next Due on.

:07/01/2025

Calibration Location

:Site

DETAILS OF UNIT UNDER CALIBRATION (UUC):

Name :Digital Flow Meter

Make : Iota

Model : NA

Serial No. : 1706225

Type :Digital

Location : RDT Borewell Outlet

Line Size : 188 mm

Mat. / S.S. : CI / 42 mm

Job No. :20240108-70

Identification No. : 1763-FI-0001

Range : 0 to 50 m³/h

Resolution/Least Count : 0.01 m³/h

Accuracy(±) :2 % Rdg

Site Location : As Above

Thickness / Fluid : 2.0 mm / Water

Calibration Procedure Used :
PRISM/CAL/SOP/WFM/02

Calibration IS Standard Used : SP 250-63,SP 250-80.

Environmental Conditions:

Ambient Temp: 25.3 °C

Humidity: 52.3 %RH

DETAILS OF STANDARD USED FOR CALIBRATION

NAME	ID. NO.	CERTIFICATE NO.	CALIBRATED BY	VALID UPTO
Ultrasonic Flowmeter	PRISM/FLOW/UFLM/12	AES/FL/23-24/132	Aarohi Embedded Systems Pvt. Ltd.	30/11/2024

CALIBRATION RESULTS:

Calibration Result | Discipline:Group :- Fluid Flow : Flow

S. No.	Reading Observed On UUC	Average Reading On Master	Deviation in Readings	Error in % Rdg	Expanded Uncertainty (%)
	m ³ /h	m ³ /h	m ³ /h	% Rdg	% Rdg
1	12.00	12.240	-0.240	-2.0	± 2.15
2	12.00	12.231	-0.231	-1.9	± 2.15
3	12.00	12.189	-0.189	-1.6	± 2.15

Remarks

*The Measurement Confidence Level is 95.45 % with Coverage factor k = 2.

*These Results Are Obtained At The Time Of Calibration Only Relate to the item Calibrated.

*The Calibration Certificate Shall not be reproduced except in full without written approval of Prism Calibration Centre.

* UUC = Unit Under Calibration. Above Instrument Calibrated at Customer Site.

* All the Master Instrument used are traceable to national & international Standards.

*Calibration to be Carried out as per our sop No. PRISM/CAL/SOP/WFM/02. As Per SP 250-63,SP 250-80.

The Master Flowmeter and UUC Flowmeter Clamp On the Pipe Line and Measure the Flow of UUC and Master As per Comparison Method.

* Environment Condition During Calibration: 10 to 40°C.

The reported expanded uncertainty of measurement is calculated at approximately 95.45% of confidence level with coverage factor k=2.

PRISM/FLOW/WFM/01

Calibrated By : Mohit Patel
Calibration Engineer



Authorised By : DL Panchal
Lab Incharge

----- End of Certificate -----

Inst. Supply & Calibration, Validation, GPCB Approved Env. Auditor

F/101, Rudraksh Complex-II, Nr. Jasoda Nagar Cross Road, Phace-III, GIDC, Vatva, Ahmedabad-382 445.

Customer Care : 9099062851, 9099062852, Tech. Help Desk 7878991188

Annexure I_Water Level Data		
Water Level Data (June 2022-April-2024)		
S.No	Month	RT-TW01 (mbgl)
1	June-2022	95.95
2	July-2022	95.85
3	August-2022	94.09
4	September-2022	93.19
5	October-2022	93.45
6	November-2022	93.32
7	December-2022	93.41
8	January-2023	93.56
9	February-2023	93.81
10	March-2023	93.57
11	April-2023	93.48
12	May-2023	93.20
13	June-2023	95.75
14	July-2023	95.62
15	August-2023	94.65
16	September-2023	93.20
17	October-2023	93.18
18	November-2023	93.96
19	December-2023	93.04
20	January-2024	93.85
21	February-2024	93.63
22	March-2024	93.62
23	April-2024	93.50



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A-62/3, G.T. Karnal Road, Industrial Area, Opp. Hans Cinema, Azadpur, Delhi-110 033 (INDIA)
Phone : +91-11-47075555 (30 Lines) Fax : +91-11-47075550
e-mail : info@delhitesthouse.com



TC-6471

QR-0302

Issued to:
The Manager
Cairn India Ltd
DLF Atria Building, Jacaranda Marg-N Block
DLF City Phase II, Gurgaon -122002, Haryana

Report No : 21903240219GEN13142
Date of Issue : 02.03.2024
Date of Receipt : 19.02.2024
Party Ref No : Nil
Letter Date : 17.02.2024

Sample Description: - Described as Water was received.

Mark:- CAIRN/Long:71.6235 Lat:23.8066/WELL NAME- Radhanpur-14_Post_2023/Date 03.02.2024/SCH-A/812

Test Report

S. No.	Tests	Unit	Results	Test Methods
I. Chemical Testing(Water)				
A. Physiochemical				
1.	Electrical Conductivity (EC)	µS/cm	4600	IS 3025(P-14):2013
2.	Total Dissolved Solids	mg/l	2990	IS 3025(P-16):2023
3.	pH	-	7.82	IS 3025(P-11):2022
4.	Total Hardness (as CaCO ₃)	mg/l	455	IS 3025(P-21):2009
5.	Turbidity	NTU	<1	IS 3025(P-10):2023
6.	Total suspended solids	mg/l	11	IS 3025(P-17):2022
7.	Total Alkalinity (as CaCO ₃)	mg/l	368.7	IS 3025(P-23):2023
8.	Dissolved Oxygen	mg/l	4.4	IS 3025(P-38):1989
B. Major Ions				
9.	Calcium(as Ca)	mg/l	90.2	IS 3025(P-40):1991
10.	Magnesium(as Mg)	mg/l	55.9	IS 3025(P-46):2023
11.	Potassium (as K)	mg/l	3.0	IS 3025(P-45):1993
12.	Sodium (as Na)	mg/l	870	IS 3025(P-45):1993
13.	Total Iron (as Fe)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
14.	Chloride (as Cl)	mg/l	1057.1	IS 3025(P-32):1988
15.	Bicarbonate (as HCO ₃)	mg/l	449.7	IS 3025(P-51):2001
16.	Carbonate (as CaCO ₃)	mg/l	Nil	IS 3025(P-51):2001
17.	Nitrate (as NO ₃)	mg/l	11.4	IS 3025(P-34):1988
18.	Sulphate (as SO ₄)	mg/l	440	IS 3025(P-24/sec-1):2022
19.	Phosphate (as PO ₄)	mg/l	BLQ(0.4)	IS 3025(P-31):2021
C. Metal Ions				
20.	Arsenic (as As)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
21.	Barium (as Ba)	mg/l	0.066	IS 3025(P-65):2022
22.	Lead (as Pb)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
23.	Manganese (as Mn)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
24.	Mercury (as Hg)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
25.	Strontium (as Sr)	mg/l	10.09	IS 3025(P-65):2022
D. Non- Organic Species				
26.	Fluoride (as F)	mg/l	1.21	APHA 24 th Edition
27.	Non- reactive silica (as SiO ₂)	mg/l	4.6	IS 3025(P-35):1988
28.	Reactive silica (as SiO ₂)	mg/l	13.8	IS 3025(P-35):1988

Note:- 1. BLQ:- Below Limit of Quantification

Figure in Bracket Indicate Limit of Quantification.

Note 2. No deviation from the Standard Test Method / Specification is done unless or requested by the client

3. While giving the conformity statement laboratory does not consider Uncertainty Measurement into account

4. General terms and conditions are given on the back side of the report.

Date of start of testing : 19.02.2024

Date of completion of testing : 27.02.2024

ULR TC647124000004480F For report verification email to report_verify@delhitesthouse.com



Reviewed by

End of Report

Authorised Signatory - Director

ISO - 9001 : 2015 CERTIFIED LABORATORY

Other Lab : Plot No. 50 & 65, Phase - IV, Sector-57, HSIDC Industrial Estate, Behind Hasija Hospital, Kundli, Sonapat-131028 (Haryana)
: F - 402, Transport Nagar, Kanpur Road, Lucknow - 226012 (U.P.)



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Phone : +91-11-47075555 (30 Lines) Fax : +91-11-47075550
e-mail : info@delhitesthouse.com



Issued to:
The Manager
Cairn India Ltd
DLF Atria Building, Jacaranda Marg-N Block,
DLF City Phase II, Gurgaon -122002, Haryana



QR-0302

Report No : 21902240219GEN13042
Date of Issue : 02.03.2024
Date of Receipt : 19.02.2024
Party Ref No : Nil
Letter Date : 17.02.2024

Sample Description: - Described as Water was received.
Mark:- CAIRN/Long:71.6236 Lat:23.8976/WELL NAME- Radhanpur-7_Post_2023/Date 03.02.2024/SCH-A/811

Test Report

S. No.	Tests	Unit	Results	Test Methods
I. Chemical Testing(Water)				
A. Physiochemical				
1.	Electrical Conductivity (EC)	µS/cm	1860	IS 3025(P-14):2013
2.	Total Dissolved Solids	mg/l	1210	IS 3025(P-16):2023
3.	pH	-	7.45	IS 3025(P-11):2022
4.	Total Hardness (as CaCO ₃)	mg/l	3.55	IS 3025(P-21):2009
5.	Turbidity	NTU	<1	IS 3025(P-10):2023
6.	Total suspended solids	mg/l	<5	IS 3025(P-17):2022
7.	Total Alkalinity (as CaCO ₃)	mg/l	242.4	IS 3025(P-23):2023
8.	Dissolved Oxygen	mg/l	5.5	IS 3025(P-38):1989
B. Major Ions				
9.	Calcium(as Ca)	mg/l	82.1	IS 3025(P-40):1991
10.	Magnesium(as Mg)	mg/l	36.4	IS 3025(P-46):2023
11.	Potassium (as K)	mg/l	3.4	IS 3025(P-45):1993
12.	Sodium (as Na)	mg/l	356	IS 3025(P-45):1993
13.	Total Iron (as Fe)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
14.	Chloride (as Cl)	mg/l	407	IS 3025(P-32):1988
15.	Bicarbonate (as HCO ₃)	mg/l	295.7	IS 3025(P-51):2001
16.	Carbonate (as CaCO ₃)	mg/l	Nil	IS 3025(P-51):2001
17.	Nitrate (as NO ₃)	mg/l	9.9	IS 3025(P-34):1988
18.	Sulphate (as SO ₄)	mg/l	99.8	IS 3025(P-24/sec-1):2022
19.	Phosphate (as PO ₄)	mg/l	BLQ(0.4)	IS 3025(P-31):2021
C. Metal Ions				
20.	Arsenic (as As)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
21.	Barium (as Ba)	mg/l	0.063	IS 3025(P-65):2022
22.	Lead (as Pb)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
23.	Manganese (as Mn)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
24.	Mercury (as Hg)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
25.	Strontium (as Sr)	mg/l	0.98	IS 3025(P-65):2022
D. Non- Organic Species				
26.	Fluoride (as F)	mg/l	0.64	APHA 24 th Edition
27.	Non- reactive silica (as SiO ₂)	mg/l	3.8	IS 3025(P-35):1988
28.	Reactive silica (as SiO ₂)	mg/l	10.2	IS 3025(P-35):1988

Note:- 1. BLQ:- Below Limit of Quantification

Figure in Bracket Indicate Limit of Quantification.

Note 2. No deviation from the Standard Test Method / Specification is done unless or requested by the client

3. While giving the conformity statement laboratory does not consider Uncertainty Measurement into account

4. General terms and conditions are given on the back side of the report.

Date of start of testing : 19.02.2024

Date of completion of testing : 27.02.2024

ULR TC647124000004479F For report verification email to report_verify@delhitesthouse.com



Reviewed by: *[Signature]*

End of Report

M.C GOEL

Authorised Signatory - Director

ISO - 9001 : 2015 CERTIFIED LABORATORY

Other Lab : Plot No. 50 & 65, Phase - IV, Sector-57, HSIDC Industrial Estate, Behind Hasija Hospital, Kundli, Sonipat-131028 (Haryana)
: F - 402, Transport Nagar, Kanpur Road, Lucknow - 226012 (U.P.)



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Phone : +91-11-47075555 (30 Lines) Fax : +91-11-47075550
e-mail : info@delhitesthouse.com



Issued to:
The Manager
Cairn India Ltd
DLF Atria Building, Jacaranda Marg-N Block

QR-0302
Report No. : 2736024051 IGEN10542
Date of Issue : 22.05.2024
Date of Receipt : 11.05.2024
Party Ref No. : Nil
Letter Date : 09.05.2024

Sample Description: - Described as Water was received.
Mark:- CAIRN/Long: 71.6175 Lat: 23.8122/WELL NAME:- Radhanpur- OBW01 Pre 2024/date 15.04.2024/SCH-A/828

Test Report

S. No.	Tests	Unit	Results	Test Methods
I. Chemical Testing(Water)				
A. Physiochemical				
1.	Electrical Conductivity (EC)	µS/cm	3700	IS 3025(P-14):2013
2.	Total Dissolved Solids	mg/l	2428	IS 3025(P-16):2023
3.	pH	-	8.03	IS 3025(P-11):2022
4.	Total Hardness (as CaCO ₃)	mg/l	594	IS 3025(P-21):2009
5.	Turbidity	NTU	<1	IS 3025(P-10):2023
6.	Total suspended solids	mg/l	<5	IS 3025(P-17):2022
7.	Total Alkalinity (as CaCO ₃)	mg/l	444.4	IS 3025(P-23):2023
8.	Dissoived Oxygen	mg/l	5.6	IS 3025(P-38):1989
B. Major Ions				
9.	Calcium(as Ca)	mg/l	119.0	IS 3025(P-40):1991
10.	Magnesium(as Mg)	mg/l	72.2	IS 3025(P-46):2023
11.	Potassium (as K)	mg/l	8.0	IS 3025(P-45):1993
12.	Sodium (as Na)	mg/l	536	IS 3025(P-45):1993
13.	Total Iron (as Fe)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
14.	Chloride (as Cl)	mg/l	615.4	IS 3025(P-32):1988
15.	Bicarbonate (as HCO ₃)	mg/l	542.2	IS 3025(P-51):2001
16.	Carbonate (as CaCO ₃)	mg/l	Nil	IS 3025(P-51):2001
17.	Nitrate (as NO ₃)	mg/l	15.2	IS 3025(P-34):2023
18.	Sulphate (as SO ₄)	mg/l	439.7	IS 3025(P-24/sec-1):2022
19.	Phosphate (as PO ₄)	mg/l	BLQ(0.4)	IS 3025(P-31):2021
C. Metal Ions				
20.	Arsenic (as As)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
21.	Barium (as Ba)	mg/l	0.041	IS 3025(P-65):2022
22.	Lead (as Pb)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
23.	Manganese (as Mn)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
24.	Mercury (as Hg)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
25.	Strontium (as Sr)	mg/l	2.39	IS 3025(P-65):2022
D. Non- Organic Species				
26.	Fluoride (as F)	mg/l	1.38	APHA 24 th Edition
27.	Non- reactive silica (as SiO ₂)	mg/l	BLQ(1.0)	IS 3025(P-35):1988
28.	Reactive silica (as SiO ₂)	mg/l	11.7	IS 3025(P-35):1988

Note:- 1. BLQ:- Below Limit of Quantification
Figure in Bracket Indicate Limit of Quantification.

Note 2. No deviation from the Standard Test Method / Specification is done unless or requested by the client
3. While giving the conformity statement laboratory does not consider Uncertainty Measurement into account
4. General terms and conditions are given on the back side of the report.

Date of Start of testing : 11.05.2024
Date of Completion of testing : 21.05.2024
ULRTC647124000011747E For report verification email to report_verify@delhitesthouse.com

Reviewed by:



DELHI

END OF REPORT

M.C. GOEL
Authorised Signatory - Director
Director

Page 1 of 1

ISO - 9001 : 2015 CERTIFIED LABORATORY

Other Lab : Plot No. 50 & 65, Phase - IV, Sector-57, HSIDC Industrial Estate, Behind Hasija Hospital, Kundli, Sonipat-131028 (Haryana)
: F - 402, Transport Nagar, Kanpur Road, Lucknow - 226012 (U.P.)



DELHI TEST HOUSE[®]

A-62/3, G.T. Karnal Road, Industrial Area, Opp. Hans Cinema, Azadpur, Delhi-110 033 (INDIA)
Phone : +91-11-47075555 (30 Lines) Fax : +91-11-47075550
e-mail : info@delhitesthouse.com



Issued to:
The Manager
Cairn India Ltd
DLF Atria Building, Jacaranda Marg-N Block



QR-0302
Report No. : 27359240511GENI0442
Date of Issue : 22.05.2024
Date of Receipt : 11.05.2024
Party Ref No. : Nil
Letter Date : 09.05.2024

Sample Description: - Described as Water was received.
Mark:- CAIRN/Long: 71.6192 Lat: 23.8121/WELL NAME:- Radhanpur- PDW01 _Pre_2024/date 15.04.2024/SCH-A/827

Test Report

S. No.	Tests	Unit	Results	Test Methods
I. Chemical Testing(Water)				
A. Physiochemical				
1.	Electrical Conductivity (EC)	µS/cm	3300	IS 3025(P-14):2013
2.	Total Dissolved Solids	mg/l	2162	IS 3025(P-16):2023
3.	pH	-	7.48	IS 3025(P-11):2022
4.	Total Hardness (as CaCO ₃)	mg/l	693	IS 3025(P-21):2009
5.	Turbidity	NTU	< 1	IS 3025(P-10):2023
6.	Total suspended solids	mg/l	< 5	IS 3025(P-17):2022
7.	Total Alkalinity (as CaCO ₃)	mg/l	282.8	IS 3025(P-23):2023
8.	Dissolved Oxygen	mg/l	5.7	IS 3025(P-38):1989
B. Major Ions				
9.	Calcium(as Ca)	mg/l	142.8	IS 3025(P-40):1991
10.	Magnesium(as Mg)	mg/l	81.8	IS 3025(P-46):2023
11.	Potassium (as K)	mg/l	3.5	IS 3025(P-45):1993
12.	Sodium (as Na)	mg/l	432	IS 3025(P-45):1993
13.	Total Iron (as Fe)	mg/l	BLQ(0.02)	IS 3025(P-65):2022
14.	Chloride (as Cl)	mg/l	704.7	IS 3025(P-32):1988
15.	Bicarbonate (as HCO ₃)	mg/l	345.0	IS 3025(P-51):2001
16.	Carbonate (as CaCO ₃)	mg/l	Nil	IS 3025(P-51):2001
17.	Nitrate (as NO ₃)	mg/l	13.9	IS 3025(P-34):2023
18.	Sulphate (as SO ₄)	mg/l	336.7	IS 3025(P-24/sec-1):2022
19.	Phosphate (as PO ₄)	mg/l	BLQ(0.4)	IS 3025(P-31):2021
C. Metal Ions				
20.	Arsenic (as As)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
21.	Barium (as Ba)	mg/l	0.046	IS 3025(P-65):2022
22.	Lead (as Pb)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
23.	Manganese (as Mn)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
24.	Mercury (as Hg)	mg/l	BLQ(0.002)	IS 3025(P-65):2022
25.	Strontium (as Sr)	mg/l	0.46	IS 3025(P-65):2022
D. Non- Organic Species				
26.	Fluoride (as F)	mg/l	1.28	APHA 24 th Edition
27.	Non- reactive silica (as SiO ₂)	mg/l	BLQ(1.0)	IS 3025(P-35):1988
28.	Reactive silica (as SiO ₂)	mg/l	12.3	IS 3025(P-35):1988

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Date of Start of testing : 11.05.2024
Date of Completion of testing : 21.05.2024
ULRTC64712400001171(1) For report verification email to report_verify@delhitesthouse.com

Reviewed by:



DELHI

M.C. GOEL Page 1 of 1
Authorised Signatory - Director
Director

ISO - 9001 : 2015 CERTIFIED LABORATORY

Other Lab : Plot No. 50 & 65, Phase - IV, Sector-57, HSIDC Industrial Estate, Behind Hasija Hospital, Kundli, Sonipat-131028 (Haryana)
: F - 402, Transport Nagar, Kanpur Road, Lucknow - 226012 (U.P.)

Annexure G_Geotagged RWH Photographs



Recharge Pit A



Recharge Pit B



Other recharge structures

Annexure No. 3: Public Hearing compliance report

Public Hearing Compliance Report																																																				
Project:	Oil evacuation pipeline with associated facilities from Mangala Terminal, Barmer district Rajasthan to Salaya Terminal in Jamnagar district via Viramgam (Ahmedabad district) in Gujarat																																																			
File reference:	F. J-11011/234/2007-IA II (I) dated 28 th April 2008																																																			
Location and Time of Public Hearing:	Lohana Mahajan Samajwadi, Station Road, Viramgam, Dist Ahmedabad dated 24/11/2017 at 11:00 Hrs.																																																			
Sr. No.	Public Hearing Point	Compliance/Action Note																																																		
A) Mr. D N Modi, Additional District Magistrate raised following points:																																																				
1	Provide the details of the pipeline route in Ahmedabad district and locations of the power plants.	The pipeline route is available in the EIA report on the page no. 3.178 and the same was shown. In Ahmedabad district Two SEHMS stations with 1 MW power generator each and 8 MW of power plant at Viramgam Terminal will be installed.																																																		
2	Which fuel will be used in the proposed power plants?	Natural gas will be the primary fuel and emergency backup fuel is low Sulphur diesel.																																																		
3	The Location of the 35 hectares of the land for the proposed oil storage terminal.	Location of Viramgam terminal is nearby IOC Terminal.																																																		
4	What type of heating system will be provided along the pipeline to ensure flow of crude oil	Skin effect heat management system will be used to ensure the temperature of the oil in the pipeline and thus the flow.																																																		
5	What are the provisions made for the tree plantation to compensate the trees removed in the proposed project?	<p>25 % of total area is provided for the greenbelt for the AGIs and Terminals as per EC requirement.</p> <p>Plantation activities are being done in a phased manner in partnership with Forest Department and NGOs.</p> <p>In total 23,840 trees were cut along the pipeline corridor route. Tree saplings of 20,49,48 no's have been planted so far in lieu of compensatory plantation.</p> <table border="1"> <thead> <tr> <th>State</th> <th>Village</th> <th>District</th> <th>Total Hectares Planted</th> <th>Total Trees Planted in No's</th> </tr> </thead> <tbody> <tr> <td rowspan="4">Rajasthan</td> <td>Golia Jethmal</td> <td>Barmer</td> <td>25</td> <td>11263</td> </tr> <tr> <td>Chokhla</td> <td>Barmer</td> <td>15</td> <td>10560</td> </tr> <tr> <td>Sanchoe</td> <td>Jalore</td> <td>12</td> <td>4655</td> </tr> <tr> <td>Total</td> <td></td> <td>52</td> <td>26478</td> </tr> <tr> <td rowspan="5">Gujarat</td> <td>Makansar</td> <td>Morbi</td> <td>110</td> <td>123000</td> </tr> <tr> <td>Banaskhanta</td> <td>Palanpur</td> <td>20</td> <td>22220</td> </tr> <tr> <td>Banaskhanta</td> <td>Banaskhanta</td> <td>25</td> <td>25250</td> </tr> <tr> <td>Nal Sarovar</td> <td>Ahmedabad</td> <td>12.5</td> <td>8000</td> </tr> <tr> <td>Total</td> <td></td> <td>167.5</td> <td>178470</td> </tr> <tr> <td colspan="3">Grand Total</td> <td>219.5</td> <td>204948</td> </tr> </tbody> </table>			State	Village	District	Total Hectares Planted	Total Trees Planted in No's	Rajasthan	Golia Jethmal	Barmer	25	11263	Chokhla	Barmer	15	10560	Sanchoe	Jalore	12	4655	Total		52	26478	Gujarat	Makansar	Morbi	110	123000	Banaskhanta	Palanpur	20	22220	Banaskhanta	Banaskhanta	25	25250	Nal Sarovar	Ahmedabad	12.5	8000	Total		167.5	178470	Grand Total			219.5	204948
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		Refer Annexure – 7 for compensatory plantation details carried out by Cairn.
6	Source of water during the operational stage?	For the Viramgam and Radhanpur Terminal, CGWA permission is taken for water withdraws 110 and 43 m ³ per day from ground water. For AGI, water is used for the greenbelt and domestic purpose only, So water is taken from the water tanker from local sources.
7	How many power plants are proposed in the entire project?	12 MW is installed at Viramgam Terminal and 33 Number of 1 MW gas engine is installed at Above Ground Installations.
B) G H Trivedi raised following points:		
1	Environmental impact from the Proposed 1 MW Power plants.	Shree Jagdeep Chhaya, General Manager informed that this will be covered in the EIA Report.
C) K J Patel (TDO) raised following Points:		
1	How Many Local unskilled people will be employed during construction stage?	During construction phase priority will be given to the local unskilled labor forces.
2	What are the precautions taken for leveling the land to bring it to near to original conditions after the pipeline laying is completed?	Top soil is removed and stored separately. After pipe laying, the refilling of the soil will be carried out and thereafter top soil will be filled on top at final stage. This methodology will help in restoring soil fertility. Also after completion of pipeline laying job, contactor will obtain a certificate from affected land owner regarding the satisfactory completion of work.
3	At What depth from the ground level, the pipeline will be installed?	The top of the pipeline will be minimum 1 meter below the ground level.

Public Hearing Compliance Report		
Project:	Oil evacuation pipeline with associated facilities from Mangala Terminal, Barmer district Rajasthan to Salaya Terminal in Jamnagar district via Viramgam (Ahmedabad district) in Gujarat	
File reference:	F. J-11011/234/2007-IA II (I) dated 28 th April 2008	
Location and Time of Public Hearing:	Rajput Samajwadi, Village: Nana Lakhiya, Taluko: Rampur, District: Jamnagar dated 20/11/2007 at 10:30 Hrs.	
Sr. No.	Public Hearing Point	Compliance/Action Note
1	Shri Jilu Dansang Jadega Ex. Sarpanch, Villa: Nana Lakhiya Informed as: <ol style="list-style-type: none"> 1. Would there be any changes of air pollution from the project? 2. The Company should procure land from the farmers directly, giving appropriate compensation. 3. That Company should maintain cordial and long-term relationships with the villagers. 	<ol style="list-style-type: none"> 1. There is GTG, EMDG, Boiler and Gas Engine which are source of air pollutant emission. The source of Fuel is sweet natural gas, which is free from Sulphur. This means sulphur dioxide including particulate matter generation would be negligible amount. GTG and Gas Engine is equipped with low NOx burners. 2. Cairn has procured all the land for AGIs and Terminal directly from farmer after paying the full Compensation decided by the nominated Land Acquisition Officer. 3. Company is fully committed to maintain cordial relation with villagers and carry out the social responsibility Programs. The various programs implemented include enhancement of educational, economic, health etc. to the villagers. Any concern would be discussed and resolved amicably through consultation process.

Public Hearing Compliance Report		
Project:	Installation and operation of Two Single Point Mooring (SPM) and interconnecting pipelines to evacuate crude oil and import diluents to the storage terminal and installation and operation of crude oil terminal at Village Bhogat, Taluka Jam Kalyanpur, Dist. Devbhoomi Dwarka, Gujarat.	
File reference:	F. No. 11-34/2009-IA-III dated 24 th August 2009	
Location and Time of Public Hearing:	Government High School Compound, Village: Bhogat, Tal: Kalyanpur, Dist: Jamnagar dated 30/12/2008 at 15:00 Hrs.	
Sr. No.	Public Hearing Point	Compliance/Action Note
A) Shir. Arshibhai Ramabhai athadiya, Village Bhogat raised following points		
1.	Will there be any effect on land/soil due to installation of heated pipeline?	The proposed pipeline will have insulation of PUF and HDPE and Outer layer of pipeline will always remain cool. Also, this pipeline will be installed 1 meter below ground level. The land through which pipeline is passing, will be acquired through the procedure of Right of Use (ROU) and on this land permanent structure is not permissible, however after laying the pipeline, the land will be restored to near original condition, hence there will be no effect on the agricultural crops.
2	He pointed out that test bores made by the company has resulted into raise of saline water level.	It was clarified that this bores drilled were to understand the soil properties and not for any water abstraction. Thus, any correlation to the saline water increase may not be appropriate. z
B) Shri. Ramdev Devat Karanjia, and Shri Palabhai Keshubhai Karanjia, Village Bhogat raised following points		
1	They conveyed their fear regarding loss of fertility because of the test bores. Seven such bores have been done. Also, they expressed their concern on problems arising due to installation of this pipeline.	It was clarified that this bores drilled were to understand the soil properties and not for any water abstraction Water bore wells for water abstraction will be installed at the terminals only after obtaining necessary permissions from CGWA. As per the CGWA conditions groundwater analysis are done for every pre monsoon and Post monsoon to understand the water quality and yield. There is no problem expected due to proposed pipeline laying, if any would be sorted out through consultations.
C) Shri. Arshibhai Ramabhai Athadiya, Village Bhogat raised following points		
1	The land through which proposed pipeline is passing has saline water at the depth of 40 ft. hence he objected for grant of permission project.	District Magistrate & Collector Jamnagar informed that this is environmental public hearing and land acquisition would be done as per government procedure.
D) Shri Natu Bhikha Bhatiya, Village: Bhogat raised following points		

1	Whether company will support animal husbandry and cattle feeding program of this village?	CSR Program is conducted on the animal Husbandry and cattle feeding. Refer Annexure – 04 for details.
E) Shri. Rama Bhaya Bhatiya, village: Bhogat raised following points		
1	Will company give any crop compensation during operational phase?	One time crop compensation would be paid during usage of the land for pipeline / construction activities in RoU. After the RoU is returned back to its original form, then land owner can carry out the regular activities as usual. However, in case of such event affecting the land / RoU, then compensation will be paid in accordance with government practice.
F) Shri Kalubhai Ramdev bhai Chavda, village: Bhogat raised following points		
1	He welcomed the Collector and complained that individual invitation were not given to the villagers of Bhogat	District Magistrate & Collector Jamnagar informed that this public hearing is being held in accordance with the notification issued by Govt. of India, As per notification no individual invitation to be given. Public notice is given in local newspaper at least 30 days before the date of public hearing and all Govt. offices as mentioned in Notification including gram panchayat of affected villages have displayed this notice & details of project on their notice board inviting suggestions/comments.
2	Whether priority will be given to local villagers for employment?	Shri Jagdeep Chhaya, senior representative of company replied, As per company policy, right from construction phase, priority will be given to local personnel/agencies and during operation phase, priority to local qualified personnel.

Public Hearing Compliance Report		
Project:	Expansion in existing crude oil carrying capacity from 200000 bopd to 3,00,000 bopd and natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Rageshwari to Palanpur in existing project to Bhogat (Gujarat) Pipeline, dist Barmer, Rajasthan by M/s. Cairn India Limited reg.EC	
File reference:	F. J-11011/234/2007-IA II (I) dated 31 st October, 2016	
Sr. No.	Public Hearing Point	Compliance/Action Note
1	<p>Name of Vallabhbhai Bhavanbhai Patel, Village: Viramgam</p> <p>He has represented that gas pipeline is passing from his farm; company people are walking on that pipeline route which cause damage to their crop. Even company has not allowed him for removal of baval plant. Due to the laying of pipeline, pits are formed and water is logged therein. Company representative has taken photograph and we have made repetitive representation for same but company is not giving us the permission for removal of baval trees hence causing damage to crop.</p>	<ol style="list-style-type: none"> 1. Patrolling of pipeline is necessary as per safety requirement and government guideline. So we are doing regular patrolling for the same. Additionally, company representative has explained that if farmer has any complain he can make the same on our toll-free no. mentioned on the pipeline route. If the complaint made on this number, we will immediately resolve the same. 2. He was insisting to remove Baval Trees using JCB, however Cairn removed Baval trees manually since it was in RoU corridor. 3. He has raised question regarding as “due to the laying of pipeline, pits are formed and water is logged therein.” Then Cairn team visited his field and found that there was very minor soil settlement in trench area of pipeline. Cairn mobilized RoU maintenance vender to fill the soil & carry out mild leveling work in the settlement area. But whereas Vallabhbhai was insisting that he would carry out the work on his own and asked to pay the charges. Then Cairn assessed the work and agreed to pay Rs.40,500/- towards levelling and considering compensation requirements. Land owner agreed on the same and Cairn issued the cheque dated: 1/04/2015 vide cheque No. 582500, but later the Vallabhbhai denied to accept cheque and demanded for higher compensation payment. Vallabhbhai has not provided any evidence/documents for leveling in his farm and never ask for compensation for same work till now.

Annexure – 04: CSR program details including enterprise social responsibility activities

Pipeline CSR Initiatives Year 2024 – H1



Annexure – 04: CSR program details including enterprise social responsibility activities.



Corporate Social Responsibility activities along pipeline route from Barmer to Bhogat

1. THEMATIC AREAS & GOALS

Corporate Social Responsibility (CSR) is an integral element of Cairn business, as the company believes that sustainable development in its area of operation is essential for inclusive growth. Vedanta Ltd, Cairn oil & gas CSR activities for Mangala Development pipeline from Barmer to Bhogat consists of programs in four thematic areas: Health, Education, Infrastructure and Economic Development.

Table 1: Long-term CSR goals in thematic area

AREA	GOALS
Education	Improved status of education through infrastructure development, innovations BCC / IEC learning methods.
Health	<ul style="list-style-type: none"> • Access and usage of quality primary and secondary Health care by everyone • Availability of safe drinking water
Economic development	<ul style="list-style-type: none"> • Improved productivity of local workforce through training and local employment. • Community linked with different GOVT welfare schemes and access to benefits
Infrastructure	Complement Government. programs and schemes to create community assets as required

2. EXISTING & PLANNED INVESTMENTS

The details of investments made by Cairn in CSR related activities along the pipeline route from 2013-2023 and the CSR programs & reach are given in Table 3 respectively.

Table 2: CSR investments 2013-2024

DEVELOPMENT AREAS	INVESTED (in INR LAKHS) (April-2024 to September-2024)										
	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
Health, Water & Sanitation	470	189.22	52.88	74.49	76.00	47.54	101.66	32.08	90	100	348
Education	80	37.73	24.18	08.29	05.00	00.00	146.4	93.17	54	59	154

DEVELOPMENT AREAS	INVESTED (in INR LAKHS) (Oct-20 to -20)										
	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	23-24
Sustainable Livelihoods (off farm)	65	-	-	00.00	00.00	00.00	--	-	6.5		--
Sustainable Livelihood (farm-based) & skill based	55	12.50	-	00.00	00.00	00.00	--	-	00	--	--
Community Asset Development	-	-	-	05.87	08.00	00.80	08.55	3.01	27	29.70	52.75
Other projects	-	57.46	3.09	15.17	17.00	00.00	11.38	-	--	15	194
TOTAL	670	296.91	80.15	103.82	96.00	48.34	267.99	128.27	177.5	203.7	751

3. EXISTING CSR PROGRAMS

Cairn India’s CSR projects for the pipeline has been designed in consultation with community and local government & administration, keeping in context specific needs of the people. A list of all the on-going CSR programs in each thematic area, focus area, partner and coverage is shown in Table 4.

THEMATIC AREAS	PROGRAM NAME	OBJECTIVE	FOCUS GROUP
Education	Ujjwal Education Project – an Holistic education programme	Basic infrastructure development, Building capacity of teachers and students through setting up google classroom and k-yaan classes along with conducting behavioral change sessions and executing IEC activities.	Students and teachers and parents.
Health	Mobile Health Vans	To provide primary health care services at doorstep of community across pipeline area. Ensure ANC / PNCs and counselling session for adolescents’ girls. Create awareness on different public health issues.	Women, children, and senior citizens
Infrastructure	Community Helpdesk Center	To support community members to avail various government schemes at the doorsteps.	Community and eligible peoples
	Micro Level interventions	Strengthen basic infrastructure facilities and provide clean environment as well as focuses on women and child health on request and need based approach.	Communities, specially women’s children’s and young generation

4. CSR PROGRAMS FOR FISHING VILLAGE

CIL is exploring community development opportunities in the fishing hamlet in Bhogat.

SL. NO.	AREAS OF WORK	STATUS & PLAN OF ACTION
1.	Facilitate access to electricity	<p>The first step towards this was taken by provision of 24 units solar lights for common areas in the fishing hamlet.</p> <p>GEB department already confirmed through newly elected sarpanch to fisherman community for electricity connection in their hamlet at the earliest.</p> <p>Towards the completion of work currently placing of electricity pole is done in front of all houses of the community and work is going on and to be complete by December 2022.</p>
2.	Provision of potable water	<p>CIL supported for laying of drainage line for the village in association with gram panchayat from Near to terminal to village pond. Under drinking water project pipeline is going to lay till each household in the village. New sarpanch organized an event in which he praised Cairn efforts for the support.</p> <p>RO filtration machine installed at GOVT. Primary School to provide safe drinking water to school students.</p> <p>In present year we are going to established borewell at secondary school Bhogat to address water scarcity issue within the campus.</p>
3.	Provide facilities and mechanisms for better marketing of fish	<p>Now CIL Organizing interaction of the community members with concerned experts from the multi commodity exchange as part of Gramin Suvidha Kendra Program, The potential areas of support are considered: formation of a fishing cooperative, provision of an icing machine, training on post-harvest processing of fish</p> <p>CIL's CSR team interacted with the fishing community and explained them the benefits of forming fishing cooperative and asked them to take initiative.</p>
4.	Education of women and handicraft development	<p>Women of fisherman community will be trained on livelihood activity and linking them for individual income generation program.</p>

SL. NO.	AREAS OF WORK	STATUS & PLAN OF ACTION
5.	Health	<p>The community had requested CIL to support in healthcare initiatives.</p> <p>CIL has initiated visit of Mobile Health Van to fisherman community every week to cater to patients for their primary health checkup and health awareness sessions benefitting more than 1500 community members.</p> <p>The kids of the fisherman community connected with AWC for children wellbeing and education.</p>

Program Activities – April 2024

Education – “Ujjwal” an Education Project April

Ujjwal Education project phase 2 launch in July 2022 for across Gujarat section in partnership with Dr. Anushka Memorial Education trust. The project covering more than 13000 students for upcoming 2 years with aim to improve education statues along with high enrollment and mitigate dropout rate in GOVT schools through access to improved infrastructure as well as different IEC / BCC and training sessions.

Under the project we are covering 38 schools in Gujarat pipeline section out of 5 new school in renovation and infrastructure work has been completed.in continuation towards sustainability we handed over 10 old schools to school development management committee and identified 10 new schools for infrastructure work and ongoing sessions

Key Highlights of the month

1. TIPS OF EXAM PREPARATION

Effective exam preparation requires a strategic approach. Begin by understanding the exam pattern and syllabus thoroughly. Create a study schedule that allocates ample time for each subject, focusing on your weaker areas. Utilize active learning techniques such as summarizing, self-testing, and teaching others to enhance understanding. Practice regularly with mock tests and previous years’ papers to improve your speed and accuracy. Stay healthy by maintaining a balanced diet, exercising regularly, and getting enough sleep. Stay positive and confident in your abilities, and seek help from teachers or peers when needed. Keep your study material organized

and take regular breaks to avoid burnout. Finally, revise regularly to reinforce your learning and ensure better retention of information.

School Covered:29 Students Benefitted:1988

2. HOW TO CLEAN YOUR HANDS BEFORE EATING MEAL

To clean your hands before eating a meal, start by washing them thoroughly with soap and water. Wet your hands under clean, running water, apply soap, and lather well. Make sure to scrub your hands for at least 20 seconds, paying attention to the back of your hands, between your fingers, and under your nails. Rinse your hands thoroughly under running water to remove all soap. Dry your hands using a clean towel or air dry them. If soap and water are not available, you can use an alcohol-based hand sanitizer. Apply enough sanitizer to cover all surfaces of your hands and rub them together until they feel dry. Proper hand hygiene before eating can help prevent the spread of germs and keep you healthy.

School Covered: 2 Students Benefitted: 137

3. THINGS TO CONSIDER IN SUMMER SEASON

During the summer season, students in rural India should prioritize their health and well-being. Staying hydrated is crucial, so it's important to drink plenty of water and consume light, nutritious meals. Dressing appropriately with breathable fabrics and sun protection can help prevent heat-related illnesses. Planning outdoor activities carefully to avoid the hottest parts of the day and taking breaks in shaded areas can also help. Maintaining personal hygiene by showering regularly and washing hands frequently is essential. Being aware of heat-related illnesses and seeking help when needed is important for staying safe. Additionally, staying informed about weather conditions and using technology wisely can contribute to a healthy summer season. Overall, by following these tips, students can enjoy the summer while staying healthy and safe.

School Covered:7 Students Benefitted:201

Activities Picture's





Project - Community Help Desk Centre (CHD) April

The project initiated with the aim to accessibility of GOVT schemes at doorsteps of community through the community help desk centers and benefit rural people specially deprived community for betterment of life. A total of 6 old centers are running on self-sustainable mode, also running two new CHDs at present in pipeline and offshore asset area. 3 center works in progress. The key components of the project as mentioned below.

- Ascertain the penetration of various GOVT schemes / Yojana's aimed and improving the socio-economic status of the community members through increased linkages.
- Educate the local communities on various GOVT schemes as per their eligibility, scheme benefits and entitlements.
- Provide services to support community members and ease the application process for the various schemes. This will entail benefits are received by the beneficiaries as per the entitlement by following up and the respective GOVT officials and functionaries.
- Creating awareness on these welfare schemes by conducting structured IEC activities in the community.

Key highlights:

- Total No. of the Beneficiaries Govt. Schemes and Services given at CHD Centres- 299
- Total No. of Visitors to the CHD Centres- 323
- Total No. of Awareness Program- 2, Total No. of the Participants- 270
- Total- Community Meetings- 2 - Total Participants- 50
- Total Stakeholders Meetings - 08

- We Celebrate “World Health Day” at ITI, Viramgam, Ta- Viramgam, Dist- Ahmedabad, Total Participants – 200 on 8th April 2024
- We organized Community Meetings in Goraiya Villages, The Total participation in the meeting was -27, and we distributed the PM Vishvakarma Certificate and I-card giving benefits to 15000 Rs. On 13th April 2024.
- We are celebrating "World Malaria Day" at PHC, Centre, Goraiya, Viramgam, and District Ahmedabad. On 25-04-24, Total Participants - 70
- We organise Health and Malaria disease Awareness programs at PHC, Goraiya, and Ta- Viramgam, and distribute 50 mosquito nets with the Support of Vedanta Cairn Oil and Gas.
- CHD Project Monthly review meeting with Ms. Bhavya Shah, Vedanta Cain Oil and Gas at Viramgam on 10-04-24.
- We Completed Branding work and Furniture installation at Phase 2 New Centre Vadgas and Khakherda Village.

Activity Pictures ... Interaction with CHD team & Community.



Micro level Intervention MLI – Pipeline Operations & OALP April

- Creating multiple channels for continuous engagement with communities through need-based projects is a key strategy in CSR operations across our operation area.
- This engagement helps to build a platform to connect and interact with the community at large. Celebration of events, important days, creating awareness on important topics, addressing community needs, creating livelihood avenues, etc. are some of the activities to make community happy and create goodwill towards company.
- We initiated Micro level intervention Project across Gujarat pipeline section with aim to aware, engage community in different on key social issues company process, compliances as well as constant stakeholder connect.

Key Events & Highlights of the Month

- **08 April 24, World health day awareness** Program & Competition at ITI institutes Viramgam. Competitions started if Rope Jump, Lemon spoon, & push up were Kept in which a total of 34 Students Participated. Prizes were awarded to 15 winning students by Vedanta limited & NMVT. & 20 winning students were given pens. All students & guests were given refreshments. A total of 175 students were present in this World health awareness Program & competitions.
- **15 April 24, Volleyball tournament** Program at Rahemalpur village Viramgam. total of 28 village players Participated in the volleyball match. Prizes were awarded to winner, Best runner, Best natty, Best shutter, winning volleyball players By Vedanta limited & NMVT. & 28 players were given Gold & silver medals. 28 players & guests were given refreshments. A total of 112 Village people were present in this Volleyball tournament.
- **25 April 24, world Malaria Day & Mosquito Kits distributed program** at PHC center Goraya village Viramgam. total of 50 village people Participated in the program. 50 Patients like Malaria, TB, cancer, Breastfeeding mother were distributed Mosquito net kits By Vedanta limited & NMVT. All the village people & guest were given refreshment.





Project – Mobile Health Van (MHV) April

Mobile health Van project is our flagship project running since 2010 – 11 with aim to provide preventive and curative health care services to community at doorstep. Under the project we are covering 89 villages of Gujarat pipeline through 4 fully equipped mobile health vans stationed at Tharad, Raidanpur, Viramgam and Dev Bhumi Dwarka.

Under the program the communities can access regular health check up on fixed day fixed side by MBBS doctor, free medication, frequently multi-specialty health camps, counselling to females & adolescents, ANC / PNC checkup, referral services and awareness on various public health issues.

IEC - Activity 1: Awareness Camps

IEC - Activity 2: Adolescents Girls Counselling

IEC - Activity 3: Adolescents Girls Activities

Activity 4: Sanitary Pad Distribution

Activity 5: Free Home visits

Activity 6: Stakeholder Meetings & Feedback Received

Key activities:

- General Healthcare delivery via OPDs in the Villages as of route plan.
- Awareness creation on Covid-19, hygiene, malnutrition.
- Monitoring of ANC & PNC women.
- Constant monitoring of people with non-communicable diseases such as diabetes.
- A free home visit Health check-up.
- During the reporting period for the month of April 2024, the total visits were 230 covering 89 pipeline villages across operational area of Vedanta Cairn Oil & Gas and total number of patients diagnosed and treated without any cost through MHVs' Gujarat was 3964, out of which 1756 were male and 2208 were female patients





CSR Initiatives – May 2024

Education – “Ujjwal” an Education Project May

Ujjwal Education project phase 2 launch in July 2022 for across Gujarat section in partnership with Dr. Anushka Memorial Education trust. The project covering more than 13000 students for upcoming 2 years with aim to improve education statues along with high enrollment and mitigate dropout rate in GOVT schools through access to improved infrastructure as well as different IEC / BCC and training sessions.

Under the project we are covering 38 schools in Gujarat pipeline section out of 5 new school in renovation and infrastructure work has been completed.in continuation towards sustainability we handed over 10 old schools to school development management committee and identified 10 new schools for infrastructure work and ongoing sessions. The baseline of all 10 new locations has been completed and infrastructure work in progress.

Key Highlights of the month

1. AWARENESS ON VOTING

Raising awareness on voting involves educating the public on the importance of voting, the electoral process, and voter rights. This can be achieved through community outreach programs, workshops, and media campaigns that highlight how voting impacts governance and community development. Utilizing social media, public service announcements, and local events can engage

a broader audience. Encouraging discussions on the significance of each vote, providing resources for voter registration, and simplifying the process for first-time voters can further enhance participation and ensure an informed electorate.

2. ELECTION AWARENESS THROUGH MAHENDI MAKING

Creating election awareness through Mahendi making involves integrating electoral symbols and slogans into Mahendi designs, organizing community events where people get free Mahendi with election themes, and conducting educational workshops combining Mahendi art with sessions on the electoral process. Social media campaigns can further amplify the message by encouraging participants to share their designs online with specific hashtags. These efforts blend cultural practices with civic education, fostering greater understanding and participation in the electoral process.

3. SUMMER CAMP ACTIVITIES

Organizing a summer camp at the school level in rural India can significantly enrich students' experiences. Activities should include art and craft workshops using locally available materials to enhance creativity, games and sports activities to promote physical fitness and teamwork. Additionally, cultural programs featuring local traditions, music, dance, mehndi competition, drawing competition, Self Defence & story telling can foster community pride etc. It was done by collaborating with local teachers, artisans, and professionals ensures the camp is both engaging and educational, addressing the unique needs and resources of rural communities. For example following activities were conducted:

- Mehndi competition
- Drawing competition
- Self Defence
- Story Telling
- Dance
- Art and Craft
- Games

5. BIRDHOUSE DISTRIBUTION

Distributing birdhouses in summer can promote environmental conservation and community engagement. Organize community events and workshops to assemble and distribute birdhouses, educate the public on their benefits, and identify optimal locations for installation. Provide birdhouse kits to encourage participation and set up a volunteer network for monitoring and maintenance. Collaborate with local schools, NGOs, and environmental groups to ensure the initiative is both educational and effective, fostering a sense of community involvement and support for local bird populations.

School Covered: 38

Students Benefitted 922

Meeting with Stakeholders 480



Project - Community Help Desk Centre (CHD) May

- To ascertain the penetration of various GOVT schemes / Yojna's aimed and improving the socio-economic status of the community members through increased linkages.
- Educate the local communities on various GOVT schemes as per their eligibility, scheme benefits and entitlements.

- Provide services to support community members and ease the application process for the various schemes. This will entail benefits are received by the beneficiaries as per the entitlement by following up and the respective GOVT officials and functionaries.
- Creating awareness on these welfare schemes by conducting structured IEC activities in the community.

Brief of the month:

- Total No. of the Beneficiaries Govt. Schemes and Services given at CHD Centres- 371
- Total No. of Visitors to the CHD Centres- 399
- Total No. of Awareness Program- 01 , Total No. of the Participants- 80
- Total- Community Meetings- 02 - Total Participants- 111
- Total Stakeholders Meetings - 12
- Activity-1 – Awareness Program – 01 : Dhara Sansthan Organized the New CHD Centre Inauguration program with the Support of Vedanta Cairn Oil and Gas at Vadgas Village, Ta- Viramgam, Dist, Ahmedabad, on 15th May 2024, Total Participants – 80
- Activity-2–Community Meeting- 01 : The Program at Viramgam Anganwadi Center No.-12, organized by ICDS Department Viramgam, has the guests present in this program. Total Participants - 80 (Students - 34, Parents - 34, Others - 12) on 22-05-24
- Activity-2–Community Meeting- 02
Program Name- Community Meeting – PM Vishwakarma and Govt Schemes Information
Date- 17/05/2024
Place or Village- Kenedi Community Hall, Ta- Kalyanpur, Dist- Devbhumi Dwarka
Total Participants- 31





Project – Mobile Health Van (MHV) May

Mobile health Van project is our flagship project running since 2010 – 11 with aim to provide preventive and curative health care services to community at doorstep. Under the project we are covering 89 villages of Gujarat pipeline through 4 fully equipped mobile health vans stationed at Tharad, Raidanpur, Viramgam and Dev Bhumi Dwarka.

Under the program the communities can access regular health check up on fixed day fixed side by MBBS doctor, free medication, frequently multi-specialty health camps, counselling to females & adolescents, ANC / PNC checkup, referral services and awareness on various public health issues.

IEC - Activity 1: Awareness Camps

IEC - Activity 2: Adolescents Girls Counselling

IEC - Activity 3: Adolescents Girls Activities

Activity 4: Sanitary Pad Distribution

Activity 5: Free Home visits

Activity 6: Stakeholder Meetings & Feedback Received

Key activities:

- General Healthcare delivery via OPDs in the Villages as of route plan.
- Awareness creation on Covid-19, hygiene, malnutrition.
- Monitoring of ANC & PNC women.
- Constant monitoring of people with non-communicable diseases such as diabetes.
- A free home visit Health check-up.
- During the reporting period for the month of May 2024, the total visits were 230 covering 89 pipeline villages across operational area of Vedanta Cairn Oil & Gas and total number of patients diagnosed and treated without any cost through MHVs' Gujarat was 3803, out of which 1744 were male and 2059 were female patients.



Micro level Intervention MLI – Pipeline Operations & OALP May

- Creating multiple channels for continuous engagement with communities through need-based projects is a key strategy in CSR operations across our operation area.
- This engagement helps to build a platform to connect and interact with the community at large. Celebration of events, important days, creating awareness on important topics,

addressing community needs, creating livelihood avenues, etc. are some of the activities to make community happy and create goodwill towards company.

- We initiated Micro level intervention Project across Gujarat pipeline section with aim to aware, engage community in different on key social issues company process, compliances as well as constant stakeholder connect.

Key Highlights of the month

- 12 May 24, Earth day & Mother's day & Anganwadi inauguration & Tree plantation Activates program at Anganwadi center 12 Viramgam village. & Nutrition Kits distributed for 50 Breastfeeding mothers by Vedanta limited & NMVT, total of 70 village people Participated in the program all village people & guest were given refreshment.
- 16 May 24 "Parinda" Save Birds Water feeder distributed program at Patel Vadi Nana Ubhda village Viramgam. Mr Ayodhya Prasad Gour Sir (Project head Vedanta limited) present in this program total 100 Birds water feeders we distributed by Vedanta limited & NMVT total of 100 village people Participated in the program all village people & guest were given Nutrition Juice & Biscuits.
- 26 May 24 Cricket tournament at Rahemalpur ground Viramgam. The guests were welcomed from Memento. Four teams participated in the Cricket Match and the team of Inayat village tram won the first number. Winner-Inayat village, Mota, Men of the match –Mayur chavda, Beast runner Inayat team village, Beast best me Mayur Chavda, Best Bowler –Mayurchavda were Awarded by Vedanta limited & NMVT, total of 130village people Participated in the Cricket tournament four team Cricket players were given refreshment.
- Providing Projector & Sound system: A Projector & Sound System was provided by Vedanta Limited for Taluka Panchayat Conference Hall kalyanpur village-Jamnagar- GJ Pipeline.
- 21 May 24 Fire safety training program at Panchayat Place Jaga village Jamnagar. The guest were welcomed from Bouquet. Fire safety training was provided by Vedanta & NMVT total of 50 village people Participated in the program all village people & guest were given refreshment.
- DEVBHUMI DWARKA : 31 May 24 "Parinda" Save Birds Water feeder, food Feeder, Nest feeder distributed program at Community hall Bhatiya village Dwarka. Total 100 Birds water feeders ,100 food feeder, 100nest feeder we distributed by Vedanta limited & NMVT total of 115village people Participated in the program all village people & guest were given Nutrition Juice & refreshment.





CSR Initiatives – June 2024

Education – “Ujjwal” an Education Project June

Ujjwal Education project phase 2 launch in July 2022 for across Gujarat section in partnership with Dr. Anushka Memorial Education trust. The project covering more than 13000 students for upcoming 2 years with aim to improve education statues along with high enrollment and mitigate dropout rate in GOVT schools through access to improved infrastructure as well as different IEC / BCC and training sessions.

Under the project we are covering 38 schools in Gujarat pipeline section out of 5 new school in renovation and infrastructure work has been completed.in continuation towards sustainability we handed over 10 old schools to school development management committee and identified 10 new schools in which Baseline, Feasibility, Quotation, and procurement of the material work completed, and infrastructure work is ongoing.

1. ACTIVITIES LIKE DANCE, DRAWING, ART & CRAFT, GAMES, SELF DEFENSE, BALGEET, INFORMATION ABOUT BODY PARTS, BASIC ETIQUETTES: These activities play a crucial role in the holistic development of children. Dance, drawing, and art & craft stimulate creativity and imagination, allowing children to express themselves and develop fine motor skills. Games and self-defense lessons promote physical fitness and self-confidence, while balgeet (children's songs) enhance linguistic skills and cultural understanding. Teaching children about body parts and basic etiquettes fosters self-awareness and social skills, ensuring they grow into well-rounded individuals who can interact effectively with others.

2. SUMMER CAMP CLOSING CEREMONY The summer camp closing ceremony serves as a platform to celebrate the achievements and progress made by the participants. It provides an

opportunity to recognize and reward the efforts of children, instilling a sense of accomplishment and motivation. This event also fosters community spirit, bringing together parents, teachers, and stakeholders to witness the growth and development of the children. Additionally, it serves as a moment to reflect on the camp's success and gather feedback for future improvements.

3. **PRAVESHOTSAV:** The Praveshotsav, or school admission celebration, is a vital event that marks the beginning of a child's educational journey. Providing school kits, bottles, and lunchboxes to new students helps alleviate some of the financial burdens on families and ensures that children are well-prepared for school. These items also symbolize a fresh start and an invitation to a world of learning and opportunities. By welcoming students with necessary supplies, we promote equal access to education and set a positive tone for their academic experience.

4. **MEET SCHOOL PRINCIPAL, TEACHERS, AND STAKEHOLDERS (TOLD ABOUT VEDANTA AND CAIRN FOUNDATION)** Meeting with school principals, teachers, and stakeholders and informing them about Vedanta and Cairn Foundation helps build strong partnerships and trust. It ensures that the educational initiatives are aligned with the needs and expectations of the school community. This engagement facilitates the sharing of resources, ideas, and best practices, ultimately enhancing the educational experience for students. By fostering open communication and collaboration, we create a supportive environment that is conducive to the success of our programs.

5. **BIRDHOUSE DISTRIBUTION** Distributing birdhouses in summer can promote environmental conservation and community engagement. Organize community events and workshops to assemble and distribute birdhouses, educate the public on their benefits, and identify optimal locations for installation. Provide birdhouse kits to encourage participation and set up a volunteer network for monitoring and maintenance. Collaborate with local schools, NGOs, and environmental groups to ensure the initiative is both educational and effective, fostering a sense of community involvement and support for local bird populations.

School Covered : 38

Students Benefitted 473

Meeting with Stakeholders 232





Project - Community Help Desk Centre (CHD) June

- To ascertain the penetration of various GOVT schemes / Yojna's aimed and improving the socio-economic status of the community members through increased linkages.
- Educate the local communities on various GOVT schemes as per their eligibility, scheme benefits and entitlements.
- Provide services to support community members and ease the application process for the various schemes. This will entail benefits are received by the beneficiaries as per the entitlement by following up and the respective GOVT officials and functionaries.
- Creating awareness on these welfare schemes by conducting structured IEC activities in the community.

Highlights of Activities: June -2024

- Total No. of the Beneficiaries Govt. Schemes and Services given at CHD Centres- 242
- Total No. of Visitors to the CHD Centres- 260
- Total No. of Awareness Program- 03 , Total No. of the Participants- 470
- Total- Community Meetings- 09 - Total Participants- 155
- Total Stakeholders Meetings - 12
- Activity-1 – Awareness Program – 01 “International Yoga Day” Celebration at Vani, Ta Viramgam, District Ahmedabad, Total Participants -80, Date- 21-06-2024. We are

Celebrating "10th international Yoga Day" At - Vani , Ta- Viramgam, District Ahmedabad.
Date- 21-06-24, Total Participants - 80

- We are Celebrating "the 10th International Yoga Day" At - Kenedi, Ta-Klayanpur, District Dwarka. Date- 21-06-24, Total Participants -students=90
- Awareness Program – 02 “Shala Pravetosav” Education Kit distribute Program at Kenedi Kanya Shala, on 28th June 2024, Total Participants – 300
- Community Meeting – 03 Meeting with SHG Group, and Govt Schemes Date- 7/06/2024, Place or Village- Nana Ubhda , Ta- Mandal, Dist- Ahmadabad, Total Participants- 10
- Community Meeting – 04, Feedback of CHD Project by Shreya madam, and Govt Schemes Date- 12/06/2024 Place or Village- Rehmalpur(Hansalpur in mis) , Ta- Viramgam, Dist- Ahmadabad Total Participants- 10
- Community Meeting – 05 Meeting with SHG Group, and Govt Schemes Date- 13/06/2024 Place or Village- Hansalpur , Ta- Viramgam, Dist- Ahmadabad Total Participants- 10
- Community Meeting – 06_Feedback of CHD Project, Meeting with SHG Group, and Govt Schemes Date- 14/06/2024_Place or Village- Hansalpur , Ta- Viramgam, Dist- Ahmadabad Total Participants- 15
- Community Meeting – 07_Meeting with SHG Group, and Govt Schemes Date- 19/06/2024 Place or Village- Hansalpur , Ta- Viramgam, Dist- Ahmadabad_Total Participants- 10
- Community Meeting – 08, Meeting with SHG Group, and Govt Schemes Date- 26/06/2024 Place or Village- Kenedi, Ta- Kalyanpur, Dist- vDwarka_Total Participants- 30
- Community Meeting – 09, Meeting with SHG Group, and Govt Schemes Date- 26/06/2024 Place or Village- Khakherda, Ta- Kalyanpur, Dist- vDwarka_Total Participants- 20





Project – Mobile Health Van (MHV) June

Vedanta, Cairn Oil & Gas has supported Dhara Sansthan for Executing Mobile Health Van project along the pipeline route. The basic purpose of Cairn was to initiate health-based intervention in the pipeline villages to address the need of health services and to increase its footprint in those villages. Mobile health program was started from the village Hariyali on 15th of October 2010 by Dhara Sansthan with the financial support of Vedanta Cairn Oil & Gas. The objective of this program was to provide health care services to the pipeline villages of Vedanta Cairn Oil & Gas and to create awareness among the villagers regarding various diseases. Every program has two kinds of objectives, one is short term objective and the other one is long term objective.

General Healthcare delivery via OPDs in the Villages as of route plan

- ❖ Awareness creation on Covid-19, hygiene, malnutrition.

- ❖ Monitoring of ANC & PNC women.
- ❖ Constant monitoring of people with non-communicable diseases such as diabetes.
- ❖ A free home visit Health check-up.

IEC - Activity 1: Awareness Camps

IEC - Activity 2: Adolescents Girls Counselling

IEC - Activity 3: Adolescents Girls Activities

Activity 4: Sanitary Pad Distribution

Activity 5: Home visits

During the reporting period for the month of June 2024, the total visits were 230 covering 89 pipeline villages across operational area of Vedanta Cairn Oil & Gas and total number of patients diagnosed and treated without any cost through MHVs' Gujarat was 3457, out of which 1537 were male and 1920 were female patients





Micro level Intervention MLI – Pipeline Operations & OALP June

- Creating multiple channels for continuous engagement with communities through need-based projects is a key strategy in CSR operations across our operation area.
- This engagement helps to build a platform to connect and interact with the community at large. Celebration of events, important days, creating awareness on important topics, addressing community needs, creating livelihood avenues, etc. are some of the activities to make community happy and create goodwill towards company.
- We initiated Micro level intervention Project across Gujarat pipeline section with aim to aware, engage community in different on key social issues company process, compliances as well as constant stakeholder connect.

Key Highlights of the month

- “Parinda Save Birds Awareness program: 18 June24 Parinda Save Birds Awareness program at Anganwadi No 12 Viramgam. The guest was welcomed from Gift. total 25 Birds water feeders,25 food feeder,25 Nest feeder were distributed by Vedanta limited & NMVT total of 35village people Participated in the program all village people & guest were given Nutrition Juice & Biscuits.
- “Parinda Save Birds Awareness program: 18 June24 Parinda Save Birds Awareness program at Anganwadi No 25 Viramgam. The guests were welcomed from Gift. total 25 Birds water feeders,25 food feeder,25 Nest feeder were distributed by Vedanta limited & NMVT total of 35village people Participated in the program all village people & guest were given Nutrition Juice & Biscuits.
- Tree Plantation Awareness program: 19 June24 Tree Plantation Awareness program at Primary school Rahemalpur village the guests were welcomed from Gift. A total of 25 tree

plantation were done in school by Vedanta limited & NMVT total of 50 School Students Participated in the Tree Plantation Activates all Students& guest were given Nutrition Juice & Biscuits.

- International Yoga Day Awareness program: 21 June 24 International Yoga Day Awareness program at High school Vani Village Viramgam. The guests were welcomed by Gift. Yoga tanning & Best do Yoga students Gifts were distributed by Vedanta limited & NMVT. 75 students & Guesttotalof85peopleParticipated in the program all village Students& guest were given Nutrition Juice & Biscuits.
- “International Yoga Day Awareness program: 21 June24 International yoga day Awareness program at Primary school Kuvadiya village Jamnagar. The guests were welcomed by Gift. Yoga tanning & 70 Education Kits were distributed by Vedanta limited & NMVT. 70 students & school staff total of 77peopleParticipated in the program all village people & guest were given Nutrition Juice & Biscuits.
- Pulse Polio rashikarn program: 23 to 25 June 24 Pulse polio rashikarn program at Ghatka & Raval PHC center villages. GJ Pipeline Bhogat. Cairn Oil & Gas Limited (Vedanta) & NMVT to 02 Eco car Provided for three days PHC center for Polio Rashikaran. A total of 3629 Kids were vaccinated in 11 villages.
- Kanya Kenavani Mahotsav Shala Pravesh Utsav : 28 June 24 Shala Pravesh Utsav program at Kanyashala Kenedy village Kalyanpur GJ Pipeline, The guest were welcomed from books. Education Kits were distributed 95 new admission children by Vedanta limited & NMVT. Total 650students & 15 other total 665 people Participated in the program.

Pictures





CSR Initiatives – July 2024

Project - Community Help Desk Centre (CHD) July

- To ascertain the penetration of various GOVT schemes / Yojna's aimed and improving the socio-economic status of the community members through increased linkages.
- Educate the local communities on various GOVT schemes as per their eligibility, scheme benefits and entitlements.

- Provide services to support community members and ease the application process for the various schemes. This will entail benefits are received by the beneficiaries as per the entitlement by following up and the respective GOVT officials and functionaries.
- Creating awareness on these welfare schemes by conducting structured IEC activities in the community.

Highlights of Activities: July -2024

- Total No. of the Beneficiaries Govt. Schemes and Services given at CHD Centres- 202
- Total No. of Visitors to the CHD Centres- 228
- Total No. of Awareness Program- 02, Total No. of the Participants- 370
- Total- Community Meetings- 04 - Total Participants- 65, Total Stakeholders Meetings - 07
 - CHD Project Card Distribution and Anganwadi Pravesh Utsav Kit Distribution Program at Nana Ubhada Village, Ta Mandal, Dist. Ahmedabad. 2-7-24 Total Participants – 100 We gave 60 education kits to 2 Anganwadi students, of Nana Ubhada Village. We distributed various government schemes, Cards, and documents done by our CHD Project.
 - Moti majethi Prathmik shala Shala Pravesotsav Awareness Program Shala Pravesotsav Kit Distribution Baalvatika student - 35 Drawing kit and Std - 1 School bag - 30 Distribution And other Students fruit juice Namkeen Distribution Program At - Moti Majethi Village, Ta - Patdi Dasada, Dist. – Surendranagar Total Participants - 270
 - Community Meeting, Feedback of CHD Project, PM Vishwakarma Govt Schemes information, Date- 5/07/2024 Place or Village- Goraiya CHD Centre, Ta- Viramgam, Dist- Ahmadabad Total Participants- 10 Beneficiary.
 - Community Meeting –We Given Information about organic farming and Govt Schemes information, Date- 9/07/2024 Place or Village- Nana Ubhda , Ta- Mandal, Dist- Ahmadabad Participants- 10 Beneficiary.
 - Community Meeting – Feedback of CHD Project, Meeting with SHG Group, and Govt Schemes Date- 9/07/2024 Place or Village- Hansalpur , Ta- Viramgam, Dist- Ahmadabad Total Participants- 10
 - Program Name- Community Meeting – Meeting organizes for the SHG Group, and Govt Schemes given information and other details. Date- 5/07/2024 Place or Village- Kenedi, Ta- Kalyanpur, Dist.- Dwarka total participants- 35
 - We Visted Sunsiya Village with Bhavya Madam, met with Gram panchayat members, met with School Principal, we discuss CHD Projects and other Project run in shunsiya village.11/6/2024

- We Visited Kenedi CHD center met with Villagers, and celebrated Manrega (Rozgar) Divas, and new job Card given to beneficiary. 6-7-24

Pictures



Micro level Intervention MLI – Pipeline Operations & OALP (July)

- Creating multiple channels for continuous engagement with communities through need-based projects is a key strategy in CSR operations across our operation area.
- This engagement helps to build a platform to connect and interact with the community at large. Celebration of events, important days, creating awareness on important topics, addressing community needs, creating livelihood avenues, etc. are some of the activities to make community happy and create goodwill towards company.
- We initiated Micro level intervention Project across Gujarat pipeline section with aim to aware, engage community in different on key social issues company process, compliances as well as constant stakeholder connect.

- Shala Pravesh Utsav Kits distribution program 2 July 24 Anganwadi Children Bags & Education Kits distributed program at Nana Ubhda villages. Ta Mandal- GJ Pipeline. Mr. Ayodhya Prasad Gour Present in this Program. Cairn Oil & Gas Limited (Vedanta) & NMVT Gave 60 education Kits to 2 Anganwadi new admission children & CHD Card, A total of 100 people participated in this program.
- Environment day & tree plantation Awareness program 2 July 24 Environment Day & tree plantation Awareness program at Swami Narayan high school Trent village Ta. Mandal- GJ Pipeline. Ayodhya Prasad Gour (CSR head Vedanta limited) Present in this Program. The 5 trees planted by Guest. Vedanta limited & NMVT gave Nutrition Juice to all students. 200 students & 17 other total 217 people Participated in the program.
- 19 July 24 We organized Blood donation camp at Viramgam Terminal. Blood was donated to this camp by the employees of Vedanta Limited. Total 39 employees of Vedanta Limited donated blood. Mugs & Food were provided by Vedanta Limited to all those who did Blood Donators.
- We organize tree plantation Activates at 5 school in villages total 100 trees were planted A total of 500+ school students participated In this tree plantation Activates. The trees were Sobh, Dolar, Sitafal, Dadam, Jamfal





Project – Mobile Health Van (MHV) July

Vedanta, Cairn Oil & Gas has supported Dhara Sansthan for Executing Mobile Health Van project along the pipeline route. The basic purpose of Cairn was to initiate health-based intervention in the pipeline villages to address the need of health services and to increase its footprint in those villages. Mobile health program was started from the village Hariyali on 15th of October 2010 by Dhara Sansthan with the financial support of Vedanta Cairn Oil & Gas. The objective of this program was to provide health care services to the pipeline villages of Vedanta Cairn Oil & Gas and to create awareness among the villagers regarding various diseases. Every program has two kinds of objectives, one is short term objective, and the other one is long term objective.

- General Healthcare delivery via OPDs in the Villages as of route plan.
- Awareness creation on hygiene, malnutrition, seasonal diseases like Malaria, Diarrhea, Chicken Guinea, Skin, Infection, Swine flu.
- Monitoring of ANC & PNC women.
- Constant monitoring of people with non-communicable diseases such as diabetes.

- During the reporting period for the month of July 2024, the total visits were 242 covering 89 pipeline villages across operational area of Vedanta Cairn Oil & Gas and total number of patients diagnosed and treated without any cost through MHVs' Gujarat was 4800, out of which 2173 were male and 2627 were female patients.

Pictures



CSR Initiatives – August 2024

Project - Community Help Desk Centre (CHD) August

- To ascertain the penetration of various GOVT schemes / Yojna's aimed and improving the socio-economic status of the community members through increased linkages.
- Educate the local communities on various GOVT schemes as per their eligibility, scheme benefits and entitlements.
- Provide services to support community members and ease the application process for the various schemes. This will entail benefits are received by the beneficiaries as per the entitlement by following up and the respective GOVT officials and functionaries.
- Creating awareness on these welfare schemes by conducting structured IEC activities in the community.

Highlights of Activities: Aug -2024

- Total No. of the Beneficiaries Govt. Schemes and Services given at CHD Centres- 208
- Total No. of Visitors to the CHD Centres- 230
- Total No. of Awareness Program- 07, Total No. of the Participants- 1630
- Total- Community Meetings- 0 - Total Participants- 0
- Total Stakeholders Meetings - 14
- Awareness Program on National Day Celebration at 7 villages, Goraiya, Moti Majethi, Nana Ubhada, Kenedi, Gadhaka, Kahkherda, Sunshiya. Total Participants is- 1630.
- Tree Plantation Program at Vedanta Cairn Viramgam Terminal, on 2-8-23
- Audit Team Visited CHD Projects Centres, from Vedanta Cairn, Rehmalpur, Goraiya, Hansalpur, Virmgam Schools, on 3-8-24

Pictures





Project – Mobile Health Van (MHV) August

Vedanta, Cairn Oil & Gas has supported Dhara Sansthan for Executing Mobile Health Van project along the pipeline route. The basic purpose of Cairn was to initiate health-based intervention in the pipeline villages to address the need of health services and to increase its footprint in those villages. Mobile health program was started from the village Hariyali on 15th of October 2010 by Dhara Sansthan with the financial support of Vedanta Cairn Oil & Gas. The objective of this program was to provide health care services to the pipeline villages of Vedanta Cairn Oil & Gas and to create awareness among the villagers regarding various diseases. The MHV Team includes full time staffs in the program such as- MBBS doctor, ANM, and a pharmacist is responsible to conduct the program, a full-time project coordinator is looking after the overall management of MHV and liaison with different government bodies.

Key activities:

- ❖ General Healthcare delivery via OPDs in the Villages as of route plan
- ❖ Awareness creation on Covid-19, hygiene, malnutrition.
- ❖ Monitoring of ANC & PNC women.
- ❖ Constant monitoring of people with non-communicable diseases such as diabetes.
- ❖ A free home visit Health check-up

During the reporting period for the month of August 2024, the total visits were 242 covering 89 pipeline villages across operational area of Vedanta Cairn Oil & Gas and total number of patients

diagnosed and treated without any cost through MHVs' Gujarat was 3877, out of which 1834 were male and 2040 were female patients.



CSR Initiatives – September 2024

Project - Community Help Desk Centre (CHD) September

- To ascertain the penetration of various GOVT schemes / Yojna's aimed and improving the socio-economic status of the community members through increased linkages.
- Educate the local communities on various GOVT schemes as per their eligibility, scheme benefits and entitlements.
- Provide services to support community members and ease the application process for the various schemes. This will entail benefits are received by the beneficiaries as per the entitlement by following up and the respective GOVT officials and functionaries.
- Creating awareness on these welfare schemes by conducting structured IEC activities in the community.

Highlights of Activities: September 2024

- Total Number of Beneficiaries from Government Schemes and Services at CHD Centres: 479
- Total No. of visitors to the Centre: 1968
- Total no. of awareness programs: 2 & no. of participants: 181
- Total no. of community meetings: 0
- Total stakeholder meetings: 1
- Cairn CSR team of Mr. Rahul Sharma, and Ms. Bhavya Shah visit at Baal Mela organized at Kenadi Kanya Shala along with School Principal

Summary of the activity In September 2024,

the CHD Centres successfully served a total of 1968 beneficiaries through various government schemes and services. This significant number reflects the on-going efforts to ensure that community members have access to essential support and resources provided by government initiatives.

Two awareness programs were conducted in the month of September 2024, engaging a total of 181 participants. These programs aim to educate the community on the benefits of available government schemes. By fostering awareness, the CHD Centres help empower individuals with knowledge, enabling them to make informed decisions about their well-being and utilize the resources available to them.

1. Awareness program organized on E-KYC An awareness program focused on the e-KYC process for ration cards was conducted in Goraiya village, attracting 51 participants. This initiative is crucial for ensuring that community members understand how to register and verify their identities for access to essential ration services. By demystifying the e-KYC

process, the program aims to facilitate smoother access to food security for eligible households.

2. Another successful awareness program (Baal Mela) was organized at Kenedi Kanya Shala village Kenadi, with 130 participants. This event promoted the importance of education for girls and provided insights into the benefits of the Kanya Shala initiative. Engaging the community in discussions about educational government schemes and opportunities helps to break down barriers to education and encourages families to prioritize their daughters' schooling.

On 30th September 2024, Cairn CSR team visited the CHD project centres, including Bhavya Ma'am and Rahul Sir from Cairn Oil and Gas, Vedanta Ltd. This visit was an important part of ensuring accountability and assessing the effectiveness of the progress of the project. The CSR team also visited the CHD Centres

(1) Kenedi Kanya Shala and (2) the Gadhka Khakharda. These visits provide valuable feedback for continuous improvement and help to ensure that the projects meet their objectives while serving the community effectively. These highlights reflect the continued commitment of the CHD Centres to enhance community welfare through effective programs, outreach, and collaboration. The engagement of beneficiaries, visitors, and community members underscores the importance of these initiatives in fostering a more informed and empowered community.



Education – “Ujjwal” an Education Project September

Ujjwal Education project phase 2 launch in July 2022 for across Gujarat section in partnership with Dr. Anushka Memorial Education trust. The project covering more than 13000 students for upcoming 2 years with aim to improve education statues along with high enrollment and mitigate dropout rate in GOVT schools through access to improved infrastructure as well as different IEC / BCC and training sessions.

Under the project we are covering 38 schools in Gujarat pipeline section out of 5 new school in renovation and infrastructure work has been completed.in continuation towards sustainability we handed over 10 old schools to school development management committee and identified 10 new schools in which Baseline, Feasibility, Quotation, and procurement of the material work completed, and infrastructure work is ongoing.

- Infrastructure work at Kumarshala viramgam
- Infrastructure work at Kanya Shala viramgam
- Infrastructure work at Vani School
- Infrastructure work at Trent School
- Infrastructure work at Bhadravadi School
- Infrastructure work at Bhatel School
- Infrastructure work at Nana Lakhiya School
- Infrastructure work at Krishna Nagar School
- Infrastructure work at Kuvadiya School
- Infrastructure work at Kennedy School





Project – Mobile Health Van (MHV) September

Vedanta, Cairn Oil & Gas has supported Dhara Sansthan for Executing Mobile Health Van project along the pipeline route. The basic purpose of Cairn was to initiate health-based intervention in the pipeline villages to address the need of health services and to increase its footprint in those villages. Mobile health program was started from the village Hariyali on 15th of October 2010 by Dhara Sansthan with the financial support of Vedanta Cairn Oil & Gas. The objective of this program was to provide health care services to the pipeline villages of Vedanta Cairn Oil & Gas and to create awareness among the villagers regarding various diseases. The MHV Team includes full time staffs in the program such as- MBBS doctor, ANM, and a pharmacist is responsible to conduct the program, a full-time project coordinator is looking after the overall management of MHV and liaison with different government bodies.

Key activities:

- ❖ General Healthcare delivery via OPDs in the Villages as of route plan
- ❖ Awareness creation on Covid-19, hygiene, malnutrition.
- ❖ Monitoring of ANC & PNC women.
- ❖ Constant monitoring of people with non-communicable diseases such as diabetes.
- ❖ A free home visit Health check-up.

During the reporting period for the month of August 2024, the total visits were 190 covering 89 pipeline villages across operational area of Vedanta Cairn Oil & Gas and total number of patients diagnosed and treated without any cost through MHVs' Gujarat was 5328, out of which 2486 were male and 2842 were female patients.



Annexure – 05: GMB Compliance Reports

Compliance to conditions stipulated by GMB vide their letter dated 25.11.2008

S. No.	Environment Clearance conditions	Status of compliance
1.	CEIL shall have to carry out all studies and investigations within 12 months of the issue of this permission letter of GMB. If any extension is required to complete the studies and investigations, prior approval of GMB shall be obtained.	<p>This condition has been complied. The following studies were conducted:</p> <ul style="list-style-type: none"> ▪ Wave/wind categorization off Bhogat on Arabian Sea Coast by INCOIS in March 2008 ▪ Environmental Impact Assessment (EIA) for proposed SPM and associated activities off Bhogat (Gujarat) by NIO in Aug 2008 ▪ EIA for Proposed Oil Evacuation Pipeline with Associated Facilities from Salaya to Bhogat Terminal by NEERI 2009 ▪ Bhogat Terminal Marine facility HAZOP by Worley Parsons Services in Sep 2010 ▪ QRA study for Bhogat Terminal Marine facilities Single Point Mooring (SPM) loading, onshore & offshore pipelines by Worley Parsons Services in May 2010 ▪ Met Ocean study by Noble Denton in Jan 2010. Quantitative Risk Assessment (QRA) study for Bhogat terminal by IRCA in Nov 2013
2.	CIL shall have to carry out all studies and investigations at their risk and cost. In any case whether approval or rejection of the proposal of CEIL by GMB/GoG, the company shall not be entitled for claim for the reimbursement of the expenses whatsoever incurred.	Agreed.
3.	The data obtained from bathymetric study should not be passed to any company or agency without the prior approval of GMB.	Noted for the compliance.
4.	Based on the above studies, CEIL shall have to submit a Detailed Project Report (DPR) within 12 months for approval of GMB.	This condition has been complied with. DPR was submitted to GMB in August 2009 (Ref: GMB/N/PVT/CNO/BEDI /CAIRN/SPM/321 dated 25 th August 2009. Permission from GMB obtained in 2010 (Ref: GMB/N/PVT/CAIRN/SPM/865/466-5643 dated September 2010).
5.	CEIL shall have to obtain all permissions/approvals from the Environment & Forest Department, Government of Gujarat and Government	CRZ Clearance for installation and operation of two SPM, interconnecting pipelines and crude oil storage terminal obtained from Forests & Environment Department,

S. No.	Environment Clearance conditions	Status of compliance
	of India for the project and to be submitted to GMB with DPR.	Government of Gujarat obtained in March 2009. Refer Annexure – 10 for details.
6.	CEIL shall have to carry out all studies and Investigations with prior intimation to the Port Officer, Porbandar.	During studies and investigations, intimation has been given to Okha port under whose jurisdiction of the said the project area lies.
7.	CEIL shall not implement or proceed for installation of any marine or SPM facilities without submission of DPR and approval from GMB/GoG.	Construction was started after obtaining permission from GMB in 2010 (Ref: GMB/N/PVT/CAIRN/SPM/865/146 dated 14 th May 2010).
8.	CEIL shall share/contribute VTMS cost as and when it will be decided by the GMB for VTMS project.	Noted for compliance.
9.	The company shall undertake the hydrographic survey through NHO, Naval Officer, Dehra Dun or through NHO authorized Survey Company only. No Foreign Consultant shall be engaged to carry out the hydrographic survey.	Hydrographic survey conducted through NHO and SPM location marked in hydrographic charts.
10.	This approval does not give any rights or direct or indirect approval to construct marine facilities and is only an approval to carryout study and to prepare DPR.	Noted.
11.	CEIL shall have to approach GMB for approval on completion of above studies with DPR to consider proposed SPM facility to be executed at Bhogat. The Company shall not claim any rights on waterfront in case Government refuses to approve the proposal.	Approval on completion of marine facilities has been obtained from GMB (Ref. letter GMB/CNO/OKHA/L&S/CAIRN/11/3836 dated 17 th June 2014).
12.	Company has to submit an undertaking that they will not approach the Court for any rights in case GMB/GoG rejects the proposal of final approval of SPM.	Agreed.
13.	On final approval by GMB/GoG, CEIL shall have to execute an agreement with GMB as per the commercial conditions of the Agreement to be decided by GMB/GoG.	Agreement between Cairn and GMB/ GOG signed on 3 rd February 2016.

Annexure – 06: EMP compliance report

EMP: Mitigation Measure Compliance Report

Project:	Expansion in existing crude oil carrying capacity from 2,00,000 bopd to 3,00,000 bopd and natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Rageshwari to Palanpur in existing project to Bhogat (Gujarat) Pipeline, dist Barmer, Rajasthan by M/s. Cairn India Limited reg.EC
Environment Clearance File reference:	F. J-11011/234/2007-IA II (I) dated 31 st October, 2016
EC compliance reporting period:	April-2024 to September-2024
Project activity completed during reporting period	In the said reporting period, no new activities have been initiated as part of this EC and no new pipeline construction was started.

Sr. No.	Mitigation Measure	Compliance/Action Note
Air Environment (Construction Phase)		
1.	Ensuring preventive maintenance of vehicles and equipment.	Vehicles hired for any activities are inspected and maintenance of vehicles is ensured.
2	Ensuring vehicles with valid Pollution under Control certificates are used.	All the vehicles are only after verifying the PUC Certificate, Periodically the same is inspected and ensures for renewal.
3	Avoiding unnecessary engine operations.	All the drivers are trained for basic training and part of training they are advised not to have engine in operation during idle conditions.
4	Implementing dust control activities such as water sprinkling on unpaved sites.	We will ensure that water will be sprayed on the road to suppress the dust generation during vehicular movement and the wind direction.
5	Ensure vertical stacks with height sufficient for dispersion as per CPCB guidelines.	Effective stack height is ensured for all emission sources such as gas engine / diesel generators, boilers etc.
Air Environment (Operation Phase)		
1	Ensuring vertical stack height for point emission sources adequate for dispersion as per CPCB guidelines.	Effective stack height is ensured for all emission sources such as gas engine / diesel generators, boilers etc.
2	Providing low NOx burners in GTGs.	GTG are equipped with Low NOx Burner at VGT and Bhogat Terminal.
3	Providing sampling infrastructure (ports, ladder, and platform) at all stacks attached to the emission sources.	Sampling provisions like ports, ladder and platform are provided at all stack emission sources Viramgam and Bhogat terminal.
4	Ensuring preventive maintenance of vehicles and equipment	All the vehicles hired are ensured that the preventive maintenance is being carried out at

Sr. No.	Mitigation Measure	Compliance/Action Note
		the stipulated period. The same is verified by the Cairn nominated Road Transport safety Officer. Equipment maintenance such as GTG, DG, Gas compressor are carried out regularly as per preventive maintenance schedule captured through SAP modules.
5	<p>Developing peripheral green belt in the proposed new premises in a phase-wise manner. This will include the following measures:</p> <ul style="list-style-type: none"> ➤ Planting the species recorded at site to maintain original biodiversity. ➤ Selection of additional plant species based on environmental parameters and recommendations given by the Central Pollution Control Board. ➤ Some suitable species recommended for greenbelt development programme are given in Annexure-VI of EIA Report. ➤ Maintaining 3.0 to 4.0 m spacing and density about 1500-1750 trees per ha. ➤ Maintenance includes watering, weeding, pruning, removal of dead and diseased plants, application of organic manure and pesticides. ➤ Monitoring of growth, health and survival rate. ➤ Avoiding unnecessary engine operations (e.g. equipment with intermitted use switched off when not working) ➤ Ensuring vehicles with valid Pollution under Control certificates are used. 	<p>Greenbelt is developed selecting the local indigenous species.</p> <p>Green belt is developed through GUIDE (Gujarat Institute of Desert Ecology). The measures suggested are adopted suitably.</p>
Water Environment (Construction Phase)		
1	Monitoring water usage at construction camps to prevent wastage.	Water consumption is daily monitored, and water conservation measures adopted in camps / living quarters.
2	Due to scarcity of water resources, checking for competitive water users before abstraction	Water within the terminals are used from the CGWA approved water wells. If water is shortage or in remote location, water is procured only through approved sources.
3	Ensuring there are no chemical or fuel spills at water body crossings.	All necessary engineering and management measures are in place to avoid spillage. If any accidental oil spillage occurs, onsite standby oil spill response team is in place.
4	Ensuring that the soak pit and septic tanks at construction camps/ sites and the proposed facilities are properly designed tanks in accordance with the relevant Indian Standards to handle peak wastewater load, located away from the offices/ residential areas and secured from damage and properly maintained.	Septic tank and soak pits are designed as per IS 2470.

Sr. No.	Mitigation Measure	Compliance/Action Note
5	<p>Ensuring supply of temporary/ portable toilets for construction staff at the ROU.</p> <p>The waste from these toilets will be emptied into septic tanks. The septic pits and soak pits shall also consider this additional load.</p>	<p>During RoU construction phase, mobile toilets are used for construction workers. The sewage generated from mobile toilets is collected in temporary storage tanks and later moved through vacuum trucks and disposed in the nearby Cairn septic tank and soak pits and or disposed in the STPs installed at Cairn terminals.</p>
6	<p>Ensuring hydro test water is disposed in a safe and environmentally responsible manner.</p> <ol style="list-style-type: none"> 1. Planning hydro test water reuse to reduce volume for discharge. 2. Securing hydro test discharge lines and ensuring they are not leaking wastewater directly into the environment. 3. Ensuring integrity of liner in pits constructed for hydro test water disposal. 4. Consultation with local communities to prevent conflicts at a later stage. 5. When large volumes are to be discharged, routing of exit water through break tanks in order to dissipate energy and reduce suspended solids 	<p>Noted for compliance for future hydro test activities. In past, hydro test water is treated and reused and later discharged after necessary treatments mainly removal of the physical impurities and adjust of pH.</p>
Water Environment (Operation Phase)		
1.	Tracking of consumption and installing water meter at any new water abstraction source.	Water consumption is measured through installation of water flow meters at abstraction source and also at key consumption and discharge areas.
2	Installation of rainwater harvesting structures to collect and use rainwater, thereby reducing abstraction.	Rooftop rainwater harvesting structures installed for the buildings and recharge ponds constructed inside the terminals. This harvested water is used for mainly green belt development within the premises.
3	Exploring opportunities for drip irrigation system for greenbelt development to reduce water demand.	Drip irrigation system installed as part of the green belt development plan inside the terminals.
4	Augmenting the solar evaporation pond and oily-water separator system at Viramgam Terminal.	The existing reject water management system is sufficient to handle the oily separated wastewater (as it is generated intermediately). If required in future, necessary augmentation of the wastewater handling system will be carried out.
Land environment (Construction Phase)		
1	Avoiding rainy season for construction so as to avoid soil erosion.	Noted for compliance. No major activities will be planned during the rainy season.
2	Restricting all construction activities inside the pipeline ROU.	Cairn shall ensure that all major construction activities are carried out only within the ROU area.

Sr. No.	Mitigation Measure	Compliance/Action Note
3	Ensuring the top-soil soil stock pile is not contaminated with hydrocarbon spills and Leaks.	Top soil will not be stocked inside the operating premises, necessary care shall be taken to store, preserve and reuse.
4	Ensuring any material resulting from clearing and grading is not deposited on approach roads, streams or ditches, which may hinder the passage and/or natural water drainage.	Debris at periodic intervals shall be removed from the work area to avoid any hinders in the passage and blockage of natural drainage system.
5	Ensuring minimal soil erosion during discharge of used hydro test water by placing non erodible materials on the ground at the point of discharge to prevent erosion.	No hydro test water will be discharged to the barren land. As far as possible, water shall be collected, treated and reused. Disposal shall take place after necessary treatment and meeting the discharge standards at reduced flow rate.
6	Restoring the ROU as soon as possible after construction.	Noted for compliance.
7	Breaking of clods in the sub-soil crown used as backfill on the trench section.	Noted for compliance.
8	Loosening of sections of the ROU which has been compacted due to movement of heavy machinery and vehicles.	Noted for compliance.
9	Re-instatement of top-soil uniformly over the he section of the ROU from which it was stripped.	Noted for compliance.
10	Grading of ROU to restore natural topography and drainage.	Noted for compliance.
11	Restoration of berms of agricultural lands using excess sub-soil or the preserved original berm material.	Noted for compliance.
12	Construction of additional silt fences and berms along highly undulating sections of the ROU to prevent top-soil erosion by approaching monsoon, in consultation with landowner	All engineering measures as part of the construction will be carried out to ensure any soil erosion.
13	After final site grading is complete, ensuring that the excess excavated material is not dumped indiscriminately but used for filling low lying areas or berm construction by locals and keeping a record of the same.	Excess material (nonhazardous) will be dumped in the low-lying area with due importance to topography and natural contour. Records shall be maintained for such dumping of materials.
14	Restoration of construction camp sites before abandonment.	As far as possible construction camps shall be made in Cairn permanent locations, if outside location is identified, then site restoration will be carried out.
15	Dismantling of all facilities, unless requested otherwise by the land owner.	Site restoration including dismantling will take place as per Cairn procedure and no objection certificate would be obtained from land owners after handover of the site.
16	Removal of all wastes from project sites.	Noted for compliance.

Sr. No.	Mitigation Measure	Compliance/Action Note
17	Disposal of hazardous wastes and septic tank load to authorized vendors and treatment plants respectively.	Hazardous waste will be disposed only to the authorized recyclers and TSDF facilities. Sewage will be discharged to Cairn facilities such as septic tanks followed by soak pits and or STPs in terminals.
18	Supplying concrete wastes to local persons for use in strengthening roads, filling trenches or low-lying land etc. or reused at other project sites if feasible.	As far as possible ready-mix concrete will be ordered only for the required quantities. In any unforeseen circumstances, if excess concrete is available, the same shall be planned for effective usage such as making posts, roads, distribution to local communities etc.
19	Restoring side slopes and beds of water body crossings as possible to the original conditions including replacement of original type and density of vegetation, slopes, drainage pattern and adoption of slope stabilization techniques wherever necessary.	Noted and shall be complied by ensuring proper design practices adopted with firm execution plan in place for ensuring protection of natural contours, structures etc.
20	Restoration of areas from where padding material for the pipeline trench has been sourced.	Noted for compliance
21	Ensuring chemicals and fuels is not spilled during handling and usage.	All engineering and good practices shall be adopted to ensure no spillage of chemicals and fuels. These materials shall be stored in a designated paved and secondary containment area.
22	Storage on impermeable surface with secondary containment and shade.	
23	Ensuring availability of spill absorbent materials near to areas of storage and handling.	Oil spill containment kit including absorbents will be kept near to the potential spill area.
24	Ensuring use of drip trays to capture spills/leaks during refueling of vehicles.	Drip trays will be provided for all potential source of spillage.
25	Training of workers on chemical/fuel handling procedures.	All concerned person shall be trained on HAZMAT storage, handling and usage including on material safety data sheets.
26	Ensuring major maintenance of equipment/ machineries is carried out on paved surfaces with adequate spill control arrangement.	Maintenance of equipment's and vehicles shall be carried out in the designated locations only. These locations will have spill containment requirements and spill absorbents.
27	Removal of contaminated soil for disposal to landfill.	Any oily / chemical contaminated material will be disposed to TSDF.
28	Periodic visual inspection of all chemical/fuel storage areas for evidence of spill/leaks or potential conditions for spills/leaks.	All potential source of spillage locations will be periodically inspected as per the schedule.
29	Managing wastes generated in ROU, other construction sites and camps in a safe and environmentally friendly manner.	All the waste shall be effectively segregated, collected, stored, transported, recycle/reuse (if applicable) and disposed to the authorized recyclers and or facilities. The same shall be documented.

Sr. No.	Mitigation Measure	Compliance/Action Note
30	Developing and maintaining dedicated waste storage areas, with secondary containment for hazardous wastes	As part of project execution and operation design, dedicated waste storage facilities with secondary containment will be constructed.
31	Collection of wastes immediately upon generation, transporting to dedicated areas and segregation to biodegradable and non-biodegradable (and further into recyclable and non-recyclable).	All the waste shall be effectively segregated, collected, stored, transported, recycle/reuse (if applicable) and disposed to the authorized recyclers and or facilities. The same shall be documented.
32	Optimizing on-site recycle/reuse of wastes, where possible.	
33	Disposal to registered/authorized vendors as per legal provisions.	
34	Maintenance of records.	
Land environment (Operation Phase)		
1	Developing and maintaining dedicated waste storage areas.	Dedicated waste storage facilities in place at Viramgam, Radhanpur, Bhogat terminal and at all the AGIs.
2	Proper collection, transportation and temporary storage of pigging wastes.	All the pigging receiver locations We have collection and storage system for the pigging waste and all other hazardous waste, and it transported to Viramgam and Bhogat terminal for final disposal to authorized TSDF facilities.
3	Ensuring hazardous waste storage areas are provided with secondary containment.	All the hazardous waste storage areas are provided with secondary containment system.
4	Disposing of hazardous wastes to vendors authorized by the concerned authorities as per legal provisions.	In Gujarat pipeline section, non-sealable hazardous waste is disposed to SEPPL, Kutch and Saleable hazardous waste is disposed to GPCB authorized recyclers.
Noise environment (Construction phase)		
1	Ensuring preventive maintenance of equipment and vehicles.	All the vehicles hired are ensured that the preventive maintenance is being carried out at the stipulated period. The same is verified by the Cairn nominated Road Transport safety Officer. Equipment maintenance such as GTG, DG, Gas compressor are carried out regularly as per preventive maintenance schedule captured through SAP modules.
2	Avoiding unnecessary engine operations (e.g. equipment with intermitted use switched off when not working)	All the drivers are trained for basic training and part of training they are advised not to have engine in operation during idle conditions.
3	Ensuring DG sets are provided with acoustic enclosures and exhaust mufflers.	All the DG and GTG have acoustic enclosures.
4	Ensuring vehicle movement is avoided at night and close to sensitive receptors (such as schools, hospitals, places of worship).	Noted for the compliance.
Noise environment (Operation phase)		

Sr. No.	Mitigation Measure	Compliance/Action Note
1	Avoiding continuous (more than 8 hrs) exposure of workers to high noise areas.	All the rotary equipment has acoustic enclosure. However, the person exposing to high noise areas will be provided with earmuff / plugs. Also there will be periodical job rotation.
2	Provision of earmuffs at the high noise areas.	
3	Ensuring preventive maintenance of equipment.	All the rotary equipment have preventive maintenance schedule connected to SAP.
4	Ensuring DG sets and GTGs have acoustic enclosures and exhaust mufflers.	All the DG and GTG have acoustic enclosures.
Biological environment (Construction phase)		
1	Keeping a tally of trees cut along the ROU – viz. no., species taluka-wise.	All the trees uprooted is accounted and accordingly compensatory plantation is being carried out.
2	In preparation for peripheral greenbelt development at surface facilities, recording the number and species of plants at the site prior to construction, so that the plantation can be designed to maintain at the least the original plant diversity.	The green belt development is planned through specific organizations such as GUIDE.
3	Avoid cutting of tress wherever possible, especially the endangered species observed in the study area.	Noted for compliance.
4	Closing of trenches as soon as possible of construction.	Noted for compliance.
5	Hard barricading of hydro test water disposal pits.	Hydro test water shall not be discharged to pits, it shall be collected in tanks for effective re usage, treatment and disposal.
6	Prevent littering of work sites with wastes, especially plastic and hazardous waste.	Effective housekeeping practices shall be adopted and the same shall be ensured through periodic site inspections.
7	Training of drivers to maintain speed limits and avoid road-kills.	All the vehicles hired by Cairn for regular usage shall be fitted to GPS to monitor the speed and road movement. All drivers will be trained periodically for defensive training.
8	Prohibiting use of firewood in project camps and making use of cooking gas mandatory.	LPG gas shall be provided for the cooking services at base camps and living quarters.
Biological environment (Operation phase)		
1	Keeping a tally of trees cut – viz. no., species taluka-wise	Tree may be required to cut in ROU area wherever possible during excavation job for repairing work in pipeline. The account of trees uprooted if any will be documented, and 10 times of trees shall be planted towards compensatory plantation.
2	Avoid cutting of tress wherever possible	In extreme condition we are cutting trees during Pipeline maintenance job in ROU area, otherwise trees shall not be up rooted/cut.
3	Training of drivers to maintain speed limits and avoid road-kills.	All the vehicles hired by Cairn for regular usage shall be fitted to GPS to monitor the speed and

Sr. No.	Mitigation Measure	Compliance/Action Note
		road movement. All drivers will be trained periodically for defensive training.
Socio-economic environment (Construction phase)		
1	Ensuring timely payment of compensation	All the compensation shall be paid through Nodal officer in a timely manner through consultation process.
2	Training contractors on company road safety policy requirements	All concerned are trained through road safety requirements such as defensive training, control through GPS etc. RTSO (Road Safety Transport Officer) will monitor all the Cairn directly engaged vehicles including cranes, hydra etc, for the condition of vehicles including behavior of the drivers.
3	Monitoring speed and route of project-related vehicles	Radio officer will monitor movement of all the Cairn engaged vehicles through authorized JMP (Journey management Plan)
4	Minimizing damage to road infrastructure, congestion and blockades.	No road or any public infrastructure will be damaged intentionally. However, if any damage occurs, the same shall be repaired on priority in consultation with the concern stakeholders.
5	Determining allowable traffic patterns in the affected area throughout the work week will be made based on community use, include a consideration of the large turning requirements of certain vehicles/machineries that might increase congestion and traffic hazards	Traffic and road usage survey is being carried out for particular route usage for large count of Cairn engaged or vehicles. Based on the recommendations necessary mitigation measures shall be planned to include usage of proper alternate route (though may be long journey).
6	Upgrading local roads, wherever required, to ensure ease of project activity and community safety.	Wherever katcha roads are available and if Cairn intend to use for heavy vehicular movements, the roads will be repaired for suitability of the movements in consultation with the village administration and local bodies
7	Consolidating deliveries of materials and personnel to project sites, whenever feasible, to minimize flow of traffic.	The flow of traffic will be restricted through approved Journey Management Plan system implementation.
8	Minimizing interruption of access to community use of public infrastructure	Noted for complying.
9	Providing prior notice to affected parties when their access will be blocked, even temporarily.	In such cases, local bodies and village administration will be consulted and will be executed as per the plan.
10	Returning all roads to a passable condition before the end of each working day.	Noted for complying.
11	Monitoring construction camp safety and hygiene	Camp shall be operated as per the operating procedure ensuring hygiene, safety and complying with the applicable statutory

Sr. No.	Mitigation Measure	Compliance/Action Note
		requirements including grievance addressable system.
12	Cleaning of potable water storage tanks/containers.	All water storage tanks shall be periodically cleaned and disinfected. Records for the same shall be maintained with due date for cleaning details.
13	Regular housekeeping, cleaning and waste removal	Camp shall be operated as per the operating procedure ensuring hygiene, safety and complying with the applicable statutory requirements including grievance addressable system.
14	Monitoring of health and hygiene at kitchen.	
15	Ensuring weed removal and prevention of water-logging.	Periodic cleaning of the surroundings will be made. All measures shall be provided to avoid any water logging including measures shall be taken to prevent any mosquito breeding.
16	Preventing use of drugs and alcohol in project-sites	Cairn shall strictly follow alcohol and drug policy, which is part of zero tolerance requirements.
17	Preventing possession of firearms by project-personnel, except those responsible for security	Noted for compliance.
18	Ensuring project-related waste and wastewater is disposed in a responsible manner	All the waste (hazardous and nonhazardous) and wastewater including sewage shall be managed as per the Cairn approved procedures.
Socio-economic environment (Operation Phase)		
1	Extending reach of CSR programs to new project areas.	CSR program will be initiated much prior to start of the project activities to have better stakeholder consultations.
2	Extending pipeline safety awareness campaigns in new project areas.	Pipeline safety awareness program are conducted annually twice covering Barmer to Bhogat Terminal.
3	Monitoring speed and route of project-related vehicles.	All the vehicles hired by Cairn for regular usage shall be fitted to GPS to monitor the speed and road movement. All drivers will be trained periodically for defensive training.

Annexure – 07: Compensatory plantation details

Total Compensatory Plantation Details in-lieu Tree cutting in RoU

<u>State</u>	<u>Village</u>	<u>District</u>	<u>Total Hectares Planted</u>	<u>Total Trees Planted in No's</u>
Rajasthan	Golia Jethmal	Barmer	25	11263
	Chokhla	Barmer	15	10560
	Sanchore	Jalore	12	4655
	Total		52	26478
Gujarat	Makansar	Morbi	110	123000
	Banaskhanta	Palanpur	20	22220
	Banaskhanta	Banaskhanta	25	25250
	Nal Sarovar	Ahmedabad	12.5	8000
	Total		167.5	178470
	Grand Total		219.5	204948
Gujarat	Coastal Area	Jamnagar	100	1300000 (Mangrove Plantation)

Location: Golia Jethmal Afforestation, Rajasthan

Plantation Details: Plantation on 25 Ha Area with 11263 trees in FY 13-14



Location: Chokhla Afforestation, Rajasthan

Plantation Details: Plantation on 15 Ha Area with 10560 trees in FY 12-13



Location: Sanchore Afforestation, Rajasthan

Plantation Details: Plantation on 12 Ha Area with 4655 trees in FY 12-13



Location: Banaskantha Afforestation, Gujarat

Plantation Details: Plantation on 25 Ha Area with 25250 trees in FY 10-11



Location: Morbi Afforestation, Gujarat

Plantation Details: Plantation on 110 Ha Area with 123000 trees in FY 15-16



Location: Palanpur Afforestation, Gujarat

Plantation Details: Plantation on 20 Ha Area with 22220 trees in FY 13-14



Location: Banaskhanta Afforestation, Gujarat

Plantation Details: Plantation on 25 Ha Area with 25250 trees in FY 11-12



Location: Nal Sarovar Afforestation, Gujarat

Plantation Details: Plantation on 12.5 Ha Area with 8000 trees in FY 12-13



Location: Marine National Park Jamnagar & Dev Bhumi Dwarka Mangrove Plantation, Gujarat

Plantation Details: Plantation on 100 Ha Area with 1300000 Plants in FY 16-17



Annexure – 08: Risk assessment compliance report

Risk Assessment Recommendations Compliance Report

Environment Clearance Project	Expansion in existing crude oil carrying capacity from 2,00,000 bopd to 3,00,000 bopd and natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Rageshwari to Palanpur in existing project to Bhogat (Gujarat) Pipeline, dist Barmer, Rajasthan by M/s. Cairn India Limited reg.EC	
Environment Clearance File reference:	F. J-11011/234/2007-IA II (I) dated 31 st October, 2016	
EC compliance reporting period:	April-2024 to September-2024	
Coverage of Risk Assessment	Project component	Selected facilities for Risk Assessment
	Augmentation of existing crude oil Pipeline	AGI-9, Viramgam terminal, 24" existing buried crude oil pipeline
	Augmentation of existing gas Pipeline	AGI-25, Viramgam terminal, 8" existing buried gas Pipeline
	New gas pipeline	Raageshwari despatch station, SV-3, compressor station, Palanpur receiving station, 30" new buried gas pipeline
Study Conducted by	Engineers India Limited	

Sr. No.	Recommendation of risk assessment	Compliance/Action Note
1.	The owner must take cognizance of the fact that the area bordering the station is to be kept free of habitation and means to discourage the growth of such habitation must be incorporated in the offsite disaster management plan.	Distance between nearby habitat and station where augmentation proposed is > 1 Km. Station have good buffer margin of greenbelt at every AGI and terminals to reduce the effect of Fire and over pressurization.
2	The vicinity of the station must be rendered free of all sources of ignition. An additional measure of security may be provided in the form of explosion-proof fittings.	Habitat and other ignition sources are not available nearby area of the augmentation and existing location. As per Hazard area classification, flame proof design is already carried out for equipment's.
3	Measures need to be put in place for the evacuation of non-essential employees from the premises in the event of a fire.	Evacuation plan is developed for each station for escaping from emergency area. Also, periodic mock drill being carried out to check the effectiveness.
4	The firewater system ought to be of sufficient capacity to cater to all demands that may be made of it.	Fire water network is designed as per OISD guideline.
5	Routine inspection and preventive maintenance of equipment and facilities at the station is advisable, so as to avoid any untoward occurrence.	Maintenance strategy for the all the equipment and safety critical equipment is identified and preventive maintenance is done as per the maintenance strategy.
6	All pressure and temperature instruments, alarm switch, safety interlocks and emergency shutdown systems should be tested for intended operation as per the preventive maintenance schedule.	All the equipment, instrument, fire and gas detection system and safety interlock system are tested at periodic frequency as defined in OISD guideline.
7	Rapid detection of an uncommon event (HC leak, Flame etc.) and alarm arrangements and development of subsequent quick isolation mechanism for major inventory.	Fire and Gas detection system is designed as per OISD guideline and safety interlock system is working immediately as per cause and effect diagram.
8	Measures for controlling / minimization of Ignition sources inside the Station.	Every employee is trained regarding avoidance of prohibited materials inside the red zone area and also security measures in place regarding prohibited materials usage.

Sr. No.	Recommendation of risk assessment	Compliance/Action Note
		Permit to work system take cares regarding controlling of ignition source inside the stations. If possible, hot work will be carried out outside the red zone area to avoid any chance of fire.
9	Provide Active and Passive fire protection for critical equipment and major structures	Active and passive fire protections system like Foam pourer system, Fire sprinkler system, Fire water network, Fire water pump, Fire tender, Fire suppression system, Fire and gas detection system and Fire extinguisher is provided at station and periodic inspection of each equipment are done as per maintenance strategy.
10	Effective Emergency Response plans to be in place.	Emergency response plan is prepared in all three terminals Bhogat, Radhanpur and Viramgam including the pipeline. These plans are updated as when as required.
11	Ensure installation of Hydrocarbon detection and fire detectors at strategic location for early detection and prevention of an uncommon event emanating from the facilities. Once the flammable gas release has been detected, as the gas or subsequent fire and escalation risk will be reduced by isolation of the major inventory from the release location (prevention of loss of containment). Hence, manual / automated mechanism is required to isolate the major inventory during any uncommon event. It is recommended that the station piping should be considered to have remote operated valves so that these valves can be closed from the safe location upon fire or flammable gas detection.	HC and Fire detection is provided at gas compressor, fuel gas system, GTG, pigging station, Pumping station of gas and crude oil and admin, control room and warehouse building. Remote operated valve is provided at each AGI and strategic location in terminal to cut off from the Hydrocarbon source to fire.
12	Minimizing the traffic movement within the station area.	Vehicle entry inside the Red zone area is restricted completely and allowed only through work permit system.
13	Provide windsocks throughout the site to ensure visibility from all locations. This will enable people to escape upwind or crosswind from flammable releases. Sufficient escape routes from the site should be provided to allow redundancy in escape from all areas.	Windsocks are provided at strategic location from where it is visible to all the location of plants. Evacuation procedure is developed for the all the station including displaying the drawing of emergency exit.
14	Closed sampling system may be considered for pressurized services. Failure scenarios discussed in this report shall be considered in formulating disaster Management plan of the station.	Closed sampling system considered for pressurized services. DMP is prepared considering all possible emergency including system / equipment's / devise failure scenarios leading to emergency situations.
15	Control room shall be located at a distance at sufficient distance from operating areas	Control room is kept at enough distance from plant operation to avoid the effect of explosion and fire. Location of control room is identified as per outcome of quantitative risk analysis studies.
16	The building shall be located upwind of the process storage and handling facilities.	Location of Administration and Control room building is upwind direction of process storage and handling facilities.
17	Control Rooms coming under overpressure zones should be blast proof and shock proof.	Control building at Bhogat, Viramgam and Radhanpur terminal is not over pressurization zone.

Sr. No.	Recommendation of risk assessment	Compliance/Action Note
18	Critical switches and alarm should be always kept in line.	Critical switches and alarm is always in line if any condition it is required to overrides, It will override with permission of top management as per Safety Overrides Procedure.
19	Minimum number of doors shall be provided in the control room while at the same time the number of doors shall be adequate for safe exit.	Control room entry is access restricted and provided with two exits, which is sufficient.
20	Smoke detection system shall be provided for control rooms at appropriate locations	Smoke detection is provided in control rooms and if it is activated inergen gas or Novec gas will be released to extinguish fire.
21	Halon / its proven Equivalent fire extinguisher shall be used for control rooms and computer rooms	
22	To resist fire spread through ducts, dampers shall be installed in ducts	Damper is provided in HVAC system to restrict fire spreading.
23	Hydrocarbon detectors are recommended in power plant	Power generation system (GTG) is equipped with fire and gas detection and suppression system at Viramgam and Bhogat Terminal.
24	Surrounding population (including all strata of society) should be made aware of the safety precautions, to be taken in the event of any mishap in the plant.	Pipeline safety awareness is provided to all the surrounding population across the pipeline route villages and towns and This campaign has reached around 7,50,000 no's of population & Pipeline safety awareness campaign is ongoing.
25	Critical switches and alarms should always remain online	Critical switches and alarm is always in line if any condition it is required to overrides, It will override with permission of top management as per Safety Overrides Procedure.
26	The equipment should be hydraulically tested to a pressure of at least 1.5 times the design pressure before putting into operation.	All the pressure vessels are hydro tested as per pressure vessel Rules before commissioning of vessel.
27	The pipeline / equipment's / storage loading unloading lines should be monitored continuously for identifying leakages and have control systems which should be capable of closing down transmission of oil and gas automatically, if ever required	LDS and PIDS with Security Patrolling are capable to identify the leakage in underground Crude oil and Natural gas pipeline. Once this system is activated it will give alarm and immediately control room persons from the Viramgam terminal can respond to the situation.
28	Every storage tank, including its roof and all metal connections, should be electrically continuous and be effectively earthed as per OISD Std. 108	All the hydrocarbon carrying and storage equipment is earthed and proper continuity is maintaining to avoid generation of the static electrical charges as per OISD standard.
29	Hydrocarbon detectors may be installed in the tank farms with remote alarms in control stations as per OISD Std. 108	Flame detector is installed in tank farm area and activation of the same will immediately take safe shutdown.
30	Fire water requirements should be designed as per guidelines given in OISD Std. 116	Fire water storage and requirement is designed as per the OISD 116.
31	Fire proofing materials and systems should be applied as per OISD Std. 164.	Fire proofing retardant paint is done on the cable in tank dyke area.

Annexure – 09: Environment Statement

Form V
(See Rule14)

Date: 16/05/2024

From

Vedanta Limited (PCB ID: 10880)

Previous Name: Cairn India Limited

Survey No. 1224/1-2, 1232/1P, 1233/P, 1234/1P-2P,

1235/1-2, 1236, 1238, 1239/1P- 2, 1240/1P-2 P, 1241

Village – Viramgam, Ta- Viramgam,

Dist – Ahmedabad, Gujarat

To

The Member Secretary

Unit Head: Ahmedabad Rural

Gujarat Pollution Control Board

Paryavaran Bhavan

Sector 10(A), Gandhi Nagar

Gujarat- 382010

Environment Statement for the financial year ending 31st March 2024, Consent Order No. AWH-107441 and valid up to 31/12/2024.

Part – A

- | | | |
|-------|---|--|
| (i) | Name and Address of the owner/occupier of the industry operation or the process | Arun Misra
Vedanta Limited
Previous Name: Cairn India Limited
Yashad Bhawan, Udaipur (Rajasthan) – 313004, |
| (ii) | Industry Category
Primary (STC code)
Secondary (STC code) | |
| (iii) | Production Capacity Units | Not Applicable |
| (iv) | Year of establishment | Dec-2009 |
| (V) | Date of last Environmental Statement submitted | 28/05/2023 |

CA
23/05/21
Gujarat Pollution Control Board
Head Office
Sector No.-10-A,

Part - B

(i) Water and Raw Material Consumption

Sr. No.	Water Consumption m3 /day	Quantity (m3/day)
1	Process	Nil
2	Cooling (Boiler)	0.191
3	Domestic (Including green belt)	52.52

Sr. No.	Name of the Products	Process water consumption per unit of product	
		During the previous financial year	During the current financial year
		(1)	(2)
1	Not Applicable*	Not Applicable	Not Applicable

* Viramgam terminal is crude oil storage and pumping facility. There is no manufacturing/production carried out, so water is not consumed for process purposes.

(ii) Raw Material consumption

Name of Raw Material	Name of the Products	Raw Material consumption per unit of product	
		During the previous financial year	During the current financial year
Natural Gas (Sm3)	Power Generation (KWH)	M3 of Natural gas consumed per KWH of Power Generation	M3 of Natural gas consumed per KWH of Power Generation
316,054	321530	0.901 m3 per KWh	0.982 m3 per KWh

Part - C

Pollutants discharged to the environment/unit of output
(Parameters as specified in the consent issues)

Sr. No.	Pollutants	Quantity of pollutants discharged (Average Quantity kg/day)	Concentration of pollutants in discharges (mg/M3)	Percentage of variation from prescribed standards with reasons
(a)	Water	Not Applicable	Not Applicable	Not Applicable
(b)	Air			
	Air Emission from FWP-A			
	PM	0.0700	62	Nil
	SO ₂	0.0100	15.28	Nil
	NOx	0.0100	15.79	Nil
	Air Emission from FWP-B			
	PM	0.0300	64	Nil
	SO ₂	0.0000	17.76	Nil
	NOx	0.0000	14.12	Nil
	Air Emission from FWP-C			
	PM	0.1600	65	Nil
	SO ₂	0.0200	18.71	Nil
	NOx	0.0200	12.07	Nil
	Air Emission from GTG-1			
	PM	0.0000	00	Nil
	SO ₂	0.0000	00	Nil
NOx	0.0000	00	Nil	
Air Emission from GTG-2				

	<i>PM</i>	0.0000	00	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0000	00	Nil
<i>Air Emission from GTG-3</i>				
	<i>PM</i>	0.0000	00	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0000	00	Nil
<i>Air Emission from DG set (1250 KVA)</i>				
	<i>PM</i>	0.0860	58.9	Nil
	<i>SO₂</i>	0.1000	18.14	Nil
	<i>NOx</i>	0.1500	12.89	Nil
<i>Air Emission from Gas Compressor-1</i>				
	<i>PM</i>	0.0000	00	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0000	00	Nil
<i>Air Emission from Gas Compressor-2</i>				
	<i>PM</i>	0.0000	00	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0000	00	Nil
<i>Air Emission from Gas Compressor-3</i>				
	<i>PM</i>	0.0000	00	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0000	00	Nil

The quantity of wastewater generated from OWS and RO Reject water is very less and it is mixed with STP inlet sewage water. Treated sewage water is utilized in the greenbelt area.

**Part D
Hazardous Wastes**

(as specified under hazardous waste (Management, Handling, and Transportation) rules 2008.

	Hazardous Wastes	Total Quantity (kg)	
		During the previous financial year	During the current financial year
(a)	From Process	1325	7732
(b)	From Pollution control facilities	Nil	Nil

**Part E
Solid Wastes**

		Total Quantity (kg)	
		During the previous financial year	During the current financial year
(a)	From Process	Nil	Nil
(b)	From pollution control facilities	Nil	Nil
(c)	(1) Quantity recycled or reutilized within the unit	Nil	Nil
	(2) Sold	Nil	Nil
	(3) Disposed	Nil	Nil

Part -F

Please specify the characterizations (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Waste	Qty Disposed (in MT)	Characteristics of Waste	Method of disposal
Used oil	0.0957	Flammable liquid	Collection, storage, mixed with crude oil and supply to Oil refinery or transportation and disposal by selling to registered recycler.
Sludge and filters contaminated with Oil	3.840	Flammable	Handed over to Authorized TSDF for disposal (M/s. SEPPL, Bhachau)
Empty chemical containers (aerosol Cans, Paint drums, Sample containers)	2.935	Corrosive and flammable solids	Empty container given to authorized decontamination facility.
Waste residue containing oil	Nil	Flammable solid	Handed over to Authorized TSDF for disposal (M/s. SEPPL, Bhachau)
Evaporation Pond sludge	Nil	Solids with high TDS content	Disposal to Authorized TSDF (M/s. SEPPL, Bhachau)
Waste Oil	Nil	Flammable solid	Disposed off to GPCB Authorized Waste registered Oil recycler.
Oil and Grease Skimming	Nil	Flammable liquid	Collection, storage, mixed with crude oil and supply to Oil refinery or transportation and disposal by selling to registered recycler.

Part -G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Part H

Additional measures/investment proposal for environmental protection including abatement of pollution/prevention of pollution.

Part I

Any other particulars for improving the quality of the environment.



(Signature of a person carrying out
An industry – operation or process)

Name : Aniruddhsinh Rathod
Designation : Head Midstream
Address : Vedanta Limited
Previous Name: Cairn India Limited
Near IOC Terminal,
Ahmedabad-Dhrangadhra Highway,
Hansalpur chokdi
Viramgam

Form V
(See Rule 14)

Date: 16/05/2024

From
Vedanta Limited (PCB ID: 34224)
Previous Name: Cairn India Limited
Radhanpur Terminal & Spur Line
Survey No. 332, 333,334
Village – Radhanpur,
Ta- Radhanpur, Dist – Patan, Gujarat

To
The Member Secretary
Unit Head: Palanpur
Gujarat Pollution Control Board
Paryavaran Bhavan
Sector 10(A), Gandhi Nagar
Gujarat- 382010

Environment Statement for the financial year ending 31st March 2024, Consent Order No AWH – 104990 and valid till 30/09/2024.

Part - A

- | | | |
|-------|---|---|
| (i) | Name and Address of the owner/occupier of the industry operation or the process | Arun Misra
Vedanta Limited
Previous Name: Cairn India Limited
Yashad Bhawan, Udaipur (Rajasthan) – 313004, |
| (ii) | Industry Category
Primary (STC code)
Secondary(STC code) | |
| (iii) | Production Capacity Units | Not Applicable |
| (iv) | Year of establishment | Dec-2009 |
| (V) | Date of last Environmental Statement submitted | 28/05/2023 |


Gujarat Pollution Control Board
Head Office
Sector No.-10-A,
Gandhinagar-382010

Part – B

(i) Water and Raw Material Consumption

Sr. No.	Water Consumption	Quantity (m3/day)
		Nil
1	Process	Nil
2	Cooling	06.16
3	Domestic (Including Green Belt)	

Sr. No.	Name of the Products	Process water consumption per unit of product	
		During the previous financial year	During the current financial year
		(1)	(2)
1	Not Applicable*	-	-

* Radhanpur terminal is a crude oil storage station. The crude oil is stored in tanks and transported to IOCL facility nearby. There is no processing or manufacturing taking place where process water is consumed.

(ii) Raw Material consumption

Name of Raw Material	Name of the Products	Raw Material consumption per unit of product	
		During the previous financial year	During the previous financial year
Not Applicable	Not Applicable	Not Applicable	Not Applicable

Part - C

Pollutants discharged to the environment/unit of output
(Parameters as specified in the consent issues)

Sr. No.	Pollutants	Quantity of pollutants discharged (Average Quantity kg/day)	Concentration of pollutants in discharges (mg/M3)	Percentage of variation from prescribed standards with reasons
(a)	Water**	Not Applicable	Not Applicable	Not Applicable
(b)		Air Emission from FWP-A		
	PM	0.0000	65.0	Nil
	SO ₂	0.0000	17.0	Nil
	NO _x	0.0000	10.5	Nil
(c)		Air Emission from FWP-B		
	PM	0.0000	48.5	Nil
	SO ₂	0.0000	15.9	Nil
	NO _x	0.0000	9.7	Nil
(d)		Air Emission from FWP-C		
	PM	0.2538	60.3	Nil
	SO ₂	0.0247	16.3	Nil
	NO _x	0.2427	10.5	Nil
(e)		Air Emission from EMDG		
	PM	0.0000	52.8	Nil
	SO ₂	0.0000	19.8	Nil
	NO _x	0.0000	10.4	Nil

** Industrial effluent is mixed with Sewage inlet water and further treated in STP. STP treated water is utilized in Greenbelt purpose as per CCA condition. RO Reject water is disposed off through solar evaporation in solar evaporation pond.

Part D

Hazardous Wastes

(as specified under hazardous waste (Management, Handling, and Transportation) rules 2008

Sr. No.	Hazardous Wastes	Total Quantity (kg)	
		During the previous Financial year	During the current Financial year
(a)	From Process	50	720
(b)	From pollution control facilities	Nil	Nil

Part E

Solid Wastes

Sr. No.		Total Quantity (kg)	
		During the previous Financial year	During the current Financial year
(a)	From Process	Nil	Nil
(b)	From pollution control facilities	Nil	Nil
(c)	(1) Quantity recycled or reutilized within the unit	Nil	Nil
	(2)Sold	Nil	Nil
	(3)Disposed	Nil	Nil

Part -F

Please specify the characterizations (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Waste	Qty Disposed (in MT)	Characteristics of Waste	Method of disposal
Sludge and Filters containing Oil	0.720	Hazardous to Environment	Disposal to Authorized TSDF (SEPPL, Bhachau)
Used oil	NIL	Hazardous to Environment	Internally mixed with crude oil and supply to refinery.
Waste oil	NIL	Flammable	Sold to authorized re-refiners
Waste Residue containing Oil	NIL	Hazardous to Environment	Disposal to Authorized TSDF

Part -G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Part H

Additional measures/investment proposal for environmental protection including abatement of pollution/prevention of pollution

- 135 KW Solar Panel installed, and solar power generation is initiated.

Part I

Any other particulars for improving the quality of the environment



(Signature of a person carrying out
An industry – operation or process)

Name : Aniruddhsinh Rathod
Designation : Head Midstream
Address : Vedanta Limited
Previous Name: Cairn India Limited
Near IOC Terminal,
Ahmedabad-Dhrangadhra Highway,
Hansalpur chokdi
Viramgam

Form V
(See Rule 14)

Date: 16/05/2024


From
Old Company Name: Cairn India Limited (PCB ID: 27907)
New Company Name: Vedanta Limited
Bhogat Terminal
Village: Bhogat Terminal
Taluka: Kalyanpur
District Jamnagar- Gujarat

To
The Member Secretary
Unit Head: Jamnagar
Gujarat Pollution Control Board
Paryavaran Bhavan
Sector 10(A), Gandhi Nagar
Gujarat- 382010

Environment Statement for the financial year ending 31st March 2024, Consent Order No. AWH-130470 date of issue: 17/11/2023 and valid till 22/05/2028.

Part - A

(i)	Name and Address of the owner/occupier of the industry operation or the process	Arun Misra Vedanta Limited Previous Name: Cairn India Limited Yashad Bhawan, Udaipur (Rajasthan) – 313004,
(ii)	Industry Category Primary (STC code) Secondary (STC code)	-
(iii)	Production Capacity Units	Not Applicable
(iv)	Year of establishment	2010
(v)	Date of last Environmental Statement submitted	28/05/2023


Gujarat Pollution Control Board
Head Office
Sector No.-10-A,
Gandhinagar-382010

Part – B

(i) Water and Raw Material Consumption

Sr. No.	Water Consumption	Quantity (m3/day)
1	Process	Nil
2	Cooling	12.01
3	Domestic (Including Green Belt)	61.13

Sr. No.	Name of the Products	Process water consumption per unit of product	
		During the previous financial year	During the current financial year
		(1)	(2)
	Not applicable	Not applicable	Not applicable

These facilities are for storage and pumping of crude oil so there is no such product in which process water is utilized.

(ii) Raw Material consumption

Name of Raw Material	Name of the Products	Raw Material consumption per unit of product	
		During the previous financial year	During the current financial year
Natural Gas (Sm3)	Power Generation (KWH)	M3 of Natural gas consumed per KWH of Power Generation	M3 of Natural gas consumed per KWH of Power Generation
78,70,918	84,83,309	0.760 m3 per KWh	0.927 m3 per KWh

Part - C

Pollutants discharged to the environment/unit of output.
(Parameters as specified in the consent issues)

Sr. No.	Pollutants	Quantity of pollutants discharged (Average Quantity kg/day)	Concentration of pollutants in discharges (mg/l)	Percentage of variation from prescribed standards with reasons
(a)	<i>Wastewater disposal to Marine</i>			
1	pH		7.4	Nil
2	Color		1.0	Nil
3	Temperature		26.9	Nil
4	Chlorides			Nil
5	Sulphate			Nil
6	Ammoniacal Nitrogen	0.000	0.1	Nil
7	DO	0.019	4.3	Nil
8	% Sodium			Nil

Part D

Hazardous Wastes

(as specified under hazardous waste (Management, Handling, and Transportation) rules 2008)

Sr. No	Hazardous Wastes	Total Quantity (kg)	
		During the previous financial year	During the current financial year
(a)	From Process	Nil	7380
(b)	From pollution control facilities	Nil	Nil

Part E

Solid Wastes

Sr. No		Total Quantity (kg)	
		During the previous financial year	During the current financial year
(a)	From Process	Not Applicable	Not Applicable
(b)	From pollution control facilities	Not Applicable	Not Applicable
(c)	(1) Quantity recycled or reutilized within the unit	Not Applicable	Not Applicable
	(2) Sold	Not Applicable	Not Applicable
	(3) Disposed	Not Applicable	Not Applicable

Part -F

Please specify the characterizations (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Waste	Qty Disposed (in MT)	Characteristics of Waste	Method of disposal
Waste Containing Oil	NIL	Hazardous to Environment	Disposal to Authorized TSDF (M/s. SEPPL)
Chemical sludge from wastewater treatment	NIL	Hazardous to Environment	
Sludge from treatment of waste water arising out of Cleaning/Disposal of Barrels/Containers	NIL	Hazardous to Environment	
Used Oil or spent oil	NIL	Flammable and Hazardous to Environment	Internally Mixed with Crude oil and supply to refinery.
Waste Oil	NIL	Flammable and Hazardous to Environment	Sold to GPCB authorized waste oil recyclers.
Empty barrel/containers/liners/contaminated with hazardous chemical/waste	NIL	Hazardous to Environment	Sold to authorized recyclers (M/s. Gulshan Barrel Private Limited)
Sludge and Filter contaminated with Oil	7.380	Hazardous to Environment	Disposal to Authorized TSDF (M/s. SEPPL)
Oil and grease skimming	NIL	Hazardous to Environment	Sold to authorized recyclers/refiners

9	Total Dissolved solids			Nil
10	Suspended Solids	0.009	2.0	Nil
11	Oil and Grease	0.004	1.0	Nil
12	COD	0.022	5.0	Nil
13	BOD	0.009	2.0	Nil
(b)	<i>Air</i>	Quantity of pollutants discharged (Average Quantity kg/day)	Concentration of pollutants in discharges (mg/M3)	Percentage of variation from prescribed standards with reasons
		<i>Air Emission from FWP-A</i>		
	<i>PM</i>	0.0214	55.75	Nil
	<i>SO₂</i>	0.0027	17.89	Nil
	<i>NOx</i>	0.0037	14.43	Nil
		<i>Air Emission from FWP-B</i>		
	<i>PM</i>	0.0102	56	Nil
	<i>SO₂</i>	0.0013	20.04	Nil
	<i>NOx</i>	0.0016	15.76	Nil
		<i>Air Emission from FWP-C</i>		
	<i>PM</i>	0.0214	54.75	Nil
	<i>SO₂</i>	0.0027	18.64	Nil
	<i>NOx</i>	0.0036	13.17	Nil
		<i>Air Emission from GTG-1</i>		
	<i>PM</i>	0.0000	00	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0000	00	Nil
		<i>Air Emission from GTG-2</i>		
	<i>PM</i>	0.0684	6.0	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0344	6.31	Nil
		<i>Air Emission from GTG-3</i>		
	<i>PM</i>	0.0294	7.5	Nil
	<i>SO₂</i>	0.0000	00	Nil
	<i>NOx</i>	0.0143	3.3	Nil
		<i>Air Emission from Boiler</i>		
	<i>PM</i>	0.0457	16.20	Nil
	<i>SO₂</i>	0.0000	0	Nil
	<i>NOx</i>	0.0196	12.71	Nil
		<i>Air Emission from EDG</i>		
	<i>PM</i>	0.0673	43.8	Nil
	<i>SO₂</i>	0.0065	12.8	Nil
	<i>NOx</i>	0.0115	17.48	Nil

Part -G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Part H

Additional measures/investment proposal for environmental protection including abatement of pollution/prevention of pollution.

Part I

Any other particulars for improving the quality of the environment.



(Signature of a person carrying out an industry – operation or process)

Name : Aniruddhsinh Rathod
Designation : Head Midstream
Address : Vedanta Limited (Cairn Oil and Gas)
Near IOC Terminal,
Ahmedabad Dhrangadhra Highway,
Hansalpur Chokdi,
Virangam

Annexure – 10: List of Midstream ECs

B-2 ✓

F. No. J-11011/234/2007- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
E-mail : plahujarai@yahoo.com
Telefax: 011 – 2436 3973
Dated: 28th April, 2008

To,
The Director Operation -Rajasthan
M/s Cairn Energy India PTY Limited
3rd & 4th Floor, Orchid Plaza,
Suncity, Sector 54
Gurgaon – 122 002

Sub : Oil Evacuation pipeline with Associated Facilities from Mangala Terminal, Barmer district Rajasthan to Salaya Terminal in Jamnagar District Via Viramgam (Ahmedabad district) in Gujarat by M/s Cairn Energy India Pvt. Ltd - Environmental Clearance reg.

Sir,

This has reference to your letter no. HSE/RT/03/MS/11 dated 5th December, 2007 on the above mentioned subject.

2. The Ministry of Environment and Forests has examined your application. It is noted that M/s Cairn Energy India Pvt Ltd (CEIL) in partnership with Oil & Natural and Gas Corporation Limited (ONGC) propose to lay an onshore oil evacuation pipeline of approximately 600 km length with associated facilities from Mangala terminal, Barmer district, Rajasthan to Salaya terminal in Jamnagar district, Gujarat via Viramgam terminal in Ahmedabad district, Gujarat. The pipeline will be buried at a minimum depth of 1.0 m below the ground level. The overall pipeline project envisages setting up of 600 km buried 24" insulated oil evacuation pipeline and 8" gas pipeline; heating stations (32 Nos.) and pigging stations (2 Nos.) along the pipeline route; crude storage and pumping facilities at Viramgam terminal (2 tanks of 5,000 m³ capacity each) and at Salaya terminal (6 tanks of 50,000 m³ capacity each); captive power generating facilities at all heating stations (32 Nos. of 1 MW each) and Viramgam terminal (Power from Gujarat State Electricity Board Grid / Standby 8 MW Diesel Generators) and Salaya terminal (10 MW Gas based Generators / Standby Diesel Generators). As the crude is waxy in nature flow will be maintained by heating through Skin Effect Heat Tracing (SEHT) System. Land requirement for Viramgam terminal is 25 ha, Salaya terminal – 1.55 ha, pigging station - 0.84 ha and heating stations-9.6 ha. Thus total land requirement will be 90.44 ha which will be purchased from the land owners in consultation with District Revenue Authorities. About 30 m wide corridor for pipeline on ROU basis will be acquired as per Petroleum Mining Pipeline Act, 1962. Block isolation valves will be provided on the pipeline with both remote and local operation controls. The crude pipeline will have a flow rate of maximum 1,50,000 BOPD, design pressure of 93 bar, operating pressure of 90 bar and temperature maintained above 65°C. The gas pipeline will have a flow rate of 6.3 MMSCFD, design pressure 49 bar and operating pressure 41 bar. It is noted that pipeline enroute does not pass through any National Park/wildlife sanctuary/biosphere reserve etc.

3. It is noted that water requirement is about 20m³/d for Viramgam terminal and 40m³/d for Salaya terminal during construction phase and 105m³/d for wash water and green belt development for Viramgam terminal and 10m³/d of wash water and 125m³/d for green belt development for Salaya terminal. The water requirement for construction purpose will be met from the local authorized sources. The water requirement during operation phase of 15m³/d (10m³/d at Salaya terminal and 5m³/d at Viramgam terminal) will be purchased from the local sources. The entire pipeline system will be designed and operated as per Oil Industry Safety Directorate (OISD) guidelines and will have leak detection system and remotely controlled and operated with Supervisory Control And Data Acquisition (SCADA) system. The crude oil storage areas will be paved, contained and will have fire fighting provisions such as fire water and foam protection system. Public hearings for Salaya and Viramgam districts were held on 20.11.2007 and 24.11.2007 respectively. Cost of the project is Rs. 3500 crores.

4. The Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification, 2006 subject to strict compliance of the following Specific and General Conditions.

A. SPECIFIC CONDITIONS:

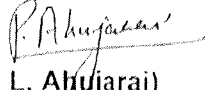
- i. Regular monitoring of VOC and HC shall be undertaken near the storage/terminal area.
- ii. The compensation to the land owners for acquisition of land shall be as per the State Government norms. It may be noted that the compensation paid to the land owners shall not be less than the norms prescribed under National Resettlement and Rehabilitation Policy, 2007.
- iii. The design, material of construction, assembly, inspection, testing and safety aspects of operation and maintenance of pipeline and transporting the natural gas shall be governed by ASME/ANSI B 31.8/B31.4 and OISD standard 141.
- iv. Annual safety audit shall be carried out for the initial three years by an independent agency and report submitted to this Ministry for ensuring the strict compliance of safety regulations on operation and maintenance.
- v. The construction of pipeline particularly at the river and stream crossing shall be done during dry seasons to avoid disturbance of breeding seasons and soil erosion. The riverbed, embankments and / dykes shall be restored adequately after installation of crossings.
- vi. Pipeline wall thickness and minimum depth of burial at river crossings and casings at rails, major road crossings shall be in conformity with ANSI/ASME requirements.
- vii. The company shall follow horizontal drilling technique for laying of pipeline while passing through major irrigation canal and perennial rivers.
- viii. The project authorities shall plant a minimum of 10 trees for every tree cut along the pipeline route in consultation with the local DFO (s). This will be in addition to the compensatory afforestation. Approval under Forest (Conservation) Act, 1980 shall also be obtained for forest area falling under the pipeline route before initiating construction of the pipeline in the forest area.

- ix. The project authorities shall install SCADA system with dedicated optical fibre based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential areas and sensitive installations should be provided to prevent the amount of gas /hydrocarbons going to the atmosphere in the event of pipeline failure. Intelligent pigging facility should be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system shall be provided to prevent external corrosion.
- x. The project authorities shall patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method(s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey shall be carried out at regular intervals to ensure the adequacy of cathodic protection system.
- xi. The fire water facilities at the terminals must be designed as per OISD-117 guidelines. However, for fighting prolonged fires, the company shall firm up a plan for assured water supply from near by ground water source/ surface water source. This must be complied before commissioning the project.
- xii. Green belt of adequate width and density shall be provided to mitigate the effects of fugitive emission all around the intermediate pumping stations. A minimum of 25%of the total land acquired shall be developed as green belt in consultation with the local DFO.

B. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the Rajasthan and Gujarat State Pollution Control Boards and the State Governments.
- ii. No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- iii. The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 1989 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.
- iv. The project authorities must strictly comply with the rules and regulation with regarding to handling and disposal of Hazardous Wastes (Management and Handling) Rules, 1989/ 2003 wherever applicable. Authorization form the State Pollution Control Boards must be obtained for collections/treatment/storage/disposal of hazardous wastes.
- v. The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).

- vi. A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.
 - vii. The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.
 - viii. The Regional Offices of this Ministry at Bhopal and Lucknow/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.
 - ix. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Boards/ Committee and may also be seen at Website of the Ministry and Forests at <http://WWW.envfor.nic.in>. This shall be advertised within seven days of the issue of this letter in at least two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.
 - x. The Project Authorities shall inform the Regional Offices as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.
5. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
6. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner will implement these conditions.
7. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Wastes (Management & Handling) Rules, 1989, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Dr. P. L. Ahujarai)
Director

Copy to:

1. Secretary, Ministry of Petroleum and Natural Gas, Shastri Bhavan, New Delhi.
2. Secretary, Department of Environment & Forests, Govt. of Gujarat.
3. Secretary, Department of Environment and Forests, Government of Rajasthan, Jaipur.
4. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office complex, East Arjun Nagar, New Delhi-1100032.
5. Chairman, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur.
6. Chairman Gujarat Pollution Control Board, Paryavaran Bhavan, Sector-10A, Gandhi Nagar, -382043
7. The Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office, Link Road No.3, E - 5 , Arera Colony, Bhopal - 462 016.
8. Chief Conservator of Forests, Central Region, Ministry of Environment and Forests, B-1/72, Sector-A, Aliganj, Lucknow-226020.
9. Monitoring Cell, Ministry of Environment & Forests.
10. Monitoring file.
11. Guard File.
12. Record File.

(Dr. P. L. Ahujarai)
Director

F.No. 11-34/2009-IA-III
Government of India
Ministry of Environment & Forests,
(IA Division)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi - 110 003.

Dated: 24th August, 2009.

To
M/s. Cairn Energy India Pty. Limited,
3rd & 4th Floors,
Orchid Plaza, Suncity,
Sector - 54,
Gurgaon - 122 002.

Subject: CRZ and Environmental Clearance for the installation & operation of Two Single Point Mooring (SPM) and interconnecting pipelines to evacuate crude oil and import diluents to the storage terminal & installation & operation of crude oil terminal at Village Bhogat Taluka-Kalyanpur, Distt. Jamnagar, Gujarat by M/s. Cairn Energy India Pty. Ltd. - Reg.

This has reference to the letter No. ENV-10-2008-1949-E, dated 21.03.2009 of Director (Environment), Forests & Environment Department, Govt. of Gujarat and subsequent letter dated 04.06.2009 seeking prior Environmental and CRZ Clearance for the above project under the EIA Notification, 2006 and Coastal Regulation Zone Notification, 1991. The proposal has been appraised as per prescribed procedure in the light of provisions under the EIA Notification, 2006 and CRZ Notification, 1991 on the basis of the mandatory documents enclosed with the application viz., the Questionnaire, EIA, EMP and the additional clarifications furnished in response to the observations of the Expert Appraisal Committee constituted by the competent authority in its meetings held on 25th - 26th June, 2009.

2. It is inter-alia noted that the project involves the (i) Laying of onshore pipelines (24" heated insulated buried crude oil and 8" gas pipeline) from Salaya to Bhogat and twin 24" heated insulated buried crude oil pipeline from Bhogat terminal to the Single Point Mooring facility; (ii) Setting up of crude oil storage terminal at Bhogat with heated insulated Crude oil / diluents storage tanks (up to 12 tanks with each tank up to 300,000 barrels storage capacity, blending facility and natural gas based captive power generation (16 - 18 MW), Saline water desalination plant (2000 m³/day capacity) and marine disposal of desalination reject stream (~1000 m³/day) through sub-sea diffuser dispersion; and (iii) Setting up export pipeline system (~6km offshore) from Bhogat terminal to twin SPM system and interconnecting sub-sea off the coast into Arabian Sea at 30 m water depth contour. The present



proposal is for extending the Barmer-Salaya crude oil pipeline along with the related facilities to the Arabian Sea coast (off the coast of Bhogat – Kalyanpur Tehsil, Jamnagar district, Gujarat) and develop the crude oil storage and marine tanker crude oil loading/ diluents unloading infrastructure will enable the transportation of crude to refineries located along the coast of India. The proposed location off the coast of Bhogat was selected based on the study of NIO which confirmed that the location selected for landfall point and marine evacuation system is free from ecological sensitivity and archaeological sites. The archaeological city of Dwarka is approximately 40 km away from the landfall point while the port city of Porbandar is 55 km away. The total estimated cost for the project is approximately Rs.1000 crores.

3. The EAC in its meeting held on 22nd – 23rd May, 2008 suggested additional TOR including Public hearing. NEERI and NIO have conducted the EIA study. Public Hearing was conducted at Bhogat on 30-12-2008.

4. The EIA reveals that the proposed landfall point and the adjoining coastal stretch is away from fishing harbours and major routes used by fishermen. Flexible hoses (double carcass) will be provided with butterfly valves and break away coupling to automatically stop the loading operation in case of sudden turbulence. Remote control Shut- Down valves on marine pipeline system and surveillance vessels to be deployed to monitoring. Water requirement to be sourced from brackish groundwater, desalinated and reject stream disposed through sub-sea diffuser located in minimum 5 m WD-800 m. from shoreline.

5. The project also attracts Coastal Regulation Zone Notification, 1991. The State Government has forwarded the proposal for the issue of CRZ Clearance vide letter No. ENV-10-2008-1949-E, dated 21.03.2009.

6. The Expert Appraisal Committee, after due consideration of the relevant documents submitted by the project proponent and additional clarifications furnished in response to its observations, have recommended for the issue of Environmental and CRZ Clearance for the project. Accordingly, the Ministry hereby accord necessary Environmental and CRZ Clearance for the above project as per the provisions of EIA Notification, 2006 and CRZ Notification, 1991 and its subsequent amendments, subject to strict compliance of the terms and conditions as follows:

7. Specific Conditions:

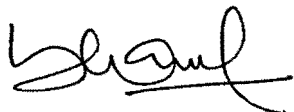
- (i) All the commitments made by the project proponent to the Director (Environment), Govt. of Gujarat and conditions stipulated in the letter No. ENV-10-2008-1949-E, dated 21st March, 2009 shall be strictly complied with.



- (ii) There shall be no temporary/permanent camp sites in CRZ area.
- (iii) All the recommendations of EIA and Disaster Management Plan shall be strictly complied with.
- (iv) Proper oil spillage contingency plan shall be put in place.
- (v) Any offshore vessel discharge shall comply the norms of MARPOL.
- (vi) Waste water generated shall be properly treated and reused, with the provision of oil water separator system.
- (vii) Oily waste to be stored in paved dedicated storage area and shall be disposed to authorized oily recyclers.
- (viii) Crude oil storage tank from area shall be impervious lined and concrete paved with dyke walls.
- (ix) Under Corporate Social Responsibilities (CSR), sufficient budgetary provision shall be made for health improvement, education, water and electricity supply etc. in and around the project.
- (x) All the conditions stipulated by Gujarat Maritime Board vide their letter dated 25.11.2008 shall be strictly complied with.

8. General Conditions:

- (i) The construction of the structures should be undertaken as per the plans approved by the concerned local authorities/local administration, meticulously conforming to the existing local and Central rules and regulations including the provisions of Coastal Regulation Zone Notification dated 19.2.1991 and the approved Coastal Zone Management Plan of Gujarat.
- (ii) In the event of any change in the project profile a fresh reference shall be made to the Ministry of Environment and Forests.
- (iii) This Ministry reserves the right to revoke this clearance, if any, of the conditions stipulated are not complied with to the satisfaction of this Ministry.
- (iv) This Ministry or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.



- (v) Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the offices of the Central and State Pollution Control Board by the project proponents during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.

9. These stipulations would be enforced among others under the provisions of water (Prevention and Control of Pollution) Act, 1974 the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and Municipal Solid Wastes (Management and Handling) Rules, 2000 including the amendments and rules made thereafter.

10. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department and Civil Aviation Department from height point of view, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

11. The project proponent should advertise in at least two local Newspapers/widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Gujarat Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at <http://www.envfor.nic.in>. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bhopal.

12. Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

13. Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.

14. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.



15. The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

16. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.


17. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.

/

(Bharat Bhushan)
Director (IA-III)

Copy to:

1. The Principal Secretary, Department of Forests & Environment and Chairman, GCZMA, Govt. of Gujarat, Sachivalaya, Gandhinagar.
2. The Director, Forests & Environment Department, Govt. of Gujarat, Block No.14, 8th Floor, Sachivalaya, Gandhinagar - 382 010.
3. The Chairman, CPCB, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32.
4. The Chairman, Gujarat State Pollution Control Board, Paryavaran Bhawan, Sector 10 A, Gandhinagar-382 010.
5. The Chief Conservator of Forests, Ministry of Environment and Forests, Regional Office, Western Region, Kendriya Paryavaran Bhavan, Link Road No. 3, Ravishankar Nagar, Bhopal-462016 (M.P.)
6. Guard File.
7. Monitoring Cell, MoEF.


(Bharat Bhushan)
Director (IA-III)
24.08.2009

F. No. J-11011/444/2011- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003

E-mail : ahuja.rai@nic.in
Telefax : 011: 2436 3973
Dated 5th September, 2012

To,

Shri P. Elango, Director (Strategy & Business Services)
Cairn India Ltd. (Cairn Energy India Pvt.Ltd.)
4th Floor, Vipul Plaza, Sun City, Sector 54
Gurgaon-122002, Haryana

E-mail : elango.p@cairnindia.com / jaishankar.krishnan@cairnindia.com

Subject : Increase in Carrying Capacity of Crude Oil Pipeline (1,50,000 to 1,75,000 bopd) in existing Barmer (Rajasthan) to Bhogat (Gujarat) Pipeline by M/s Cairn India Limited - reg.

Ref. : (i) Ministry's letter no. J-11011/234/2007-IAII(I) dated 28th April, 2008, J-11011/34/2009-IAII(I) dated 24th August, 2009.
(ii) Your letter no. nil dated 30th August, 2011.

Sir,

Kindly refer to your letter dated 30th August , 2011 regarding above mentioned project, wherein you have requested to allow the increase in carrying capacity of Crude Oil Pipeline (1,50,000 to 1,75,000 bopd) in the existing Barmer (Rajasthan) to Bhogat (Gujarat) Pipeline.

2.0 The proposal was considered by the Expert Appraisal Committee (Industry-2) in its 28th meeting held during 20th– 21st October, 2011. The Committee noted that there is no change in the existing infrastructure to pump the crude oil. Existing pumps will be capable to pump the additional flow. Pipeline design and operating conditions regarding pressure and temperature will remain same. No change in storage inventory or power generation at any pipeline facility location. The proposed pipeline is not passing through any National Park/Wildlife Sanctuary/Coral reef/Eco-sensitive area and no environment clearance is required for capacity augmentation of the pipeline. The Committee recommended the capacity augmentation of the pipeline.

3.0 Since, the proposal involves capacity augmentation of the pipeline without any modification in the existing infrastructure, the Ministry has no objection for capacity augmentation from 1,60,000 bopd to 1,75,000 bopd. However, compliance to the following conditions shall be ensured:

- (i). No additional facilities, tankages or pipeline system will be installed.
- (ii). All the specific conditions and general conditions specified in the environmental clearance accorded vide Ministry's letter no. J-11011/234/2007-IAII (I) dated 28th April, 2008 (pipeline associated facilities), J-11011/34/2009-IAII(I) dated 24th August, 2009 shall be implemented.

- (iii). 'Consent to Establish and Operate' for the revised proposal shall be obtained from the Rajasthan Pollution Control Board and Gujarat Pollution Control Board.
- (iv). No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- 4.0 All other conditions also remain the same.
- 5.0 This issues with prior approval from the Competent Authority.
- 6.0 You are requested to keep this letter with the Environmental Clearance accorded vide letter No. J-11011/234/2007-IAII(I) dated 28th April, 2008, J-11011/34/2009-IAII(I) dated 24th August, 2009.


(Dr. P L Ahujara)
Director

Copy to :-

1. Secretary, Department of Environment and Forests, Government of Rajasthan, Jaipur, Rajasthan.
2. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi -110032.
3. Chairman, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur, Rajasthan.
4. Chief Conservator of Forests (Central), Ministry of Environment and Forests, Region Office (Central), Kendriya Bhawan, 5th Floor, Sector-H, Aliganj, Lucknow – 226 024, U.P.
5. JS, IA-II, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
6. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
7. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
8. Guard File/Monitoring File/Record File.


(Dr. P L Ahujara)
Director



सत्यमेव जयते

Government of India
Ministry of Environment and Forests

F. No. J-11011/444/2011-IA II (I)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
E-mail : tchand2003@yahoo.co.uk
Telefax : 011: 24363963

To

Dated: 23rd May 2014

Mr. Andrew Catwright, GM Pipeline Operations
M/s Cairn Energy India PTY Limited,
3rd & 4th Floor, Orchid Plaza, Sun City,
Sector 54, Gurgaon – 122 002
Email.: Hari.kumar@cairnindia.com harikrushna.patnaik@cairnindia.com

Subject: Augmentation in carrying capacity (175,000 BoPD to 200,000 BoPD) of Inter-State Pipeline of **M/s Cairn India Ltd** from Barmer (Rajasthan) to Bhogat (Gujarat) – **Amendment in Environmental Clearance- reg.**

Sir,

This is with reference to your letter no. BSPL/MoEF/2013/19 dated 13th November, 2013 regarding above mentioned project, wherein you have requested to allow the increase in carrying capacity of Crude Oil Pipeline (1,75,000 to 2,00,000 bopd) in the existing Barmer (Rajasthan) to Bhogat (Gujarat) Pipeline. It is noted that this Ministry has granted an environmental clearance to the two projects, namely:

- i. F.No.J-11011/234/2007-IA.II(I) dated 28.04.2008 – Environmental Clearance to M/s Cairn Energy India Pty Ltd. for Oil Evacuation pipeline with Associated Facilities from Mangala Terminal, District Barmer, Rajasthan to Salaya Terminal in district Jamnagar via Viramgam (dist. Ahmedabad)
- ii. F.No. 11-34/2009-IA.III dated 24.08.2009 –CRZ and EC to M/s Cairn Energy India Pty Ltd. for Installation & Operation of Two Single Point Mooring and Interconnecting Pipeline to evacuate crude oil terminal at village Bhogat, Taluka Kalyanpur, district Jamnagar, Gujarat.

2. It is further noted that the carrying capacity of the pipeline for carrying crude oil from 150,000 bopd to 175,000 bopd without any modifications in the existing infrastructure was approved by MOEF vide letter dated 05.09.2012. The present proposal is for further increase in the carrying capacity of the pipeline from 175,000 to 200,000 bopd without any change in the existing infrastructure.

3. The aforesaid proposal was considered by the Reconstituted Expert Appraisal Committee (Industry) in its 15th meeting held during 29th– 30th January, 2014. The Committee noted that increase in crude oil carrying capacity from 175000 -200000 bopd will be achieved by injection of Drag Reducing Agent (DRAs) and operation of existing mainline pumps with existing pipeline facilities. DRA are high molecular weight, poly – olephins with long chain polymers used globally to reduce frictional pressure losses across the pipeline and utilize the same to improve the flow performance of the export pipeline. DRA injection rates are very less (10 PPM) & with daily consumption of 300 litres i.e. 110 KLPA. Main pipeline pumps at M Pt (4 nos. x 50,000 BoPD) and Viramgam Terminal (2 W + 1 S x 90,000 BoPD) will be optimally operated. No additional facilities, land

energy and water consumption is envisaged. The Committee recommended the proposal for amendment in environmental clearance.

4. In view of the fact that the proposal involves capacity augmentation of the pipeline without any modification in the existing infrastructure, the Ministry has no objection for capacity augmentation from 1,75,000 bopd to 2,00,000 bopd. However, compliance to the following conditions shall be ensured:

- i. No additional facilities, tankages or pipeline system will be installed.
 - ii. All the specific conditions and general conditions specified in the environmental clearance accorded vide Ministry's letter no. J-11011/234/2007-IAII (I) dated 28th April, 2008 (pipeline associated facilities), J-11011/34/2009-IAII(I) dated 24th August, 2009 and J-11011/444/2011- IA II (I) dated 4th September, 2012 shall be complied with.
 - iii. 'Consent to Establish and Operate' for the revised proposal shall be obtained from the Rajasthan Pollution Control Board and Gujarat Pollution Control Board.
 - iv. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
5. All other conditions also remain the same.
6. This issues with prior approval from the Competent Authority.



(Dr. T. Chandini)
Director

Copy to:

1. Secretary, Department of Environment and Forests, Government of Rajasthan, Jaipur, Rajasthan.
2. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi -110032.
3. Chairman, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur, Rajasthan.
4. Chief Conservator of Forests (Central), Ministry of Environment and Forests, Region Office (Central), Kendriya Bhawan, 5th Floor, Sector-H, Aliganj, Lucknow – 226 024, U.P.
5. JS, IA-II, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
6. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
7. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
8. Guard File/Monitoring File/Record File.



F. No. J-11011/234/2007-IA II (I)
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road,
New Delhi -110003

Telefax: 24695313
E-mail : lk.bokolia@nic.in
Dated: 31st October, 2016

To,

Shri Harikrushna Patnaik
General Manager
M/s Cairn India Ltd.
4th Floor, Vipul Plaza,
Sunsity, Sector-54,
Haryana-122002

Subject: Expansion in existing crude oil carrying capacity from 200,000 bopd to 300,000 bopd and Natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Raageshwari to Palanpur in Existing project to Bhogat (Gujarat) pipeline, dist. Barmer, Rajasthan by M/s Cairn India Ltd. reg EC.

Ref.: Your online proposal no. IA/GJ/IND2/27615/2014; dated 7th May, 2015

Sir,

This has reference to your online proposal no. IA/GJ/IND2/27615/2014; dated 7th May, 2015 along with project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report along with Public Hearing Report regarding above mentioned project.

2.0 The Ministry of Environment, Forests and Climate Change has examined the application. It is noted that proposal is for Expansion in existing crude oil carrying capacity from 200,000 bopd to 300,000 bopd and Natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Raageshwari to Palanpur in Existing project to Bhogat (Gujarat) pipeline, dist. Barmer, Rajasthan by M/s Cairn India Ltd. The Cairn India Limited operates the Mangala Development Pipeline, consisting of an approx. 680 km long, 24" heated, insulated and buried crude oil pipeline running from Mangala Processing Terminal in Barmer, Rajasthan to Bhogat Terminal in Devbhoomi Dwarka district, Gujarat with a permitted flow rate of 200,000 bopd and, an approx. 590 km long, 8" buried natural gas pipeline running from Raageshwari Gas Terminal (RGT) in Rajasthan to Bhogat Terminal to provide fuel for heating of crude oil pipeline with a permitted flow rate 6.3 mmscfd. There are 38 nos. of Above-Ground Installations (AGIs) located approx. every 18 km along pipeline route serving as pipeline heating installations and pigging stations. Viramgam Terminal (VGT) has intermediate storage capacity of 60,000 bbls, mainline pumps (3 x 90,000 bbls), 8 MW captive natural-gas

based power generation and pigging facilities. Bhogat Terminal has intermediate storage capacity of 36,00,000bbls, marine export pumps and 18 MW captive natural-gas based power generation. Export facilities originating from Bhogat Terminal consist of 24" heated insulated crude oil pipeline and Single Point Mooring (SPM) in the Arabian Sea for export of crude. The proposed Facility development of Mangala Development Pipeline, which includes the following:

- Increase in crude oil flow in existing pipeline from 200,000 to 300,000 bopd to evacuate 300,000 bopd using Drag Reducing Agent in crude oil pipeline at AGIs 9 & 26 and VGT; additional mainline crude oil pumps at AGI-9 and AGI-26 (3 x 160,000 bopd at each facility), and VGT (2 x 90,000 bopd); booster pumps at VGT (5 x 90,000 bopd), 5 TPH boiler; and additional crude oil storage at VGT of 300,000 bbls; and
- Increase in natural gas flow in existing pipeline from 6.3 to 40 mmscfd to meet captive power requirements for crude oil flow and sales, by addition of gas compressors (2W+1S) at 9 locations (AGIs 6, 7, 8, 11, 16, 18, 20 & 25 and VGT).

Project has the following two components:

(i) Component 1: Augmentation of existing Mangala Development Pipeline (MDP) from RJ-ON-90/1 Block (Barmer, Rajasthan) to Bhogat Terminal (Gujarat). This consists of the following:

- (a) Augmentation of 24" crude oil pipeline carrying capacity from 200,000-300,000 bopd and 8" natural gas pipeline carrying capacity from 6.3-40 mmscfd; and
- (b) Augmentation of natural gas based captive power generation capacity of Bhogat Terminal from 18 to 40 MW.

(ii) Component 2: Development of new 30" pipeline from Raageshwari Gas Terminal(RGT) to Palanpur for 280 mmscfd natural gas sales.

The existing and proposed facilities are as follows:

S.N.	Location	Facilities	Existing	Proposed additions
Crude oil pipeline capacity augmentation				
1	Adjacent to AGI-9 & AGI-26	Mainline crude oil pumps	Nil	3 pumps (2W+1S) x 160,000 bopd, run on natural gas turbine drives (capacity 14 MW) at each location
		Back-up captive power generation	0.39 KVA Gas Engine Generator	1 MW diesel generator
		DRA injection skids	Injection through skid planned to achieve 200,000 bopd	Injection skid to achieve 300,000 bopd
2	Inside	Mainline crude	3 (2W+1S) x	2 x 90,000 bopd

	Viramgam Terminal	oil pumps	90,000 bopd	
		Booster pumps	Nil	5 pumps (4W+1S) x 90,000 bopd
		Crude oil storage tanks	60,000 bbls (3 nos. tanks x 20,000 bbls)	300,000 bbls (2 nos. tanks x 150,000 bbls)
		Boiler for tank heating	1 x 1 TPH	1 x 5TPH
		Gas Turbine Generator	2 x 4 MW	2 x 6 MW and 1x4MW Standby
Natural gas pipeline capacity augmentation				
3	Adjacent to AGI 6, 7, 8, 11, 16, 18, 20 & 25 and inside Viramgam Terminal	Gas compressors & filtration skid	Nil	3 compressors (2W+1S) run by natural gas based turbine drives (capacity 9 MW) and gas filtration skid
		Back-up captive power generation	0.39 KVA Gas Engine Generator	1 MW diesel generator

3.0 During construction phase, water required for civil works and domestic use will be 15 m³/day and 135 litres/ day/ person at each site. Water required for hydro testing of tanks and pipelines will be 25525 m³/tank and 705 m³ per km respectively. During operation phase, additional water required for industrial and domestic use at Viramgam Terminal is 15m³/day and 5m³/day respectively. At other facilities, there is no water requirement for industrial use and requirement for domestic use is 5m³/day. Additional water requirement at Viramgam Terminal will be met from existing approved ground water source and at other facilities will be met from local Panchayat or municipality or other approved sources. Effluent generated at VGT during operations phase will be handled in the existing treatment facilities. There will be no additional trade effluent generation at other facilities and sanitary effluent will be treated in STP/septic tank and soak pits.

4.0 Public Hearing / Public Consultation meeting was conducted on 12th December, 2014.

5.0 All Oil and Gas transportation pipeline (crude and refinery/petrochemical products), passing through national parks/sanctuaries./coral reefs /ecologically sensitive areas including LNG Terminal is listed at S.N. 6(a) under category 'A' and appraised at Central level. Existing and proposed facilities do not pass through national parks/sanctuaries/coral reefs/ ecologically sensitive areas. Environment Clearance under project/activity 6(a) of Schedule of EIA Notification 2006 is not applicable to the new pipeline. However, Crude oil storage at Viramgam Terminal falls under 6 (b) under category 'B' in the schedule of the EIA Notification, 2006. Considering integrated project of pipeline, proposal was appraised at Central level.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry-2) in its 44th meeting held during 20-21st July, 2015, 6th meeting held during 30th March-2nd April, 2016 and 8th meeting held during 26th-27th May, 2016 respectively. Project Proponent and the EIA Consultant namely M/s Engineers India Ltd., have presented EIA / EMP report as per the TOR. EAC has found the EIA / EMP Report and additional information to be satisfactory and in full consonance with the presented TORs. The Committee recommended the proposal for environmental clearance.

7.0 Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006, subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS:

- i. The project authority shall ensure restoration of the Right of Way to preconstruction level as soon as construction activity completed. To ensure prevention of soil erosion, backfilled areas should be properly compacted.
- ii. Adequate stack height shall be provided to gas based power plant. Low NOx burners shall be provided to control NOx emissions.
- iii. Adequate buffer zone around the crude oil tankages, as may be required as per OISD or other statutory requirements.
- iv. Regular monitoring of VOC and HC in the work zone area in the plant premises should be carried and data be submitted to Ministry's Regional Office at Bhopal, CPCB and State Pollution Control Board.
- v. Total fresh water requirement for Viramgam Terminal from ground water source shall not exceed 20 m³/day and prior permission should be obtained from the CGWA/SGWA.
- vi. Annual safety audit should be carried out for the initial three years by an independent agency and report submitted to this Ministry for ensuring the strict compliance of safety regulations on operation and maintenance.
- vii. The construction of pipeline particularly at the river and stream crossing should be done during dry seasons to avoid disturbance of breeding seasons and soil erosion. The riverbed, embankments and / dykes should be restored adequately after installation of crossings.
- viii. Pipeline wall thickness and minimum depth of burial at river crossings and casings at rails, major road crossings should be in conformity with ANSI/ASME requirements.
- ix. The company should follow horizontal drilling technique for laying of pipeline while passing through major rivers.
- x. The project authorities should install SCADA system with dedicated optical fiber based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential areas and sensitive location should be provided to prevent the leaking of gas going to the atmosphere in the event of pipeline failure. Intelligent pigging facility should be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system should be provided to prevent external corrosion.
- xi. The project authorities should patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method(s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey should be carried out at regular intervals to ensure the adequacy of cathodic protection system.

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- xii. All the recommendations mentioned in the risk assessment report should be implemented.
- xiii. All the issues raised during the public hearing/consultation meetings held on 12th December, 2014 should be satisfactorily implemented.
- xiv. Necessary approvals from Chief Controller of Explosives must be obtained before commission of project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.
- xv. The company should obtain all requisite clearances for fire safety and explosives and should comply with the stipulation made by the respective authorities.
- xvi. Occupational health surveillance of worker should be done on a regular basis and records maintained as per the Factory Act.
- xvii. The Company should harvest surface as well as rainwater from the rooftops of the buildings proposed in the project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.
- xviii. At least 2.5 % of the total cost of the project should be earmarked towards the Enterprises Social commitment (ESC) based on local needs and action plan with financial and physical breakup/details should be prepared and submitted to the Ministry's regional office at Bhopal. Implementation of such progamme should be ensured accordingly in a time bound manner.

B. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the Gujarat and Rajasthan State Pollution Control Board (SPCBs), State Government and any other statutory authority.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- iii. The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one stations is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.
- iv. The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.
- v. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- vi. The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.
- vii. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all

- employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- viii. The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.
 - ix. The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.
 - x. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
 - xi. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
 - xii. The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
 - xiii. A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, ZilaParisad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.
 - xiv. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and GSPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
 - xv. The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.
 - xvi. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at <http://moef.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

xvii. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.

8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

9.0 The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.

10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Lalit Bokolia)
Additional Director

Copy to:-

1. The Principal Secretary, Forests & Environment Department, Government of Gujarat, Sachivalaya, 8th Floor, Gandhi Nagar - 382 010, Gujarat.
2. The Chief Conservator of Forests (Western Zone), Ministry of Environment & Forests, Regional Office, E-5, Arera Colony, Link Road -3, Bhopal -462 016, M.P.
3. The Chairman, Central Pollution Control Board Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Gujarat State Pollution Control Board, Paryavaran Bhawan, Sector 10 A, Gandhi Nagar-382 043, Gujarat.
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Parayavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi.
6. Guard File/Monitoring File/Record File.


(Lalit Bokolia)
Additional Director

Annexure - 11 - Compliance to conditions stipulated by GoG letter dated 21 Mar .2009

**SIX-MONTHLY REPORT ON
PROGRESSIVE COMPLIANCE TO CRZ CLEARANCE CONDITIONS**

Project:	CRZ clearance for proposed installation and operation of two Single Point Mooring (SPM) and interconnecting pipelines and installation of crude oil terminal at village: Bhogat, Taluka: Kalyanpur, District: Jamnagar.
File reference:	Ref. No. Env-10-2008-1949-E dated 21 st March 2009
EC compliance reporting period:	April-2024 to September-2024
Project phase:	Initial midstream operations started in quarter – 3 of 2009

Compliance to conditions stipulated by Govt. of Gujarat vide their letter dated 21.03.2009

S. No.	Environment Clearance conditions	Status of compliance
1.	All the suggestions and recommendations given by the consultants in their EIA and Risk Assessment reports.	Being complied with.
2.	CEIL shall bear the cost of the external agency to be appointed by the F&ED, GOG for supervision/monitoring of the proposed activities.	Noted and the Cairn shall bear the cost.
3.	If necessary CIL shall carry out comprehensive EIA study for their project.	Noted.
4.	Project shall not tap aquifer in CRZ area for abstraction of groundwater.	Noted. Cairn has not tapped any aquifer in CRZ area for abstraction of groundwater. Cairn has obtained permission Central Ground Water Authority to abstract 2000 m ³ /day groundwater from wells inside the Bhogat Terminal.
5.	Camps of construction labour will be provided with adequate amenities including the water supply, sanitation and fuel to ensure that they do not ruin the existing environment.	This condition has been complied during project stage.
6.	Camps of the construction labour shall be located outside the CRZ area and no waste including the construction debris shall be disposed of in the sea / creek or into the CRZ areas.	There was no construction camp in the CRZ area and debris was not disposed in sea/ creek / CRZ area. There was no construction in CRZ area during the reporting period.
7.	Socio-economic upliftment programme shall be implemented in consultation with the District Collector/ District Development Officer.	CIL has been investing in CSR to improve the socio-economic conditions of the community along the pipeline route from Barmer to Bhogat. The activities are carried on in four thematic areas – education, health, infrastructure and economic development. Most of these programs supplement the existing

S. No.	Environment Clearance conditions	Status of compliance
		government programs and are carried out in close coordination with local administration. CSR activities and total investment in CSR for pipeline project is mentioned Annexure – 04 for details.
8.	Green belt development program shall be implemented in consultation with the Forests and Environment Department.	Greenbelt is being developed on the basis of EC & Consent conditions and the recommendations of the GUIDE (Gujarat Institute of Desert Ecology). Refer Annexure – 12 for green belt development status.

Compliance to Specific Conditions:

S. No.	Environment Clearance conditions	Status of compliance
1.	Provisions of the CRZ notification of 1991 and subsequent amendments issued from time to time shall be strictly adhered to by Cairn India Ltd. No activity in contradiction to the provisions of the CRZ Notification shall be carried out by Cairn India Ltd.	Noted and being complied with.
2.	All necessary permissions from different Government Departments / agencies shall be obtained by Cairn India Ltd. before commencing expansion activities.	All necessary compliances obtained before start-up of the activities. License for storage of petroleum at Bhogat Terminal has been obtained from Petroleum & Explosives Safety Organization (PESO) (Ref: P/HQ/GJ/15/5312 (P251992) dated 06th Mar 2014) Certificate from Electrical Inspectorate was obtained (Ref: CEI/T-1/P-2/PPP/0836(13)/14/6049 dated 16th July, 2014 for Bhogat Terminal & CEI/T-1/P-2/EHT/006/14/6038 dated 16th July, 2014, Drawing approval CEI/T-1/P-2/PPP/0836(13)/14/3929 dated 21st April 2014). The following approvals obtained: <ul style="list-style-type: none"> ▪ License to Work a Factory from Directorate of Industrial Health & Safety, Gujarat as under: <ul style="list-style-type: none"> ○ Bhogat Terminal - NO.A.D.I.S.H/JAM/1511/2014 date of Issue: 10/10/2014 (for 2014-2015) ○ AGI 34 - NO.A.D.I.S.H/JAM/1512/2014 date of Issue: 10/10/2014 (for 2013-2014) ○ AGI 35 – NO.A.D.I.S.H/JAM/1513/2014 date of Issue: 10/10/2014 (for 2013-2014) ○ AGI 36 - NO.A.D.I.S.H/JAM/1514/2014 date of Issue: 10/10/2014 (for 2013-2014)

S. No.	Environment Clearance conditions	Status of compliance
		<ul style="list-style-type: none"> ▪ Certificate from Electrical Inspectorate as under: <ul style="list-style-type: none"> ○ Bhogat Terminal: Ref No. CEI/T-1/P-2/EHT/006/14/6038 date of issue 16/07/2014 ○ AGI -34 - Ref No. CEI/T1/P2/PPP/0005/14/5380; date of issue 21/06/2014 ○ AGI -35 - Ref No. CEI/T1/P2/PPP/0007/14/5376; date of issue 21/06/2014 ○ AGI -36 - Ref No CEI/T1/P2/PPP/0006/14/5372; date of issue 21/06/2014 ▪ Approval on Oil Spill Response Plan from Indian Coast Guard; approval received 7563 dated 10/11/2014 ▪ Consent to Operate from Oil Industry Safety Directorate for SPM, OISD/ENGG-PL/GEN/17 dated 27/11/2014 ▪ Approval from Navigational Safety Ports Committee – Provisional approval receive vide letter No. 5-NT (03)/Bhogat Port/ 2014-NSPC ▪ ISPS (International Ship & Port facility Security) compliance certificate from Directorate General of Shipping vide MMDKDL/SOC/010 dated 10/01/2014
3.	No activity shall be carried out in the forestland or area having natural plantation /forest and all mandatory clearances under various Forest Acts including the Forests Conservation Act shall be obtained, if necessary.	Pipeline is laid in such a way that no forest land is disturbed. Therefore, there was no requirement of obtaining Forest Clearance for this project.
4.	No dredging, reclamation and construction activities shall be carried out in the CRZ area categorized as CRZ (I) and it shall have to be ensured that the mangrove habitats and other ecologically important and significant areas are not affected due to any of the project activities.	The conditions about dredging and construction in CRZ area were strictly followed. No mangrove or ecologically important habitats were present in the project area.
5.	No effluent or sewage shall be discharged into the sea / creek or in the CRZ area and shall be treated to conform to the norms prescribed by the Gujarat Pollution Control Board and would be reused/ recycled within the plant premises to the extract possible.	In accordance with the EC & CRZ Clearance conditions, the treated wastewater from Oily Water Separator at Bhogat Terminal will be mixed with RO reject and disposed into the Arabian Sea 800 m off Bhogat coast through diffuser arrangement. The point of discharge was recommended by National Institute of Oceanography (NIO) and approved by the MoEF. The wastewater discharge parameter meets the GPCB marine discharge norms. Sewage is

S. No.	Environment Clearance conditions	Status of compliance
		treated in STP installed at Bhogat terminal and treated water is reused for green belt development within the terminal and no treated sewage is discharged outside the terminal premises.
6.	All the recommendations and suggestions given by the NEERI and NIO in their Environment Impact Assessment report for conservation/ protection and betterment of environment shall be implemented strictly by CEIL.	Noted and being complied with.
7.	The construction and operational activities shall be carried out in such a way that there is no negative impact on mangroves and other coastal/ marine habitat the construction activities shall be carried out only under the constant supervision of NEERI / NIO.	Internal audits and checks were put in place during the construction phase to ensure the EMP is effectively followed. External auditors were also engaged to audit the environmental and social performance of the project during the construction phase based on International Financial Corporation's standards and EIA reports prepared by NEERI and NIO. There were no mangroves in the project site.
8.	Cairn India Limited shall strictly ensure that no creeks are blocked due to any activity at Port and the mangrove habitats are neither disturbed nor destroyed due to any activity.	There were no mangroves in the project site and also no creek was blocked during construction phase.
9.	Cairn India Limited shall participate financially for any common facility that may be established or any common study that may be carried out for the Gulf of Khambhat region for environmental protection and/or management purpose.	Cairn will participate in the study and financially support.
10.	The construction debris and /or any other type of waste shall not be disposed of into the sea, creek or in the CRZ areas. The debris shall be removed from the construction site immediately after the construction is over.	There was no construction camp in the CRZ area and debris was not generated and or disposed in sea/ creek/ CRZ area. Proper restoration of site was done immediately after construction.
11.	The construction camps shall be located outside the CRZ area and the construction labour shall be provided the necessary amenities, including sanitation, water supply and fuel and it shall be ensured that the environmental conditions are not deteriorated by construction labour-	This condition has been complied with during project stage.
12.	Cairn India Limited shall prepare and regularly update their Local Oil Spill Contingency and Disaster Management Plan in consonance with the National Oil Spill and Disaster Contingency Plan and shall submit the same to this	The Oil spill Response Plan developed for operations of the Barmer to Salaya section of the pipeline was extended to the Bhogat onshore part. An Oil spill Response Plan for offshore operations was prepared by international third-party agency Oil Spill Response Limited (OSRL), Singapore

S. No.	Environment Clearance conditions	Status of compliance
	Department after having it vetted through the Indian Coast Guard.	and is in accordance the guidelines issued by the Indian Coast Guard (ICG). The Plan submitted for approval wide Letter no. 7563 dated 26 th February 2021.
13.	Cairn India Ltd. shall bear the cost of the external agency that may be appointed by this Department for supervision / monitoring of proposed activities and the environmental impacts of the proposed activities.	Noted and the Cairn shall bear the cost.
14.	The jetty and most of the approach would be supported on piles allowing adequate flow of water without significant obstruction.	Noted.

Compliance to General Conditions:

S. No.	Environment Clearance conditions	Status of compliance
15.	The groundwater shall not be tapped by Cairn India Ltd. to meet with the water requirements in any case.	Groundwater is not being tapped in CRZ area. Permission has been obtained from Central Ground Water Authority to abstract 2000 m ³ /day groundwater from wells inside the Bhogat Terminal to meet water requirements of the Terminal.
16.	Cairn India Ltd. shall take up massive greenbelt development activities in consultation with the Gujarat Institute of Desert Ecology / Forest Department / Gujarat Ecology Commission. A comprehensive plan for this purpose has to be submitted to the Forests and Environment Department.	Greenbelt is being developed on the basis of EC & Consent conditions and the recommendations of the GUIDE (Gujarat Institute of Desert Ecology). Refer Annexure – 12 for green belt development status.
17.	Cairn India Ltd. shall take up mangrove plantation in 100 Ha of area on Gujarat coastline in consultation with this Department.	100 Ha mangrove plantations has been developed in association with Marine National Park authorities in Sikka (Jamnagar) and (Khambaliya and Bhatiya) in Devbhoomi Dwarka districts (Gujarat). Refer Annexure – 07 for details.
18.	Cairn India Ltd. shall have to contribute financially for taking up the socio economic upliftment activities in this region in consultation with the Forests and Environment Department and the District Collector / District Development Officer.	CIL has been investing in CSR to improve the socio-economic conditions of the community along the pipeline route from Barmer to Bhogat. The activities are carried on in four thematic areas – education, health, infrastructure and economic development. Most of these programs supplement the existing government programs and are carried out in close coordination with local administration. The total investment in CSR for pipeline project during FY 2023-2024 is mentioned in Annexure – 04 for details.

S. No.	Environment Clearance conditions	Status of compliance
19.	Separate budget shall be earmarked for environmental management and socioeconomic activities and details thereof shall be furnished to these Departments and the MoEF, GOI. The details with respect to the expenditure from this budget shall also be furnished.	Cost for pollution control devices is inbuilt as part of the overall project cost (CAPEX). Annual recurring costs for EMP implementation are budgeted as part of pipeline OPEX budget. During financial year 2023-2024, approximately INR 2,53,12,723 was invested for EMP implementation and HSE excellence.
20.	A separate environmental management cell with qualified personnel shall be created for environmental monitoring and management during construction and operational phases of the project.	Two-member designated site environmental team is stationed at Viramgam and Bhogat towards carrying out the project and operational related activities in an environmentally responsible manner complying with environmental legal requirements. No separate environment laboratories is established at the site, but all the environmental monitoring is carried out through third party environmental laboratories certified by NABL and MoEF&CC.
21.	Environmental audit report indicating the changes, if any, with respect to the baseline environmental quality in the coastal and marine environment shall be submitted every year by Cairn India Ltd. to this Department as well as to the MoEF, GOI.	An environmental monitoring plan has been developed and is being implemented to monitor changes in offshore environmental quality. Refer Annexure – 13 for Marine environmental monitoring reports.
22.	A six-monthly report on compliance of the conditions mentioned in this letter shall have to be furnished by Cairn India Ltd. on regular basis to this Department.	Six-monthly EC compliance reports are submitted regularly to various regulatory authorities such as CPCB, GPCB, RSPCB and MoEF&CC regional office and also uploaded in Cairn India website. Refer the below link for details. https://www.cairnindia.com/sustainability/disclosures-and-report .
23.	Any other condition that may be stipulated by this Department from time to time for environmental protection / management purpose shall also have to be complied with by the Cairn India Ltd.	Noted and shall be complied.

Annexure - 12 - Midstream Green Belt development details

Sensitivity: Internal (C3)Sensitivity: Public (C4)

**Annexure - 13 – Pre and Post Monsson Marine Monitoring
Report for Bhogat Coastal area.**

**VEDANTA LIMITED (CAIRN OIL
AND GAS)**

**Offshore Seasonal Environmental
Monitoring**

MARCH 2024



Kadam

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VEDANTA LIMITED (CAIRN OIL AND GAS)**Offshore Environmental Monitoring**

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1 INTRODUCTION

1.1 About the Project

Vedanta Limited (Cairn Oil and Gas) has laid 680 km Mangala Development Pipeline (MDPL) for transporting Crude Oil and Natural gas. 39 Above Ground Installations and three terminals (Viramga,, Radhanpur and Bhogat Terminal) are along the pipeline route. Three terminals –Virmgam,, Radhanpur and Bhogat were proposed to facilitate the pipeline operations, intermediate storage and supply crude to prospective buyers.

The company is responsible for implementation of the Environmental Management & Monitoring Plan as the corporate policy and guidelines and permit commitments. One of these involves conducting environmental monitoring in the terminal, heating stations and pipelines spread to measure and monitor impacts on the environment and fulfil regulatory compliance requirements.

The study shall include collection of marine environmental data with primary sampling mentioned below.

1. Marine water quality
2. Marine sediment quality
3. Marine Biota (Phytoplankton, Zooplankton and Benthos)

Samples are collected from 3 different depths (i.e. Surface, Middle and Bottom) and sediment sampling shall be done with suitable grab sampler.

1.2 Marine Monitoring in the upstream, downstream, 50 m & 100 m of SPM and marine outfall

Spot Monitoring/ sampling locations are selected covering the two upstream location, two downstream locations, one location at 50 m and 100 m of SPM (Single Point Mooring), Diffuser location and one reference stations at 3 different depths (i.e. Surface, 10m and 30m depth).

Sampling was carried out in Pre-monsoon season (March 2024).

1.2.1 Field Sampling

Water samples was collected at the surface, mid depth and bottom at all 10 stations to study the physico-chemical characteristics of the samples. Sediment samples was also collected at 10 sampling station for chemical analysis.

Samples for physical and chemical water quality has been collected at 10 locations for 3 different depth. Water Samples to identify biological characteristic (Zooplankton and Phytoplankton) and sediment sample to identify benthos diversity has been collected at 10 different locations.

The details of the sampling location along with lat-long is mentioned in **table below**.

Table 1-1: Sampling Locations

Sr. No.	Station Code	Station Name	Lat-long	Parameter
1	ST01	Reference Location (Diffuser)	21°56.330'N 69°11.375'E	Physico-chemical and Biological Parameter
2	ST02	50m up from Diffuser	21°56.142'N 69°10.704'E	
3	ST03	100m up from Diffuser	21°56.207'N 69°10.836'E	
4	ST04	50m down from Diffuser	21°56.379'N 69°11.824'E	
5	ST05	100m down from Diffuser	21°56.362'N 69°11.980'E	

Sr. No.	Station Code	Station Name	Lat-long	Parameter
6	ST06	Reference Location (SPM)	21°55.988'N 69°09.862'E	
7	ST07	50m up from SPM	21°55.978'N 69°09.815'E	
8	ST08	100m up from SPM	21°55.951'N 69°09.734'E	
9	ST09	50m down from SPM	21°56.064'N 69°09.931'E	
10	ST10	100m down from SPM	21°55.983'N 69°10.155'E	

2 BIOLOGICAL PARAMETER

Establishment of biological status of an aquatic ecosystem is an essential pre-requisite to assess the impacts of existing as well as proposed developments in the surrounding region. While considering assessment of aquatic environmental changes and its implications, it must be realized that, despite many changes it may cause in the physico-chemical properties of the water body and bed sediment, the ultimate consequences are inevitably of a biological nature. Hence, the investigations of an ecosystem and particularly of its communities constitute an important part of any ecological assessment study. This can be achieved by selecting a few reliable parameters from a complex community structure. These communities comprise of planktonic organisms which are microscopic and drift with the water currents. They are classified into Phytoplankton and Zooplankton on the basis of their trophic status. Phytoplankton includes all the producer level organisms such as algae, some photosynthetic bacteria which traps sunlight and in presence of CO₂ by a process called photosynthesis, synthesizes energy releasing O₂ in the water body, such transfer of energy from the primary sources through a series of organisms is defined as the food chain. Thus Phytoplankton are major source of productivity in water body can live only in photic zone, where maximum light penetration occurs; whereas Zooplanktons are organisms depending on the Phytoplankton for their existence, can be called as secondary producers since being consumed by higher level of organisms such as fishes etc. Biotic community also include bottom dwelling organisms e.g. Annelids, arthropods, molluscs etc. Benthic organisms being sedentary animals associated with the bed, provide information regarding the integrated effects of stress, if any, and hence are good indicators of early warning of potential damage. The benthic biotic environment, which supports a great composition of floral and faunal community, is defined as "all of bottom terrain from the wave-washed shoreline of flood-tide level to the greatest deeps" (Sverdrup et al, 1942).

2.1 Sampling Procedure

2.1.1 Phytoplankton

Niskin Water Sampler: It is employed for taking water samples for phytoplankton enumeration from subsurface level to various depths. These bottles are non-metallic, free flushing sampler recommended for general purpose water sampling. This sampler is individually attached on a hydro cable and activated by messenger. Niskin type sampler is made of gray PVC. When the sampler is lowered, the clamp at the lower end and plug valves are in open condition so that, water can pass through the sampler. The sampler is held in this position by the wire rope. When the messenger is dropped down the rope, it strikes the release, shutting the valve closed by a locking device. The water sample of the desired depth so trapped in the bottle can then be pulled up onto the vessel in a close condition. Sea water samples are collected from different depth and distance using 5 liter Niskin bottles.

Samples are Preserved 1 L sample with 3 ml of Lugol's solution immediately after collections and for long term storage buffered formalin of 2.5% final concentration was added to the samples.

2.1.2 Zooplankton

Zooplankton samples were collected with the help of horizontal haul and in this type of haul at least 30-40 m of towing ropes of the net is gradually paid out as vessel moves in slow speed taking a

wide circle in such a way that at least some part of the net ring is visible above water. The depressor is not needed in this type of haul.

After the net comes fully out of the water it may be washed from outside by jetting seawater to bring down all the plankton into the collecting bucket. The washing will also help to removal of mesh-clogging materials so that the net will remain unclogged after every operation. After all the excess water is drained off from the net and through the window of the collecting bucket, the bucket is carefully removed from the net and the plankton, along with the water is poured into a wide mouthed polythene bottle of 500ml capacity up to 3/4th full. Enough concentrated formaldehyde solution to make the medium 5% strong may be added to the plankton immediately after collection.

One of the requirements in quantitative plankton investigation is to know the volume of water filtered. The calculation is based on the length of tow and the mouth area of the net.

2.1.3 Benthos

Macro benthic samples were collected with the help of Grab Sampler. Quantitative samples of the animals inhabiting intertidal sediments are usually taken by (Mouth area size 0.0625 m²) grab. The grab, which is lowered vertically from the stationary boat, capture the epi-fauna and infauna down to the depth excavated by the grab.

Van veen Grab is a small version of the grab used commercially for sand mining, unloading coal, etc. it consists of two buckets hinged together, which are held in the open position while being lowered. When on the bottom, the lowering rope slackens, allowing a release to operate so that on hauling up the two buckets close together before the grab leaves the bottom.

This sample is washed in a container of filtered sea water and sieved through (mesh size 0.5 mm) and the entire content were first stained in Rose Bengal and then preserved in formaldehyde. This will be a survey & study of quantitative distribution of fauna depending on a particular substratum, i.e. rocky fauna, muddy fauna, faunal of algal and grass beds and epi-fauna on sedentary organism.

2.2 Method of Analysis

Table 2-1: Method of Analysis for biological parameters

Sr. No.	Specific Test Performed	Test Method specification against which tests are performed
1	Phytoplankton	APHA: 10200- B.2, D.2, F.1.2 (24th Edition)
2	Zooplankton	SOP based followed by APHA: 10200 B-4; C-5; D; G-2; H-3,4 (24 th Edition)
3	Benthos	SOP based followed APHA 10500 B.3.3; C (24th Edition)

2.3 Results

The results of Phytoplankton, Zooplankton and Benthos are given below.

Table 2-2: Cell count (No x 10³/Lit) of phytoplankton

Station	Cell Count	Total Genera (No.)	Genera
ST01	83.0	11	<i>Asterionella, Navicula, Diatom, Chaetoceros, Biddulphia Ceratium sp., Coscinodiscus, Thalassiosira, Rhizosolenia, Dinophysis, Nitzschia</i>
ST02	69.4	8	<i>Synedra, Coscinodiscus, Pleurosigma, Pseudo-nitzschia, Rhizosolenia, Navicula, Nitzschia, Diatom</i>
ST03	76.6	10	<i>Asterionella, Chaetoceros, Nitzschia, Biddulphia, Pseudo-Nitzschia, Coscinodiscus, Diatom, Rhizosolenia, Dinophysis, Thalassiosira</i>
ST04	88.2	8	<i>Thalassiosira, Nitzschia, Diatom, Coscinodiscus, Biddulphia, Navicula, Pseudo-nitzschia, Thalassiothrix</i>
ST05	79.0	9	<i>Coscinodiscus, Synedra, Rhizosolenia, Dinophysis, Pseudo-Nitzschia, Chaetoceros, Navicula, Thalassiosira, Biddulphia</i>
ST06	92.2	10	<i>Asterionella, Nitzschia, Biddulphia, Coscinodiscus, Navicula, Pseudo-nitzschia, Thalassionema, Diatom, Synedra, Ceratium sp.</i>
ST07	86.4	8	<i>Thalassionema, Coscinodiscus, Biddulphia, Thalassiothrix, Nitzschia, Diatom, Thalassiosira, Rhizosolenia</i>
ST08	93.0	8	<i>Thalassiothrix, Coscinodiscus, Diatom, Chaetoceros, Navicula, Pseudo-Nitzschia, Thalassionema, Synedra</i>
ST09	88.0	10	<i>Thalassiosira, Nitzschia, Thalassionema, Biddulphia, Chaetoceros, Pseudo-nitzschia, Ceratium sp., Navicula, Coscinodiscus,</i>
ST10	78.3	10	<i>Chaetoceros, Biddulphia, Rhizosolenia, Navicula, Thalassionema, Coscinodiscus, Diatom, Ceratium sp., Dinophysis, Nitzschia</i>

Table 2-3: Standing Stock of Zooplankton



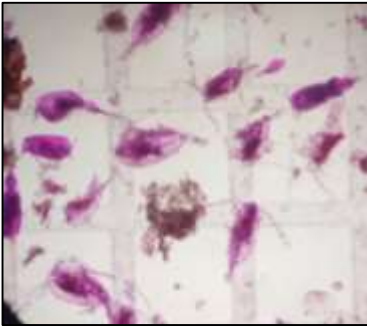




Station	Biomass (ml/100m ³)	Population (no.x10 ³ /100m ³)	Total Group (No.)	Major Groups
ST01	2.4	44.6	7	<i>Nauplius larvae, Calanoida, Crustacean larvae, Herpacticoida, Cyclopoida, Radiolaria, Nematode larvae</i>
ST02	2.8	52.4	6	<i>Cyclopoida, Radiolaria, Calanoida, Tintinnid, Eggs, Nauplius larvae</i>
ST03	3.2	58.2	6	<i>Cyclopoida, Crustacean larvae, Eggs, Tintinnid, Nauplius larvae, Calanoida</i>
ST04	2.4	48.2	8	<i>Crustacean larvae, Cyclopoida, Calanoida, Nauplius larvae, Crustacean larvae, Eggs, Tintinnid, Radiolaria, Herpacticoida</i>
ST05	2.8	48.7	6	<i>Calanoida, Cyclopoida, Nauplius larvae, Crustacean larvae, Eggs, Radiolaria</i>
ST06	4.4	62.4	6	<i>Cyclopoida, Nauplius larvae, Tintinnid, Calanoida, Herpacticoida, Eggs</i>

Station	Biomass (ml/100m ³)	Population (no.x10 ³ /100m ³)	Total Group (No.)	Major Groups
ST07	4.1	52.8	6	<i>Herpacticoida, Nauplius larvae, Eggs, Cyclopoida, Tintinnid, Calanoida,</i>
ST08	3.8	46.7	7	<i>Cyclopoida, Radiolaria, Nematode larvae, Nauplius larvae, Calanoida, Herpacticoida, Crustacean larvae</i>
ST09	3.6	52.1	7	<i>Crustacean larvae, Tintinnid, Calanoida, Cyclopoida, Herpacticoida, Nauplius larvae, Radiolaria</i>
ST10	2.8	48.4	7	<i>Crustacean larvae, Nauplius larvae, Herpacticoida, Cyclopoida, Radiolaria, Calanoida, Eggs</i>

Table 2-4: Standing Stock of Sub tidal Macro benthos

Station	Biomass (gm/m ²)	Population (no./m ²)	Total Group (No.)	Major Groups
ST01	<0.20	40	3	<i>Dentalium, Bivalve, Gastropod</i>
ST02	<0.10	44	4	<i>Gastropod, Dentalium, Bivalve, Foraminifera</i>
ST03	<0.10	48	3	<i>Bivalve, Gastropod, Dentalium</i>
ST04	<0.10	52	3	<i>Dentalium, Bivalve, Gastropod</i>
ST05	<0.20	48	3	<i>Bivalve, Gastropod, Foraminifera</i>
ST06	<0.20	68	3	<i>Bivalve, , Dentalium, Gastropod</i>
ST07	<0.20	56	4	<i>Gastropod, Dentalium, Bivalve, Foraminifera</i>
ST08	<0.10	48	3	<i>Foraminifera, Bivalve, Gastropod, Isopod</i>
ST09	<0.20	58	4	<i>Foraminifera, Gastropod, Amphipod, Bivalve</i>
ST10	<0.20	62	4	<i>Gastropod, Dentalium, Bivalve, Foraminifera</i>

Photographs 2-1: Species observed in the Sampling location

	
<i>Pleurosigma sp.</i> (Phytoplankton)	<i>Thalassionema sp.</i> (Phytoplankton)
	
Amphipoda & Calanoida sp. (Zooplankton)	Calanoida sp. (Zooplankton)
	
Nauplius larvae (Zooplankton)	
	
Cyclopoida ap. (Zooplankton)	Foraminifera sp. (Benthic organism)

	
Bivalve sp. (Benthic organism)	Dentalium sp. (Benthic organism)

2.4 Conclusion of Marine Biological Analysis

The phytoplankton sample were collected at 10 different locations at surface water with the help of phytoplankton net. Phytoplankton cell count varies from 69.4.0 No x 10³/Lit to 93.0 No x 10³/Lit in which the highest cell count was observed at station 8 whereas lowest at station 01. The common phytoplankton genera are *Coscinodiscus*, *Nitzschia*, *Biddulphia*, *Pseudo-nitzschia* and *Diatom*.

The zooplankton sample were also collected at 10 different locations at surface water with the help of zooplankton net. Zooplankton biomass varies from 2.4 no.x10³/100m³ to 4.4 no.x10³/100m³ in which the highest biomass was recorded at station 06 whereas lowest at station 01 and Station 04. The highest population (62.4 no.x10³/100m³) recorded at station 06. The common observed zooplankton groups are Cyclopoida, Eggs, Calanoida and Nauplius larvae.

For benthic organism sample were collected at 10 different locations. The benthos biomass was recorded around <0.10 gm/m² - <0.20 gm/m² in all the stations. Benthic organism population varies in range between 44 no. /m² to 68 no. /m². Highest population were recorded at station 06. An observed common benthic organism group which are Bivalve, gastropod, *Dentalium* and foraminifera.

3 PHYSICO-CHEMICAL PARAMETERS

3.1 Sampling Procedure

Samples were collected with the help of Niskin Sampler from the different sampling locations.

Table 3-1: Method of Analysis for water parameter

Sr. No.	Parameter	Methodology
1	pH	APHA 23rd Edition 4500 H+ B: 2017
2	Temperature	APHA 23rd Edition 2550- B: 2017
3	Color	APHA 23rd Edition 2120 - B Visual Comparison Method: 2017
4	Odor	-
5	SS	APHA 23rd Edition 2540 D: 2017
6	Salinity	-
7	DO	APHA 23rd Edition 4500 O- C: 2017
8	Conductivity	APHA 23rd Edition 2510 B: 2017
9	TOC	IS 2720 (Part-22):1972
10	O&G	APHA 23rd Edition 5520 B: 2017
11	PO ₄ ⁻	APHA 23rd Edition 4500 -P C: 2017
12	Total Residual Chlorine	IS 3025 (Part-26) : 2021
13	Amm.N	IS 3025 (Part 34):1984
14	TKN	-
15	Free Ammonia	-
16	COD	APHA 23rd Edition 5220 B:2017
17	BOD	IS 3025 (Part 44): 1993
18	As	APHA 23rd Edition 3125-B: 2017
19	Hg	APHA 23rd Edition 3112-B: 2017
20	Pb	APHA 23rd Edition 3111 B: 2017
21	Cd	APHA 23rd Edition 3111 B: 2017
22	H.Cr	APHA 23rd Edition 3125-B: 2017
23	T.cr	APHA 23rd Edition 3125-B: 2017
24	Cu	APHA 23rd Edition 3125-B: 2017
25	Zn	APHA 23rd Edition 3125-B: 2017
26	Se	APHA 23rd Edition 3500 Se- C: 2017
27	Ni	APHA 23rd Edition 3111 B: 2017
28	CN	-
29	F	-
30	S-2	-
31	Phenol	APHA 23rd Edition 5530 D: 2017
32	Mn	APHA 23rd Edition 3125-B: 2017
33	Fe	APHA 23rd Edition 3125-B: 2017
34	NO ₃	IS 3025 (Part 34):1988
35	PHc	GCMS
36	Total coliform	APHA 23rd Edition 9221 B & C: 2017

37	E.Coli	APHA 23rd Edition 9221B & G: 2017
38	Total Viable Count	-
39	Salmonella	-
40	staphylococcus	-
41	Pseudomonas aeruginosa	-
42	Shigella	-
43	Vibrio cholerae	-
44	V. Parahaemolyticus	-

APHA: American Public Health Association

Table 3-2: Method of Analysis for sediment parameter

Sr. No.	Parameter	Methodology
1	pH	IS 2720 (Part-26):1987
2	Temperature	APHA 23rd Edition 2550 - B: 2017
3	Color	APHA 23rd Edition 2120 - B Visual Comparison Method: 2017
4	Odor	-
5	Salinity	-
6	Conductivity(mS)	IS 14767: 2000
7	O&G	APHA: (5520 B) 23 rd Edition
8	PO4-	IS 10158 : 1982
9	Total P	IS 10158 : 1982
10	TKN	IS 14684: 1999
11	As	IS 3025 (Part-37) : 1988
12	Hg	APHA 23rd Edition 3125-B: 2017
13	Pb	EPA-3050B & EPA 7000B: 2007
14	Cd	EPA-3050B & EPA 7000B: 2007
15	H.Cr	EPA-3050B & EPA 7000B: 2007
16	T.cr	EPA-3050B & EPA 7000B: 2007
17	Cu	EPA-3050B & EPA 7000B: 2007
18	Zn	EPA-3050B & EPA 7000B: 2007
19	Se	EPA-3050B & EPA 7000B: 2007
20	Ni	EPA-3050B & EPA 7000B: 2007
21	CN	-
22	F	-
23	S-2	-
24	Phenolic Comp.	
25	Mn	EPA-3050B & EPA 7000B: 2007
26	Fe	EPA-3050B & EPA 7000B: 2007
27	NO3	IS 14684: 1999
28	PHc	GCMS

3.2 Results

Table 3-3: Chemical Analysis of Marine Water Sample (Station 1 to Station 5)

PARAMETERS	Unit	ST 01			ST 02			ST 03			ST 04		
		SW	MW	BW	SW	MW	BW	SW	MW	BW	SW	MW	BW
pH	-	7.17	7.50	7.6	7.63	7.67	7.69	7.71	7.7	7.71	7.73	7.79	7.81
Temperature	°C	28.3	29.1	28.7	28.5	29.5	29.7	28.9	29.1	28.6	28.9	28.2	29.3
Color	Pt.Co	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Odor	-	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
SS	mg/L	10	11	14	12	13	15	11	15	12	14	10	13
Salinity	mg/L	47936	53928	64200	54784	53928	42800	41944	55640	46224	47936	48792	48792
DO	mg/L	6.1	5.5	5.2	5.9	5.4	5.3	6.0	5.8	5.1	6.3	5.7	5.2
Conductivity	s/cm	79814	89799	106974	91236	89802	71317	69888	92681	77003	79842	88525	81260
TOC		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
O&G	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PO4-	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Residual Chlorine	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Amm.N	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TKN	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Free Ammonia	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
COD	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BOD	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cd	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H.Cr	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T.cr	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cu	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Se	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CN	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	mg/L	0.94	0.95	1.08	1.12	1.08	2.14	2.25	2.66	3.09	2.67	2.43	1.45
S-2	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mn	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fe	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NO3	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHc	%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total coliform	MPN/100mL	<1.8			<1.8			<1.8			<1.8		
E.Coli	MPN/100mL	Absent			Absent			Absent			Absent		
Total Viable Count	CFU/mL	400			100			1300			300		
Salmonella	/25 mL	Absent			Absent			Absent			Absent		

staphylococcus	/mL	Absent	Absent	Absent	Absent
Pseudomonas aeruginosa	/mL	Absent	Absent	Absent	Absent
Shigella	/25 mL	Absent	Absent	Absent	Absent
Vibrio cholerae	/mL	Absent	Absent	Absent	Absent
V. Parahaemolyticus	/mL	Absent	Absent	Absent	Absent

Table 3-4: Chemical Analysis of Marine Water Sample (Station 6 to Station 10)

PARAMETERS	Unit	ST 06			ST 07			ST 08			ST 09		
		SW	MW	BW	SW	MW	BW	SW	MW	BW	SW	MW	BW
pH	-	7.81	7.68	7.80	7.63	7.75	7.78	7.61	7.68	7.75	7.77	7.78	7.34
Temperature	°C	29.1	28.6	28.8	29.2	29.6	28.8	29.1	28.7	28.5	29.3	28.4	29
Color	Pt.Co	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Odor	-	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
SS	mg/L	14	16	14	15	11	13	10	12	11	13	14	14
Salinity	mg/L	44512	59920	65056	45368	55640	62488	40232	42800	45368	49648	40232	49648
DO	mg/L	6.1	5.7	5.3	5.9	5.6	5.1	6.2	5.4	5.2	6.2	5.8	5.1
Conductivity	s/cm	74157	99839	108349	75581	92692	104075	67016	71304	75599	82739	67003	82690
TOC		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
O&G	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PO4-	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Residual Chlorine	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Amm.N	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TKN	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Free Ammonia	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
COD	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BOD	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
As	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hg	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pb	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cd	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
H.Cr	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
T.cr	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cu	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zn	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Se	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ni	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CN	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
F	mg/L	0.85	1.18	1.27	1.26	1.20	1.50	0.94	1.03	1.22	1.26	0.97	1.04
S-2	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Mn	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fe	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NO3	mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PHc	%	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total coliform	MPN/100mL	<1.8			<1.8			<1.8			<1.8		

3.3 Conclusion

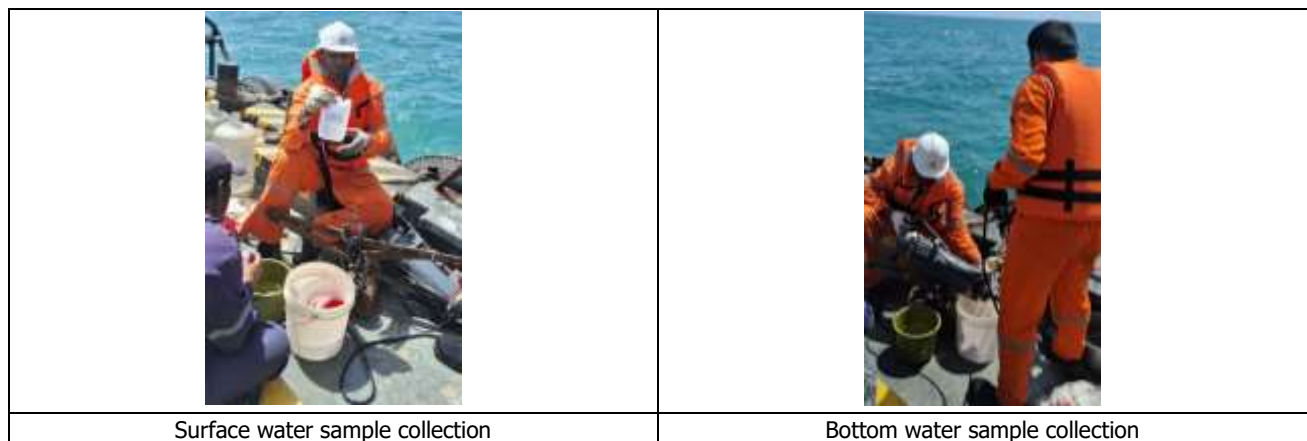
3.3.1 Chemical Analysis of Water Sample

- A pH at all sampling location was recorded from 7.17 to 7.81 and temperature varies from 28.2-29.7 °C.
- Odor at all location was Unobjectionable.
- Suspended solid in water samples were recorded from 10 mg/l to 16 mg/l.
- Conductivity in water samples varies from 83800 mS to 103900 s/cm.
- Salinity at all sampling location varies from 40232 mg/L to 65056 mg/L whereas Dissolve Oxygen varies from 5.1 mg/l to 6.3 mg/l
- Biological oxygen demand and chemical oxygen demand was undetected.
- Phosphorous, TKN, Free ammonia, PHC, TOC, Total Residual Chlorine and O & G were not detected at all locations.
- Ammonical Nitrogen, Total Phosphate, Phenol and Nitrate are observed in below detectable limit.
- Arsenic, Selenium, Copper, Mercury, Cadmium, Chromium, Selenium, Cyanide, Iron, Zinc, lead and Manganese are observed in below detectable limit.
- Fluoride observed in range between 0.85 to 3.09 mg/l at all station.
- Total coliform were recorded <1.8 MPN/100mL whereas Total Viable count varies from 100 CFU/mL to 2800 CFU/mL.
- E.Coli, Salmonella, staphylococcus, Pseudomonas aeruginosa, Shigella, Vibrio cholera and V. Parahaemolyticus were not detected.

3.3.2 Chemical Analysis of Sediment Sample

- A pH at all sampling location was recorded from 7.69 to 8.48 and temperature 28.1 °C to 29.6 °C at all the station.
- Sediment color were recorded dark brown in all the sampling locations and odor are unobjectionable.
- Conductivity varies from 55.5 mS to 64.6 mS whereas Salinity varies in range between 1271 g/kg to 1725 g/kg.
- Oil and grease, phenol and heavy metal like arsenic, mercury, cadmium, chromium, selenium, cyanide, manganese etc. was not detected.
- Heavy metals like Lead, Copper, Zinc, Nickel, Fluoride and Iron recorded in range from 0.015 to 0.028 g/kg, 0.002 to 0.008 g/kg, 0.0005 to 0.013 g/kg, 0.011 to 0.019 g/kg, 0.012 to 0.018 g/kg, respectively.
- Phosphorous and total phosphate was recorded in range between 0.011 g/kg to 0.018 g/kg and 0.013 g/kg to 0.022 g/kg, respectively.
- Nitrate concentration varies from 0.015 g/kg to 0.022 g/kg.
- PHC concentration was not detected.

Photographs 3-1: Sampling photographs





Plankton sample collection



Sediment sample collection

3.4 Team Members

Work presented in this report is done by KEC with active co-operation from Cairn India Ltd., KEC team members include:

Member 1 Dr. Manali Rathod (Ecologist)

Member 2 Dr. Khushali Pandya (Ecologist)

Member 3, Sapna Amin (Lab – In-charge)

Member 4, Hiralal Prajapati (Monitoring Specialist)

Member 5, Anup Ojha (Monitoring Specialist)

The work was carried out under the overall guidance of Mr. Sameer Kadam (Director)



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