ADITYA BIRLA

GRASIM

Ref. No. GIL/ENV/ 316/2023-24
Date: 30-11-2023

To,
The joint Director
Ministry of Environment, Forests and Climate Change
Govt. of India
Eastern Regional Office
A/3, Chandrasekharpur,
Bhubaneswar-751023

Sub: Six Monthly compliance report for the conditions of Environmental Clearance, issued by SEIAA, Odisha for expansion of production capacity of Caustic soda from 72000TPA to 105000TPA, its Bi-products and value added derivatives by Grasim Industries Limited, Ganjam.

Dear Sir,
We are enclosing herewith six monthly compliance report for the conditions of Environmental Clearance, issued by SEIAA, Odisha for expansion of production capacity of Caustic soda from 72000TPA to 105000TPA, its Bi-products and value added derivatives.

This is for your kind information.

Thanking you.
Yours faithfully,
For Grasim Industries Limited,
Chemical Division-Ganjam

Dakshinita Patnaik
For Ajay Kumar Gupta
Unit Head
Encl: As above
CC to:

1. Regional Director, Central Pollution Control Board, Southern Conclave, Block-502, 5th & 6th Floor, 1582, Rajdanga Main Road, Kolkata, WB-700107
2. Member Secretary, State Pollution Control Board, Odisha
   A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012

Grasim Industries Limited
Chemical Division, Ganjam
P.O: Jayshree - 761025
Dist. Ganjam, Odisha, India

Telephone +91-6811-254020, 254025
Fax +91-6811-254384

Website www.grasim.com
CIN L17124MP1947PLC000410
Email grasim.ganjam@adityabirla.com

Regd. Office P.O. Birlagram, Nagda - 456 331 (M.P)

Compliance status of conditions (Apr -2023 to Sept -2023) stipulated in Environmental Clearance of M/S. Grasim Industries Limited, for expansion of production Capacity of caustic soda from 72000 TPA to 105000 TPA its Bi-Products and value added Derivatives At-Jayshree, Ganjam

A. Specific Conditions

S.No.	Conditions Details	Compliance Status
1	Manufacturing process of Chlor alkali shall be based on membrane cell technology. No. Mercury cell shall be used	Manufacturing process is based on the Membrane Cell Technology.
2	The project proponent shall not establish the expansion project over mercury contaminated sites over which OSPCB has stipulated condition for remediation.	Construction activities are as per the approved layout plan approved by Odisha Pollution Control Board vide letter No. 10807 dated 10.07.2023
3	A study shall be carried out indicating impact of drawl of 1140 m3/day of additional ground water on the salinity of water due to ingress of saline water and submit the same to the SEIAA within three months from the date of issue of this letter.	A study report indicating impact of drawl of additional ground water on the salinity is submitted to SEIAA vide our letter no. GIL/UH/1207/2018-19 dated 01.02.2018
4	Project proponent shall carry out regular monitoring of ground water and soil around secured landfill for Hg content in water.	Monitoring of Hg content in Ground water and Soil around the secured landfill is being carried out on regular basis.(**Annexure no-I)**
5	Prior permission for the drawl of additional 1140 m3/day of CGWA/ Water Resource Dept. Govt. of Odisha shall be obtained.	We have received the permission from CGWA for the drawl of additional 1140 m3/day of water. As per vide letter no21-4(17)/SER/CGWA/2007-27 dated 07 Jun 2019
6	The project proponent shall obtain permission and recommendation of Archeological Survey of India regarding impact of proposed expansion on the Potagarh archeological site.	We have obtained permission from office of the superintendent, Odisha state Archeology on 2nd April 2018.vaild of NOC up to 26-05-2024. **(Attached as Annexure -II)**
7	The project proponent shall conduct a feasibility study for alternative sources of water to minimize the impact on ground water resources for proposed expansion project. After conducting feasibility	For long-term sustainable solution, we have also conducted study for alternate surface water source. We got the surface water withdrawal permission from the Water Resource Department Govt. of

	study they shall prepare action plan for sourcing water.	Odisha vide letter No 29485/WR/18.12.2019 and also we had already engage M/S. GPS engg. for this project to with drawl surface water from the Rushikulya river ,The project is going on
8	The project proponent shall explore the alternative of possibility to install desalination plant to minimize the ground water drawl.	The industry in exploring the alternative of possibility to install De-salination plant. M/S Indomer Costal Hydraulic Ltd Chennai is engaged to conduct marine monitoring and prepare detailed report for further approval processes. This is upcoming proposed project, We already received the NOC of CRZ for this project as on dated 10th.aug 2023 **(Annexure no -III)**
9	The project proponent shall increase the height of embankment of existing guard reservoir to avoid the over flow.	Already increased the height of the existing old guard pond. The same is completely disconnected from the treated effluent and surface water inflow.
10	The project proponent shall conduct the hydrological study for pre monsoon (April) post monsoon (November) of the area and submit the report to SEIAA Odisha by June 2018 as proposed.	Hydrological study for pre monsoon and post monsoon is already conducted by a third party agency and the final report is submitted to SEIAA, Odisha vide letter no GIL/UH/240/2018-19 dated 2nd.Ju1y 2018
11	The proposed expansion unit 525KLD of RO reject shall be generated which shall be further treated in Second RO. The second RO product of 395 KI.D shall be used in the cooling makeup and reject of 130 KLD shall be utilized in the industrial process like cylinder washing, fire hydrant makeup, and washrooms for flushing.	Complied with In addition, industry is installed wastewater recovery plant of capacity 600 KLD; where the reject water from RO is treated and re used in process, Moreover we had already installed 120 KLD capacity of ZLD (MEE) to reuse the industrial effluent and maintaining the Zero Liquid Discharge concept
12	Adequate air pollution control measures along with adequate stack shall be provided to boiler to control particulate emission within 50 mg/nm3. The waste gases shall be discharged in to the atmosphere through stack of adequate height as per CPCB/OSPCB	Hydrogen gas is used as main fuel and Furnace oil used as make up fuel in boiler for steam generation. Adequate stack height has been maintained. Regular monitoring is being conducted by MOEF recognized and NABL accrditated laboratory on regular basis **(Annexure-IV).**
13	The proponent shall take steps to increase the hydrogen utilization as fuel in the boiler.	Hydrogen utilization as fuel is 100% in 12 TPH capacity boiler.
14	Adequate scrubbing system shall be provided to control C12 emission less than 15 mg/Nm3 and control HCL	Adequate water scrubber is installed in HCI plant and Alkali scrubber in chlorine plant. Installation of Online Continuous Emission

	emission less than 35 mg/ Nm3. Online chlorine analyzer along with alarm indicator shall be installed in the chlorine stack with minimum reading of I PPM and it will be connected to DCS control room. Efficiency of scrubber shall be monitored regularly and maintained properly.	Monitoring System (OCEMS) in both the plant stacks which is connected to DCS control room and to CPCB/ OSPCB server.
15	The gaseous emissions (S02, NOx, C12, HCI) and particulate matter from Boiler and process stacks shall conform to the norms prescribed by CPCB/OSPCB from time to time. At no time the emission level shall go beyond the prescribed standard. The system shall be interlocked with the pollution control equipment's so that in case of increase in pollutants beyond permissible limit, plant should be automatically stopped. In event of failure of any pollution system adopted by the unit the respective unit shall not be restarted until the control measure are rectified to achieve the desired efficiency. Stack monitoring shall be done regularly and report shall be submitted to OSPCB and the Ministry's regional office at Bhubaneswar.	The gaseous emissions are well within the permissible norms. Interlocking facility is provided with APC. Stack monitoring is done be done regular basis and report submitted to OSPCB and the Ministry's regional office at Bhubaneswar. **(Attached as Annexure-V)**
16	The plant control measures for checking fugitive emission from all the venerable sources shall be provided. Fugitive emission shall be controlled by providing closed storage, closed handling and conveyance of chemicals/ materials, multi cyclone separators and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emission. Fugitive emission in work zone environment, product raw material storage area etc shall be regularly monitored and record maintained. The emission shall conform to the limits stipulated by OSPCB.	Major raw material salt is covered by Tarpaulin with adequate dyke wall. The other chemicals like Barium carbonate, soda ash etc. are stored in close go down. The finished products are in the form of liquid, which is stored in storage tanks, HCI and $C1_2$ storage tanks are connected to Sodium Hypo plant to avoid fugitive emission. Online Chlorine detectors (37 Nos) are installed near Chlorine and HCI handling area to monitor.

<table>
<tr><td>17</td><td>Proper hood along with suction facility and scrubbing arrangement should be provided in all the chlorine storage area. Alarm for chlorine leakage if any in the liquid chlorine storage area shall be provided along with automatic stat of the scrubbing system.</td><td>Chlorine storage tanks are always connected with hypo plant. A suction blower along with hood is also in place at chlorine filling area and is connected to hypo plant. Online chlorine detectors with alarm system is connected with DCS of Control room.</td></tr>
<tr><td>18</td><td>The proponent shall provide solar light system for all common areas, street lights, villages, parking around project area and maintain the same regularly. The proponent shall use solar/ renewable energy of 5% of the expected actual power requirement.</td><td>Installation of Solar lighting system over the roads, parking areas, colony is under progress. Power requirement, which is currently sourced through grid, have component of renewable energy in the form of Tariff. However, we will explore the possibility of solar power through generators located within the state of Odisha.</td></tr>
<tr><td>19</td><td>The gaseous emission from DG set shall be discharged through adequate stack height as per CPCB standard. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.</td><td>The existing DG sets have adequate stack height with acoustic enclosure .</td></tr>
<tr><td>20</td><td>The company shall upload the status of compliance of the stipulated environmental Clearance conditions including results of monitored data on its website and shall update the same periodically. It shall simultaneously be send to the regional office of MOEF &CC, Bhubaneswar the respective zonal office of CPCB and the OSPCB. The levels of PMIO, S02, NOx, C12, HCL and CO in ambient air and emission from the stacks shall be monitored and displayed at a convenient location near the main gate of the company and at important public places.</td><td>The compliance conditions of EC is being uploaded on our website regularly; also submitting the compliance status along with monitoring data to Regional office of MOEF on regular basis.

Stack and ambient air quality monitoring data are being displayed at factory main gate.</td></tr>
<tr><td>21</td><td>Efforts shall be made to reduce the fresh water required by adopting 3R's (reduce recycle and reuse) concept.</td><td>It is our constant endeavor to reduce water consumption through 3R principle. Various initiatives have been taken like recycle of Vapors condensate, seal cooling water, in process.</td></tr>
<tr><td>22</td><td>Industrial effluent generation shall not exceed 95 m3/day and treated in ETP. Treated effluent shall be collected in guard pond. Regular water quality monitoring of guard pond shall be carried</td><td>Effluent discharge is limited to 95 KLD
<table>
<tr><th>SI</th><th>Month</th><th>Effluent Qty(m3/Day)</th></tr>
<tr><td>1.</td><td>Apr-23</td><td>1257</td></tr>
<tr><td>2.</td><td>May-23</td><td>1158</td></tr>
</table></td></tr>
</table>

	out and water quality of effluent shall meet the norms prescribed by CPCB/OSPCB. Domestic waste water shall be treated in STP. Water quality of treated effluent shall be monitored regularly.	3. Jun-23 1120 4. Jul-23 1268 5. Aug-23 1245 6. Sep-23 1114 The treated effluent is discharged to new guard pond (Geo synthetic clay lined) for solar evaporation. Online Effluent Quality Monitoring System (EQMS) is provided to monitor the parameters like pH, TSS and Flow. The data are continuously transferred to OSPCB/CPCB server. Company is installed Sewage Treatment Plant of 200 KLD capacity to treat domestic effluent, generated in plant and colony. The treated effluent is being used for horticulture purposes. Quality is monitored regularly through NABL accrditated, MOEF recognized and OSPCB empaneled laboratory **(Annexure-VI)**
23	No effluent shall be discharged outside the premises and Zero discharge concepts shall be adopted.	No effluent is discharged outside the premises. The Process effluent is being treated in the Existing treatment plant (ETP) and treated effluent is stored in the New Guard pond for solar evaporation. Installation of Multi Effect Evaporation Unit (MEE) and ATFD is under progress to recover water from process wastewater.
24	Process effluent / any waste water shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Storm water drains are separate from process streams. The storm water is passed through settling pond.
25	The company shall obtain Authorization for collection, Storage, and disposal of hazardous waste under Hazardous and other waste (Management and transboundary Movement) rules -2016 for management of hazardous waste and prior permission from OSPCB shall be obtained for disposal of Solid/ hazardous waste.	We have valid authorization from OSPCB till 31.03.2025
26	The proponent shall strictly comply with the rules and guidelines under manufacturer, Storage and Import of Hazardous Chemicals (MSIHC) Rules 1989 and amended. All transportation of	Complied with

	hazardous chemicals shall be as per the Motor Vehicle Act 1989.	
27	The company shall undertake following waste minimization measures. i. Metering and control of quantities of active ingredients to minimize waste. ii. Re use of by products from the process as raw materials or as raw material substitutes in other process iii. Use of automated filling to minimize spillage iv. Use of closed feed system into batch reactors. v. Venting equipment's through vapor recovery system vi. Use of high pressure hose for equipment cleaning to reduce waste water generation.	We have following arrangements 1. Metering of water uses at various points. 2. Concentrates from water scrubber is used in product. 3. Lean brine is recycled to process. 4. Better quality salt used for low sludge generation. 5. HCI storage tanks are connected to Hypo plant to avoid emission and vapor recovery. 6. Continuous monitoring on vents and stacks. 7. Continuous process with closed vessels and pipes. 8. High/ low level indications in the storage tanks with automatic level controller through DCS. 9. Installation of waste water recovery plant 10. Installation of MEE and ATFD is under commissioning
28	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per norms.	We have fire hydrant system, fire extinguishers, smoke detectors, Fire tenders are installed with alarm system.
29	Occupational health surveillance of the workers shall be done on regular basis and record maintained as per factories Act	Occupational health surveillance of the workers is carried out on regular basis as per the factories Act and records maintained.
30	Green belt shall be developed in 42.90 (33% of the area as proposed) as per the CPCB guidelines in consultation with DFC). Thick greenbelt with suitable plant species shall be developed around the proposed pesticide4 unit to mitigate the odor problem, Selection of plant species shall be as per CPCB guideline	Industry is Engaged for plantation activities in the vacant land, Streets, School premises etc. That is approximately 42 acres and is about 37% of the total land. In addition to distribution of seedlings free of costs. This year more than 2000 seedlings planted in an area of 2acres. We have targeted plantation over 2000 seedlings in next year
31	All commitments made during the public hearing/ public consultation meeting held on 23rd May 2017 shall be satisfactorily implemented and adequate	Commitments made during the public hearing / consultation are being implemented.

	budget provision should be made accordingly	
32	At least 5% of the total cost of project should be earmarked towards enterprise Social Commitment based on local needs and item wise detail along with time bound action plan should be prepared and submitted to Ministry's Regional Office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.	An action plan in this regard has been submitted vide our letter no. GIL/UH/22/ 2018-19 dated 06.04.2018 and being implemented.
33	The company shall submit within three months their policy towards Corporate Environment Responsibility, which shall inter alia addresses i. Standard Operating process/ procedures to being into focus any infringement/ deviation/ violation of environmental of environmental and forest norms/ conditions. ii. Hierarchical System or administrative order of the company to deal with environmental issues and ensuring compliance to the environmental clearance conditions. iii. System Of reporting of non compliance/ violation environmental norms to the board of Directors of the company and / or stakeholders or share holders.	The same has been submitted on 01.02.2018.
34	Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after completion of the project. All the construction wastes shall be managed so that there is	Required arrangements were provided during execution of project.

	no impact on the surrounding environment.	

B. General Conditions

S.No.	Conditions Details	Compliance Status
1	The project authorities shall strictly adhere to the stipulation made by OSPCB	We abide by this.
2	The national Ambient Air Quality Emission standards issued by Ministry Vide GSR No. 826(E) dated 16th November 2009 shall be followed.	Ambient Air quality is monitored regularly by NABL accredited, MOEF recognized, OSPCB empaneled laboratory, and the same will be continued. The reports attached as **(Annexure-VII.)** In addition, one CAAQMS is installed within the premises and two more stations are plane to install.
3	No further expansion or modification in the plant shall be carried out without prior approval of the MoEF &CC, Govt of India. In case of deviation or alternations in the project proposals from those submitted to SEIAA, Odisha for clearance a fresh reference shall be made to the SEIAA, Odisha to assess the adequacy of conditions imposed and to add additional environmental protection measures required if any.	Noted
4	The location of ambient air quality monitoring stations shall be decided in consultation with the OSPCB and it shall be ensured that at least one station is installed in the up wind and down wind direction as well as where maximum ground level concentration are anticipated.	Ambient Air quality monitoring are being carried out six locations regularly by NABL accredited, MOEF recognized, board empaneled laboratory, for PM25 PM1O, SOX, NOX, Cl_2, HCI and CO (as per specific condition No 20 of Environmental Clearance) the same will be continued. The reports of monitoring are attached as(Annexure-VII). In addition, three no of AAQMS already set up as per the statutory requirement
5	The overall noise level 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 level noise shall conform to the standards	Effective control measures like periodic maintenance of equipment's, acoustic enclosures in DG is provided. Noise level in the periphery of industry is measured regularly. The reports are attached as **(Annexure-VIII)**

	prescribed under EP act 1986 Rules 1989 viz 75 dBA (daytime) and 70 dBA (night-time) .	
6	The company shall harvest rainwater from the roof tops of buildings and storm water drains to recharge the ground water and use the same water for process activities of the project to conserve fresh water.	Company has taken measures for ground water recharging of 2,23,000 m3/Year comprising of Check dam and roof top collection. The detail of ground water recharge measures are summarized in **(Annexure-IX)**
7	During transfer of materials, spillage shall be avoided and garland drains be constructed to avoid mixing of accidental spillage with domestic waste water and storm water drains.	The products are transferred through pipeline. Storage area have adequate dyke wall. Process area like brine plant, Cell house, evaporation plant is connected to ETP to avoid any spillage to outside. Other chemicals are stored in shed. Domestic wastewater and storm water drains are separate from each other.
8	Usage of personal protection equipment by all employees/ workers shall be ensured.	Mapping of site/ section specific PPE requirement has been done and displayed, depending upon the type of job being carried out like, Hot work, work at height, work on chemicals, confined spaces etc. Accordingly, PPE are provided to all workers.
9	Training shall be imparted to all employees on safety and health aspects of chemical handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken regular basis. Training to all employees on handling of chemicals shall be imparted.	In house and outsourced training being carried out for employees on safety, health and plant operation aspects.
10	The company shall also comply with all the environmental protection measures and safe guards proposed in the project report submitted to SEIAA, Odisha. All the recommendations made in the EIA/ EMP in respect of environmental management, risk mitigation measures and public hearing relating to project shall be implemented.	We abide by this.
11	The company shall undertake CSR activities and all relevant measures for improving socioeconomic conditions of the surrounding area.	An action plan in this regard has been submitted vide our letter no. GIL[UH/ 22/2018-19 dated 06.04.2018 and is being implemented .

12	The company shall undertake eco-development measures including community welfare measures in the project area for overall improvement of environment.	Eco-development plan has been submitted to OSPCB vide our letter No. GIL/UH/30/2018-19 dated 13.04.2018 and being implemented for overall improvement of Environment.
13	A separate environment management cell equipped with full-fledged laboratory facilities shall be set up to carry out environmental management and monitoring functions.	We have a full-fledged Environment Cell, laboratory, and head of the cell report to Unit Head.
14	The company shall earmark sufficient funds for recurring costs per annum to implement the conditions stipulated by SEIAA, Odisha 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.	We have separate budget allocation for Environment Management. The budget allocated is specifically used for complying various stipulation made by CPCB, OSPCB, SEIAA and MoEF.
15	A copy of clearance letter shall be sent by the project proponent to the concerned panchayat/ Zilla Parisad / Municipal Corporation,, urban Local body and local NGO, if any from who suggestions / presentations if any were received while processing the proposal.	We have given public notice in two local newspaper regarding environment clearance accorded by the project and its availability on web page. We have not received any suggestion.
16	The project proponent shall also submit the six monthly compliance reports on status of compliance of the stipulated Environment clearance Conditions including results of monitored data (both in hard copies as well as by Email) to the respective regional office of MoEF & CC , Bhubaneswar the respective zonal office of CPCB and OSPCB. A copy of the Environmental clearance and six monthly compliance status report shall be posted on the website of the company.	We abide by this.
17	The environmental statement for each financial year ending 31st march in Form-V as is mandated shall be submitted to OSPCB as prescribed under EP Rules 1986 as amended	Is being submitted every year and will be complied in future also.

	subsequently, shall also be put on the website of the company along with status of compliance of environment clearance conditions and shall also be sent to regional office of MoEF & CC, Bhubaneswar b e-mail.	
18	The project proponent shall inform the public that the project has been accorded environment clearance by SEIAA, Odisha and copies of clearance letter are available with the SPCB and may be seen at website of the SEIAA, Odisha. This shall be advertised within seven days from the date of issue of 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 locality concerned and a copy of the same shall be forwarded to the concerned regional office of the ministry	Complied. We have submitted the details vide our letter No. GIL/UH/973/2017-18 dated 17.11.2017
19	The project authorities shall inform the regional office of MoEF &CC, Bhubaneswar as well as to SEIAA, Odisha the date of financial closure and the final approval of the project by the concerned authorities and the date of the start of the project	Financial closure not project is self-financed internal accrual.
20	The above conditions shall be enforced, inter alia under the provisions of the water (prevention &Control of Pollution) Act 1974, the Air (prevention and control of pollution) Act 1981, the Environment Protection Act 1986, Hazardous & other waste Management & Transboundary Movement) Rules 2016 and Public (Insurance) Liability Act 1991 along with their amendments.	Noted
21	Any appeal against this clearance shall lie within the National Green Tribunal, if preferred within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act 2010	We abide by this.

Annexure-01

CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

An ISO 9001-2015 & OHSAS 45001:2018 Certified Company, Empanelled with OCCL, ORSAC and SPCB of Govt. of Odisha
Accredited by NABET, QCI for EIA Studies as 'A' Category Consultant Organization. Empanelled with PCCF(Wildlife) &CWLW,Odisha
Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)
MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

Report No. - CEMC/GIL/250823/W1 **Issued Date-25.08.2023**

DRINKING WATER QUALITY TEST REPORT

Client Name & Address	**M/s. Grasim Industries Limited (Chemical Division Ganjam), Ganjam, Odisha.**
Work Order No.	8450005736 Dated on 08.07.2023
Nature of Sample	Ground Water
Sampling Date	11.08.2023
Date of Sample Received	12.08.2023
Date of Analysis	12.08.2023 to 23.08.2023
Sampling By	Rabindranath Das
Sample Location	Kalyanipur Borewell No-3
Testing Method	APHA Method
Reference No.	CEMC-25082023W1

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Standard as per IS: 10500, 2012		Result
			Acceptable Limit	Permissible Limit	
1	Colour	Hazen	5	15	<5
2	Odour	--	AL	AL	AL
3	Taste	--	AL	AL	AL
4	Turbidity	NTU	1	5	<1
5	pH Value @ 25°C	--	6.5-8.5	No Relaxation	6.38
6	Total Hardness (as $CaCO_3$)	mg/l	200	600	420
7	Iron (as Fe)	mg/l	0.3	No Relaxation	0.53
8	Chloride (as Cl)	mg/l	250	1000	162.9
9	Residual, free Chlorine	mg/l	0.2	1.0	ND
10	Total Dissolved Solids	mg/l	500	2000	1510
11	Calcium (as Ca)	mg/l	75	200	113.8
12	Magnesium (as Mg)	mg/l	30	100	33.05
13	Copper (as Cu)	mg/l	0.05	1.5	<0.03
14	Manganese (as Mn)	mg/l	0.1	0.3	<0.05
15	Sulphate (as SO_4)	mg/l	200	400	91.4
16	Nitrate (as NO_3)	mg/l	45	No Relaxation	37.7
17	Fluoride (as F)	mg/l	1.0	1.5	0.47
18	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	0.002	<0.001
19	Mercury (as Hg)	mg/l	0.001	No Relaxation	<0.001
20	Cadmium (as Cd)	mg/l	0.003	No Relaxation	<0.003
21	Selenium (as Se)	mg/l	0.01	No Relaxation	<0.001
22	Arsenic (as As)	mg/l	0.01	0.05	<0.001
23	Cyanide (as CN)	mg/l	0.05	No Relaxation	ND
24	Lead (as Pb)	mg/l	0.01	No Relaxation	<0.01
25	Zinc (as Zn)	mg/l	5	15	<0.05
26	Chromium (as Cr)	mg/l	0.05	No Relaxation	<0.05
27	Mineral Oil	mg/l	0.5	No Relaxation	<0.05

Environmental Studies (EIA & EMP),Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842

E-mail: cemclab@yahoo.in

28	Total Alkalinity (as $CaCO_3$)	mg/l	200	600	398
29	Aluminium (as Al)	mg/l	0.03	0.2	<0.01
30	Boron (as B)	mg/l	0.5	1.0	<0.2
31	Salinity	ppt	--	--	0.294
32	Total Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
33	Faecal Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
34	E.Coli	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
35	Depth of Water Level	Meter	--	--	--

NB: ND- Not Detectable, AL- Agreeable, MPN-Most Probable Number

End of Report

Authorized Signatory **Seal of Laboratory**

Notes:

- The result given above related to the tested sample/as received. The customer asked for the above test only.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

Environmental Studies (EIA & EMP),Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

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Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842

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CENTRE FOR ENVOTECH AND MANAGEMENT CONSULTANCY PVT. LTD.

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Enlisted in Construction Industry Development Council (CIDC) established by the Planning Commission (Govt. of India)
MoEF&CC, Govt. of India, Recognised Environment Laboratory under Environment (Protection) Act, 1986 & NABL Accredited Laboratory

Report No. - CEMC/GIL/250823/W2 **Issued Date-25.08.2023**

DRINKING WATER QUALITY TEST REPORT

Client Name & Address	**M/s. Grasim Industries Limited (Chemical Division Ganjam), Ganjam, Odisha.**
Work Order No.	8450005736 Dated on 08.07.2023
Nature of Sample	Ground Water
Sampling Date	11.08.2023
Date of Sample Received	12.08.2023
Date of Analysis	12.08.2023 to 23.08.2023
Sampling By	Rabindranath Das
Sample Location	Kalyanipur Borewell No-4
Testing Method	APHA Method
Reference No.	CEMC-25082023W2

ANALYSIS RESULT

Sl. No	Parameter	Unit of measurement	Standard as per IS: 10500, 2012		Result
			Acceptable Limit	Permissible Limit	
1	Colour	Hazen	5	15	<5
2	Odour	--	AL	AL	AL
3	Taste	--	AL	AL	AL
4	Turbidity	NTU	1	5	<1
5	pH Value @ 25°C	--	6.5-8.5	No Relaxation	6.32
6	Total Hardness(asCaCO3)	mg/l	200	600	496
7	Iron (as Fe)	mg/l	0.3	No Relaxation	0.64
8	Chloride (as Cl)	mg/l	250	1000	192.9
9	Residual, free Chlorine	mg/l	0.2	1.0	ND
10	Total Dissolved Solids	mg/l	500	2000	1730
11	Calcium (as Ca)	mg/l	75	200	113.8
12	Magnesium (as Mg)	mg/l	30	100	51.5
13	Copper (as Cu)	mg/l	0.05	1.5	<0.03
14	Manganese (as Mn)	mg/l	0.1	0.3	<0.05
15	Sulphate (as SO_4)	mg/l	200	400	139.8
16	Nitrate (as NO_3)	mg/l	45	No Relaxation	48.4
17	Fluoride (as F)	mg/l	1.0	1.5	0.59
18	Phenolic Compounds (as C_6H_5OH)	mg/l	0.001	0.002	<0.001
19	Mercury (as Hg)	mg/l	0.001	No Relaxation	<0.001
20	Cadmium (as Cd)	mg/l	0.003	No Relaxation	<0.003
21	Selenium (as Se)	mg/l	0.01	No Relaxation	<0.001
22	Arsenic (as As)	mg/l	0.01	0.05	<0.001
23	Cyanide (as CN)	mg/l	0.05	No Relaxation	ND
24	Lead (as Pb)	mg/l	0.01	No Relaxation	<0.01
25	Zinc (as Zn)	mg/l	5	15	<0.05
26	Chromium (as Cr)	mg/l	0.05	No Relaxation	<0.05
27	Mineral Oil	mg/l	0.5	No Relaxation	<0.05

Environmental Studies (EIA & EMP),Monitoring, Forest Diversion Planning, DPR, Wildlife Management Plan, Hazardous & Safety Studies, RS& GIS, Baseline Survey, Hydrological & Geological Studies, Socio-economic Studies, DGPS & ETS Survey.

Regd. Office: Plot No.-522/3458, Near Utkal Hyundai, Opposite Apex College, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 9861032826

E-mail- cemc_consultancy@yahoo.co.in, cemc122@gmail.com, website: www.cemc.in.

Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842

E-mail: cemclab@yahoo.in

Report No. - CEMC/GIL/250823/W2 **Issued Date-25.08.2023**

28	Total Alkalinity (as $CaCO_3$)	mg/l	200	600	270
29	Aluminium (as Al)	mg/l	0.03	0.2	<0.01
30	Boron (as B)	mg/l	0.5	1.0	<0.2
31	Salinity	ppt	--	--	0.348
32	Total Coliform	MPN/100,ml	Absent in 100 mL Sample	Absent	Absent
33	Faecal Coliform	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
34	E.Coli	MPN/100 ml	Absent in 100 mL Sample	Absent	Absent
35	Depth of Water Level	Meter	--	--	--

NB: ND- Not Detectable, AL- Agreeable, MPN-Most Probable Number

End of Report

Authorized Signatory **Seal of Laboratory**

Notes:

- The result given above related to the tested sample, as received. The customer asked for the above test only.
- This Test Report shall not be reproduced wholly or in part without prior written consent of the laboratory.
- The samples received shall be destroyed after two weeks from the date of issue of the Test Report unless specified otherwise.
- This Test Report shall not be used in any advertising media or as evidence in the court of Law without prior written consent of the laboratory.

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Laboratory At: Plot No. 800/1274, Johal, Pahal, Bhubaneswar-752101, Odisha, India, Mobile: 7752014842

E-mail: cemclab@yahoo.in

Annexure-02

OFFICE OF THE SUPERINTENDENT: ODISHA STATE ARCHAEOLOGY:
1ST FLOO90R: SANSKRUTI BHAWAN: BHUBANESWAR: 751014

No. 2693 /ARCH., Dated the., 19-06-2023

From,

The Superintendent,
Odisha State Archaeology,
Bhubaneswar.

To,

Sri Ajaya Kumar Gupta,
Unit Head, GRASIM Industries Limited,
Chemical Division, Ganjam,
Po- Jayashree, Dist-Ganjam (Odisha),
Pin-761025

Sub: Renewal of *"No Objection Certificate"*.

Ref:- Your letter No.GIL/UH/050/2023-24 dtd.18.04.2023.

Sir,

In inviting a reference to the subject cited above, I am to say that *"No Objection Certificate"* was given by this office for the proposed expansion of your plant vide letter No.2110/Arch., Dt.27.04.2022 for a period of one year which expired on 26.05.2023. No past records are available regarding negative impact of the plant i.e GRASIM Industries Ltd. to the State Protected Monument of Ganjam Fort.

Therefore there will be **No Objection by this Office** for the proposed expansion of the plant by the GRASIM Industries Ltd. Chemical Division, Ganjam. During execution of the project if any archaeological remains are noticed, the same may be brought to the knowledge of the undersigned immediately. The permission is valid for one year upto 26.05.2024 and subject to renewal.

Yours faithfully

19/6/23

Superintendent
Odisha State Archaeology
Bhubaneswar

F. NO.11/12/2023-IA.III
Government of India
Ministry of Environment, Forest and Climate Change
IA-III Section (CRZ)

Indira Paryavaran Bhawan
Jor Bagh Road
New Delhi – 110003
Dated: 10th August, 2023

To

M/s Grasim Industries Private Limited
Grasim Industries,
Chemical Division, Ganjam,
Odisha- 761025
Email: suchismita.patnaik@adityabirla.com

Subject: Proposal for Setting up of 5 MLD desalination plant at Ganjam by M/s Grasim Industries Private Limited – Regarding.

Sir,

This has reference to your proposal No. IA/OR/CRZ/418559/2023 dated 14/03/2023 on the above mentioned project proposal for CRZ Clearance in accordance with the provisions of the Coastal Regulation Zone (CRZ) Notification, 2019 issued under the Environment (Protection) Act, 1986.

2. The Ministry of Environment, Forest and Climate Change has examined the proposal for Setting up of 5 MLD desalination plant at Ganjam by M/s Grasim Industries Private Limited.

3. The proposal was considered by the Expert Appraisal Committee (EAC) for Infrastructure Development, Coastal Regulation Zone, Building/Construction and Miscellaneous projects, in its 323rd meeting held on 23/03/2023 and 331st meeting held on 21/06/2023. The project proponent (M/s Grasim Industries Private Limitted) and their consultant (M/s Indomer Coastal Hydraulics (P) Ltd.) has made detailed presentation and informed the followings:

(i) The proposal is for CRZ clearance to the project for setting up of 5 MLD desalination plant at Ganjam by M/s Grasim Industries Pvt. Ltd.

(ii) The distance of Intake Channel: LFP 1 to river = 10m and Outfall Pipeline: LFP 1 to LFP 2 = 2422m (Across river), LFP 2 to diffuser = 800 m.

(iii) The proposed Marine facilities is as:

Particulars	UTM Coordinate (Zone 45)		Geographical Coordinates (WGS – 84)		Shifting
	X (m)	Y (m)	Latitude, N	Longitude, E	
LFP 1 – River side (Intake and outfall)	294996	2143819	19°22'40.98"	85°02'53.02"	Same
Intake Channel Distance from LFP 1 into River = 10 m Depth = 0.2 m CD Volume = 12.5 MLD	294991	2143811	19°22'40.72"	85°02'52.84"	Same

LFP 2 (Shifted) – Open seaside (Outfall) Distance of outfall pipeline across the river, i.e., LFP 1 to LFP 2 = 2142 m	296201	2142253	19°21'50.55"	85°03'34.91"	550 m South
Outfall (Shifted) Distance from LFP 2 to diffuser at open sea = 1000 m; Depth = 10.6 m CD Volume = 8 MLD	296639	2141354	19°21'21.47"	85°03'50.26"	635 m South

(iv) Locations of the Outfall LFP & diffuser are as follows:

Pipeline Crossing	Chainage	Pipeline laying method
River crossing at LFP 1	Ch: 0 m to Ch: 412 m (412 m)	Lay on the bed
Pipeline bordering Island 1	Ch 412 m to Ch: 1857 m (1445 m)	Open Trenching
North of Riverbank to HTL (covering LFP 2)	Ch: 1857 m to Ch: 2142 m (285 m)	HDD
LFP 2 to Outfall	Ch: 2142 m to Ch: 3142 m (1000 m)	Open Trenching

(v) The status of various project activities are as:

Sl. No.	Project Details	CRZ- Classification	Length (m)	Total (m)
1.	Proposed Desalination Outfall Pipeline	CRZ-IB	405.72	3222.48
		No Development Zone (CRZ-III)	172.74	
		CRZ - IVA	704.84	
		CRZ – IVB	1939.18	
2.	Proposed Infiltration Gallery Pipeline	No Development Zone (CRZ-III)	215.62	400.6
		CRZ – IVB	184.99	

(vi) The sea water intake: 12.5 MLD and after desalination process, 5 MLD is product water and 7.5 MLD is brine reject.

(vii) The total cost of the project ₹30.0 Crore.

(viii) The Odisha Coastal Zone Management Authority has recommended the proposal for CRZ clearance vide its Letter No. OCZMA/33/2022/5/OCZMA, dated 19/01/2023 and activities are permissible / regulated under Para 5.1.2 (ii), 5.1.2 (xiv), 5.1.2 (xv), 5.1.2 (xviii), 5.3 (i), 5.4 (iii), 5.4 (xiii) of CRZ Notification 2019.

4. The Committee deliberated on the proposal and noted that responses of project proponent are satisfactory. Further, the committee opined that in place of open trenching method of laying across Island within Rushikulya River, HDD may be considered in view expected exposure due to morphological changes of river. In response PP also agreed to implement the same.

5. The Committee, after detailed deliberations and considering the submissions made by the project proponent, has recommended the proposal for CRZ Clearance, subject to certain specific conditions, as stipulated during its 331st meeting held on 21/06/2023 other than standard conditions.

6. Based on the recommendation of the Odisha Coastal Zone Management Authority and considering the submissions made by the project proponent, the Ministry of Environment, Forest and Climate Change, in acceptance of the recommendations of the Expert Appraisal Committee (CRZ), hereby accords CRZ Clearance to the project **for "Setting up of 5 MLD desalination plant at Ganjam by M/s Grasim Industries Private Limited"** under the provisions of the CRZ Notification, 2019 and amendments thereto, subject to the compliance of terms and conditions as under:-

PART A – SPECIFIC CONDITIONS:

(i) All construction shall be strictly in accordance with the provisions of the CRZ Notification, 2019, as amended from time to time.

(ii) The pipeline across Island within Rushikulya River should be laid through Horizontal Directional Drilling (HDD) method.

(iii) There will be no construction activity during the turtle nesting season, if any from 1st January to 30th April of every year.

(iv) In order the preserve the adjacent turtle nesting ground, de-weeding and beach cleaning activities should be carried out throughout two months prior to the nesting season in consultation with state forest department. 2.0 Crore has been allocated as a part of EMP for the same and to be used exclusively for beach cleaning, sea turtle nest and hatchling monitoring activities by the state forest department.

(v) As a part of EMP, Zoological Survey of India or any such nationally reputed government or academic institute will be provided with state of art laboratory equipment that can be used for high quality academic and research purpose for marine and coastal biodiversity.

(vi) Any temporary physical infrastructure setup and excavated material during laying of pipelines shall not be dumped in water bodies or adjacent areas and the site shall be restored to its original condition after completion of construction of work.

(vii) No storage reservoir for sea water shall be permitted and only pipelines conveyance system shall be installed.

(viii) No groundwater shall be extracted within the CRZ area to meet the water requirements during the construction and/or operation phase of the project.

(ix) Permanent labour camp, machinery and material storage shall not be set up in the CRZ area.

(x) The project proponents certify that there is no legal restriction on the proposed project activities at the proposed site. However, Project Proponent shall comply order/direction, if any, issued by Hon'ble Court/tribunal on the project.

(xi) All the conditions stipulated by the Odisha Coastal Zone Management Authority for CRZ clearance under CRZ Notification, 2019 *vide* letter no. OCZMA/33/2022/5/OCZMA, dated 19/01/2023 and commitments made by the PP before the OCMA and EAC shall be followed in letter and spirit.

(xii) All necessary clearance from the concerned authority, as may be applicable should be obtained prior to commencement of project or activity.

PART B - GENERAL CONDITIONS:

(i) Management of solid waste in accordance with the Solid Waste Management Rules, 2016 shall be strictly implemented.

(ii) 'Consent to Establish' and/or 'Consent to Operate' shall be obtained from State Pollution Control Board under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and/or the Water (Prevention and Control of Pollution) Act, 1974, as may be applicable.

(iii) Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of Competent Authority.

(iv) All liquid waste arising from the proposed development will be disposed of as per the norms prescribed by Central/State Pollution Control Board. There shall not be any disposal of untreated effluent into the sea/coastal water bodies. It shall be ensured that the wastewater generated is treated in the STP as committed by the project proponent. The treated waste water shall be reused for landscaping, flushing and/or HVAC cooling purposes etc. within the development. The project proponent should also make alternate arrangement for situation arising due to malfunctioning of STP. There shall be regular monitoring of standard parameters of the effluent discharge from STP under intimation to the SPCB.

(v) Any hazardous waste generated during construction phase, shall be disposed off as per applicable rules and norms with necessary approvals of the State Pollution Control Board.

(vi) A copy of the clearance letter shall be uploaded on the website of the concerned State Coastal Zone Management Authority/State Pollution Control Board. The Clearance letter shall also be displayed at the Regional Office, District Industries Centre and Collector's Office/Tehsildar's office for 30 days.

(vii) A six-monthly monitoring report shall need to be submitted by the project proponent to the concerned Regional Office of this Ministry regarding the implementation of the stipulated conditions.

(viii) The Ministry of Environment, Forest & Climate Change or any other Competent Authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.

(ix) Full co-operation shall be extended to the officials from the Regional Office of MoEF&CC, during monitoring of implementation of environmental safeguards stipulated. It shall be ensured that documents/data sought pertinent is made available to the monitoring team. A complete set of all the documents submitted to MoEF&CC shall be forwarded to the concerned Regional Office of MoEF&CC.

(x) In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry.

(xi) The Ministry reserves the right to add additional safeguard measures subsequently, if considered necessary, and to take action to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner, including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, for non-compliance.

(xii) All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponent from the respective Competent Authorities.

(xiii) 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 CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board (SPCB) and may also be seen on the website of the Ministry of Environment, Forest and Climate Change at **https://parivesh.nic.in/**. The advertisement should be made within Seven days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the concerned Regional Office of this Ministry.

(xiv) 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.

(xv) The proponent shall upload the status of compliance of the stipulated 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&CC, the respective Zonal Office of CPCB and the SPCB.

(xvi) 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 project proponent along with the status of compliance of clearance conditions and shall also be sent to the respective Regional Office of the Ministry by e-mail.

7. This 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.

8. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the CRZ clearance, if implementation of any of the above conditions is not found satisfactory.

9. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment (Protection) Act, 1986.

10. Any appeal against this CRZ clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

11. The above conditions shall 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 and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India/High Courts and any other Court of Law relating to the subject matter.

12. This issues with approval of the Competent Authority.

(Dr. H. Kharkwal)
Scientist 'E' (CRZ)

Copy to:

1. The Additional Chief Secretary, Forest, Environment and Climate Change Department, Govt. of Odisha, Kharavel Bhavan, Bhubaneswar, Odisha.
2. The Deputy DGF (C), MoEF&CC, Integrated Regional Office, A/3, Chandersekharpur, Bhubaneswar – 751023, Odisha.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110032.
4. The Member Secretary, Odisha State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit – VIII, Bhubaneswar - 751012, Odisha.
5. The Member Secretary, Odisha Coastal Zone Management Authority 1st Floor, Administrative Building,Regional Plant Resource Centre Campus, Nayapalli, Bhubaneswar- 751015, Odisha.
6. Monitoring Cell, MoEF&CC, Indira Paryavaran Bhavan, New Delhi.
7. Guard File/ Record File/ Notice Board/MoEF&CC website.

(Dr. H. Kharkwal)
Scientist 'E' (CRZ)

Visiontek Consultancy Services Pvt. Ltd.

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- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

TEST REPORT

Ref: **Envlab/23-24/TR- 05052** *Date:* **05.08.2023**

Name & Address of the Customer	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**22.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Source Emission**	Sampling Procedure	:	VCSPL/SOP/003, Dt. 01.08.2019
Identification by Customer	:	**ST-6**	Sampling Location	:	Stack attached to Boiler
Sample Condition	;	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

1. Chemical Testing

A. Atmospheric Pollution

1. General Information :		
1.	Emission due to	Combustion of Light Diesel Oil
2.	Material of construction of stack	M. S.
3.	Shape of stack	Circular
4.	Whether stack is provided with permanent platform & Ladder	Yes
2. Physical Characteristics of Stack :		
1.	Height of stack from ground level	35.0 m
2.	Diameter of stack at sampling point	2.25 m
3.	Height of the sampling point from ground level	32.5 m
4.	Area of stack	8.457 ^{2}
3. Analysis/Characteristic of Stack :		
1.	Fuel used	LDO
2.	Fuel Consumption	-
4. Pollution :		
1.	Details of pollution control devices attached with the stack	Boiler

5. Results of sampling & Analysis of Gaseous emission :

Sl. No.	Parameters	Test Method	Standard as per SPCB	Unit of Measurement	Analysis Results
1.	Stack Temperature	IS 11255: Part-3, (2008) RA 2019	--	^{0}K	**418**
2.	Velocity	IS 11255: Part-3, (2008) RA 2019	--	m/sec	**12.56**
3.	Quantity of gas flow	IS 11255: Part-3, (2008) RA 2019	--	Nm^3/Hr	**187562.56**
4.	Particulate Matter as PM	IS 11255: Part-I (1985), RA 2019	**50.0**	mg/Nm^3	**32.4**
5.	Sulphur Dioxide as SO_2	IS 11255: Part-2, 2019	**600.0**	mg/Nm^3	**78.4**
6.	Oxides of Nitrogen as NOx	IS 11255: Part-7, 2017	**300.0**	mg/Nm^3	**52.8**

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5. The laboratory's responsibility under this report is limited to; proven willful negligence.

*** End Report***

Reviewed by

Approved by

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

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- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

TEST REPORT

Ref: **Envlab/23-24/TR- 05047** *Date:* **05.08.2023**

Name & Address of the Customer	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Source Emission**	Sampling Procedure	:	VCSPL/SOP/003, Dt. 01.08.2019
Identification by Customer	:	**ST-1**	Sampling Location	:	HCL Stack attached to 35 TPD
Sample Condition	;	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

1. Chemical Testing

A. Atmospheric Pollution

	1. General Information :	
1.	Emission due to	Combustion of HCl
2.	Material of construction of stack	M.S.
3.	Shape of stack	Circular
4.	Whether stack is provided with permanent platform & Ladder	Yes
	2. Physical Characteristics of Stack :	
1.	Height of stack from ground level	20 m
2.	Diameter of stack at sampling point	0.15 m
3.	Height of the sampling point from ground level	19.5 m
4.	Area of stack	0.0177 m^2
	3. Analysis/Characteristic of Stack :	
1.	Fuel used	HCl
2.	Fuel Consumption	-
	4. Pollution :	
1.	Details of pollution control devices attached with the stack	Water Scrubber Unit

5. Results of sampling & Analysis of Gaseous emission :

Sl. No.	Parameters	Test Method	Standard as per SPCB	Unit of Measurement	Analysis Results
1.	Hydrochloric Acid as HCl	USEPA 26-A	**15**	mg/Nm^3	**BDL (<1.0)**
2.	Acid Mist as H_2S	IS 11255 Part-4, 2006	--	mg/Nm^3	**BDL (<0.5)**

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5. The laboratory's responsibility under this report is limited to; proven willful negligence.

*** End Report***

Reviewed by

Approved by

TEST REPORT

Ref: **Envlab/23-24/TR-05048** *Date:* **05.08.2023**

Name & Address of the Customer	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Source Emission**	Sampling Procedure	:	VCSPL/SOP/003, Dt. 01.08.2019
Identification by Customer	:	**ST-2**	Sampling Location	:	HCL Stack attached to 25 TPD
Sample Condition	:	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

1. Chemical Testing

A. Atmospheric Pollution

1.	**General Information :**	
1.	Emission due to	Combustion of HCl
2.	Material of construction of stack	M. S.
3.	Shape of stack	Circular
4.	Whether stack is provided with permanent platform & Ladder	Yes
2.	**Physical Characteristics of Stack :**	
1.	Height of stack from ground level	19.7 m
2.	Diameter of stack at sampling point	0.15 m
3.	Height of the sampling point from ground level	18.5 m
4.	Area of stack	0.177 ^{2}
3.	**Analysis/Characteristic of Stack :**	
1.	Fuel used	HCl
2.	Fuel Consumption	-
4.	**Pollution :**	
1.	Details of pollution control devices attached with the stack	Water Scrubber Unit

5. Results of sampling & Analysis of Gaseous emission :

Sl. No.	Parameters	Test Method	Standard as per SPCB	Unit of Measurement	Analysis Results
1.	Hydrochloric Acid as HCl	USEPA 26-A	**15**	mg/Nm^3	**BDL (<1.0)**
2.	Acid Mist as H_2S	IS 11255 Part-4, 2006	--	mg/Nm^3	**BDL (<0.5)**

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TEST REPORT

Ref: **Envlab/23-24/TR- 05049** *Date:* **05.08.2023**

Name & Address of the Customer	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Source Emission**	Sampling Procedure	:	VCSPL/SOP/003, Dt. 01.08.2019
Identification by Customer	:	**ST-3**	Sampling Location	:	HCL Stack attached to 60 TPD-A
Sample Condition	:	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

1. Chemical Testing

A. Atmospheric Pollution

	1. General Information :	
1.	Emission due to	Combustion of HCl
2.	Material of construction of stack	M. S.
3.	Shape of stack	Circular
4.	Whether stack is provided with permanent platform & Ladder	Yes
	2. Physical Characteristics of Stack :	
1.	Height of stack from ground level	20 m
2.	Diameter of stack at sampling point	0.15 m
3.	Height of the sampling point from ground level	19.5 m
4.	Area of stack	0.0177 m^2
	3. Analysis/Characteristic of Stack :	
1.	Fuel used	HCl
2.	Fuel Consumption	-
	4. Pollution :	
1.	Details of pollution control devices attached with the stack	Water Scrubber Unit

5. Results of sampling & Analysis of Gaseous emission :

Sl. No.	Parameters	Test Method	Standard as per SPCB	Unit of Measurement	Analysis Results
1.	Hydrochloric Acid as HCl	USEPA 26-A	**15**	mg/Nm^3	**BDL (<1.0)**
2.	Acid Mist as H_2S	IS 11255 Part-4, 2006	--	mg/Nm^3	**BDL (<0.5)**

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TEST REPORT

Ref: **Envlab/23-24/TR-05050** *Date:* **05.08.2023**

Name & Address of the Customer	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Source Emission**	Sampling Procedure	:	VCSPL/SOP/003, Dt. 01.08.2019
Identification by Customer	:	**ST-4**	Sampling Location	:	HCL Stack attached to 60 TPD-B
Sample Condition	:	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

1. Chemical Testing

A. Atmospheric Pollution

1. General Information :		
1.	Emission due to	Combustion of HCl
2.	Material of construction of stack	M. S.
3.	Shape of stack	Circular
4.	Whether stack is provided with permanent platform & Ladder	Yes
2. Physical Characteristics of Stack :		
1.	Height of stack from ground level	150.0 m
2.	Diameter of stack at sampling point	3.2 m
3.	Height of the sampling point from ground level	55.0 m
4.	Area of stack	8.457 ^{2}
3. Analysis/Characteristic of Stack :		
1.	Fuel used	HCl
2.	Fuel Consumption	-
4. Pollution :		
1.	Details of pollution control devices attached with the stack	Water Scrubber Unit

5. Results of sampling & Analysis of Gaseous emission :

Sl. No.	Parameters	Test Method	Standard as per SPCB	Unit of Measurement	Analysis Results
1.	Hydrochloric Acid as HCl	USEPA 26-A	**15**	mg/Nm^3	**BDL (<1.0)**
2.	Acid Mist as H_2S	IS 11255 Part-4, 2006	**--**	mg/Nm^3	**BDL (<0.5)**

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TEST REPORT

Ref: **Envlab/23-24/TR- 05051** *Date:* **05.08.2023**

Name & Address of the Customer	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**22.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Source Emission**	Sampling Procedure	:	VCSPL/SOP/003, Dt. 01.08.2019
Identification by Customer	:	**ST-5**	Sampling Location	:	Hypo Stack
Sample Condition	;	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

1. Chemical Testing

A. Atmospheric Pollution

	1. General Information :	
1.	Emission due to	Chlorine Gas
2.	Material of construction of stack	M. S.
3.	Shape of stack	Circular
4.	Whether stack is provided with permanent platform & Ladder	Yes
	2. Physical Characteristics of Stack :	
1.	Height of stack from ground level	19.85 m
2.	Diameter of stack at sampling point	0.3 m
3.	Height of the sampling point from ground level	18.7 m
4.	Area of stack	0.707 ^{2}
	3. Analysis/Characteristic of Stack :	
1.	Fuel used	Chlorine Gas
2.	Fuel Consumption	-
	4. Pollution :	
1.	Details of pollution control devices attached with the stack	Alkali Scrubber Unit

5. Results of sampling & Analysis of Gaseous emission :

Sl. No.	Parameters	Test Method	Standard as per SPCB	Unit of Measurement	Analysis Results
1.	Stack Temperature	IS 11255: Part-3, (2008) RA 2019	--	^{0}K	**302**
2..	Concentration of Chlorine	USEPA 26A	**35**	mg/Nm^{3}	**BDL (<0.15)**

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TEST REPORT

Ref: **Envlab/23-24/TR-05053** *Date:* **05.08.2023**

Sample Code	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**22.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Waste Water**	Sampling Procedure	:	As per IS 3025
Identification by Customer	:	**ETP OUTLET**	Sampling Location	:	ETP Outlet
Sample Condition	;	Ice Preserved	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

1. Chemical Testing

A. Pollution & environment

Sl. No	Parameter	Unit	Testing Methods	General Standard for Discharge of Environmental Pollutants (Inland Surface Water)	Analysis Results
1.	pH Value (at 25 °C)	--	APHA 4500H⁺B	5.5-9.0	6.4
2.	Mercury (As Hg)	mg/l	APHA 3500 Hg	0.01	<0.004

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TEST REPORT

Ref: **ENVLAB/23-24/TR-05043** *Date:* **05.08.2023**

Name and address of the Customer	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Ambient Air**	Sampling Procedure	:	VCSPL/F-SOP/001, Dt. 04.09.2021
Sample Identification Code	:	**AAQMS-1**	Sampling Location	:	**At Technical Building**
Sample Condition	;	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

Chemical Testing

Atmospheric Pollution

Sl. No	Parameters	Unit	Test Method	National Ambient Air Quality Standard, CPCB, 18th Nov. 2009	Analysis Result
1	Particulate matter as PM_{10}	($\mu g/m^3$)	IS 5182 : Part 23: 2006, RA 2017	100	42.6
2	Particulate matter as $PM_{2.5}$	($\mu g/m^3$)	IS 5182 (Part 24):2019	60	21.4
3	Sulphur Oxides as SO_2	($\mu g/m^3$)	IS 5182 (Part 2): 2001, RA 2017	80	8.4
4	Nitrogen Oxides as NOx	($\mu g/m^3$)	IS 5182 (Part 6): 2006, RA 2017	80	6.8
5	Carbon monoxide as CO	(mg/m^3)	IS 5182(Part 10):2019	2	0.62
6	Ozone as O_3	($\mu g/m^3$)	IS 5182 (Part-09):2019	180	3.5
7	Ammonia as NH_3	($\mu g/m^3$)	IS 5182 (Part 25): 2018	400	13.4
8	Lead as Pb	($\mu g/m^3$)	IS 5182(Part -22):2019	1	<0.02
9	Nickel as Ni	(ng/m^3)	IS 5182(Part -22):2019	20	<2.5
10	Arsenic as As	(ng/m^3)	IS 5182(Part -22):2019	6	<1.0
11	Benzene as C_6H_6	($\mu g/m^3$)	IS 5182 (Part 11):2006	5	<4.0
12	Benzo-a-pyrine as BaP	(ng/m^3)	IS 5182 (Part 12):2017	1	<0.5

Remarks: *The above Sample test results are within the prescribed standard for the above mentioned parameters.*

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TEST REPORT

Ref: **ENVLAB/23-24/TR-05044** *Date:* **05.08.2023**

Name of the Industry	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
Sample Description	:	**Ambient Air**	Sample Received on	:	**23.07.2023**
Sample Identification Code	:	**AAQMS-2**	Sampling Procedure	:	VCSPL/F-SOP/001, Dt. 04.09.2021
Sample Condition	:	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling Location	:	**Near CAAQMS-1**
Test Started on	:	**23.07.2023**	Sampling done by	:	VCSPL Representative
			Test Completed on	:	**29.07.2023**

Chemical Testing

Atmospheric Pollution

Sl. No	Parameters	Unit	Test Method	National Ambient Air Quality Standard, CPCB, 18th Nov. 2009	Analysis Result
1	Particulate matter as PM_{10}	($\mu g/m^3$)	IS 5182 : Part 23: 2006, RA 2017	100	47.8
2	Particulate matter as $PM_{2.5}$	($\mu g/m^3$)	IS 5182 (Part 24):2019	60	22.6
3	Sulphur Oxides as SO_2	($\mu g/m^3$)	IS 5182 (Part 2): 2001, RA 2017	80	7.2
4	Nitrogen Oxides as NOx	($\mu g/m^3$)	IS 5182 (Part 6): 2006, RA 2017	80	6.3
5	Carbon monoxide as CO	(mg/m^3)	IS 5182(Part 10):2019	2	0.58
6	Ozone as O_3	($\mu g/m^3$)	IS 5182 (Part-09):2019	180	3.2
7	Ammonia as NH_3	($\mu g/m^3$)	IS 5182 (Part 25): 2018	400	12.4
8	Lead as Pb	($\mu g/m^3$)	IS 5182(Part -22):2019	1	<0.02
9	Nickel as Ni	(ng/m^3)	IS 5182(Part -22):2019	20	<2.5
10	Arsenic as As	(ng/m^3)	IS 5182(Part -22):2019	6	<1.0
11	Benzene as C_6H_6	($\mu g/m^3$)	IS 5182 (Part 11):2006	5	<4.0
12	Benzo-a-pyrine as BaP	(ng/m^3)	IS 5182 (Part 12):2017	1	<0.5

Remarks: *The above Sample test results are within the prescribed standard for the above mentioned parameters.*

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TEST REPORT

Ref: **ENVLAB/23-24/TR-05045** *Date:* **05.08.2023**

Name of the Industry	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Ambient Air**	Sampling Procedure	:	VCSPL/F-SOP/001, Dt. 04.09.2021
Sample Identification Code	:	**AAQMS-3**	Sampling Location	:	**Near Grasim Material Gate**
Sample Condition	;	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	VCSPL Representative
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

Chemical Testing

Atmospheric Pollution

Sl. No	Parameters	Unit	Test Method	National Ambient Air Quality Standard, CPCB, 18th Nov. 2009	Analysis Result
1	Particulate matter as PM_{10}	($\mu g/m^3$)	IS 5182 : Part 23: 2006, RA 2017	100	64.4
2	Particulate matter as $PM_{2.5}$	($\mu g/m^3$)	IS 5182 (Part 24):2019	60	38.4
3	Sulphur Oxides as SO_2	($\mu g/m^3$)	IS 5182 (Part 2): 2001, RA 2017	80	24.4
4	Nitrogen Oxides as NOx	($\mu g/m^3$)	IS 5182 (Part 6): 2006, RA 2017	80	18.6
5	Carbon monoxide as CO	(mg/m^3)	IS 5182(Part 10):2019	2	0.68
6	Ozone as O_3	($\mu g/m^3$)	IS 5182 (Part-09):2019	180	8.9
7	Ammonia as NH_3	($\mu g/m^3$)	IS 5182 (Part 25): 2018	400	14.6
8	Lead as Pb	($\mu g/m^3$)	IS 5182(Part -22):2019	1	<0.02
9	Nickel as Ni	(ng/m^3)	IS 5182(Part -22):2019	20	<2.5
10	Arsenic as As	(ng/m^3)	IS 5182(Part -22):2019	6	<1.0
11	Benzene as C_6H_6	($\mu g/m^3$)	IS 5182 (Part 11):2006	5	<4.0
12	Benzo-a-pyrine as BaP	(ng/m^3)	IS 5182 (Part 12):2017	1	<0.5

Remarks: *The above Sample test results are within the prescribed standard for the above mentioned parameters.*

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TEST REPORT

Ref: **ENVLAB/23-24/TR-05046** *Date:* **05.08.2023**

Name of the Industry	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Sampling	:	**21.07.2023**
			Sample Received on	:	**23.07.2023**
Sample Description	:	**Ambient Air**	Sampling Procedure	:	VCSPL/F-SOP/001, Dt. 04.09.2021
Sample Identification Code	:	**AAQMS-4**	Sampling Location	:	**Near Boiler**
Sample Condition	:	Air Tight Sealed and gaseous Sample Solution Refrigerated	Sampling done by	:	Bijay Kumar Sahu
Test Started on	:	**23.07.2023**	Test Completed on	:	**29.07.2023**

Chemical Testing

Atmospheric Pollution

Sl. No	Parameters	Unit	Test Method	National Ambient Air Quality Standard, CPCB, 18th Nov. 2009	Analysis Result
1	Particulate matter as PM_{10}	($\mu g/m^3$)	IS 5182 : Part 23: 2006, RA 2017	100	38.2
2	Particulate matter as $PM_{2.5}$	($\mu g/m^3$)	IS 5182 (Part 24):2019	60	20.4
3	Sulphur Oxides as SO_2	($\mu g/m^3$)	IS 5182 (Part 2): 2001, RA 2017	80	28.8
4	Nitrogen Oxides as NOx	($\mu g/m^3$)	IS 5182 (Part 6): 2006, RA 2017	80	23.4
5	Carbon monoxide as CO	(mg/m^3)	IS 5182(Part 10):2019	2	0.64
6	Ozone as O_3	($\mu g/m^3$)	IS 5182 (Part-09):2019	180	8.7
7	Ammonia as NH_3	($\mu g/m^3$)	IS 5182 (Part 25): 2018	400	14.8
8	Lead as Pb	($\mu g/m^3$)	IS 5182(Part -22):2019	1	<0.02
9	Nickel as Ni	(ng/m^3)	IS 5182(Part -22):2019	20	<2.5
10	Arsenic as As	(ng/m^3)	IS 5182(Part -22):2019	6	<1.0
11	Benzene as C_6H_6	($\mu g/m^3$)	IS 5182 (Part 11):2006	5	<4.0
12	Benzo-a-pyrine as BaP	(ng/m^3)	IS 5182 (Part 12):2017	1	<0.5

Remarks: *The above Sample test results are within the prescribed standard for the above mentioned parameters.*

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Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Certified for : ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 (OH&S), ISO/IEC 17025:2017

Accredited by : NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

- Infrastructure Enginering
- Water Resource Management
- Environmental & Social Study
- Surface & Sub-Surface Investigation
- Quality Control & Project Management
- Renewable Energy
- Agricultural Development
- Information Technology
- Public Health Engineering
- Mine Planning & Design
- Mineral/Sub-Soil Exploration
- Waste Management Services

Laboratory Services
Environment Lab
Food Lab
Material Lab
Soil Lab
Mineral Lab
&
Microbiology Lab

TEST REPORT

Ref: **Envlab/23-24/TR- 05055** *Date:* **05.08.2023**

Name of the Industry	:	**M/s Grasim Industries Limited Chemical Division, Ganjam**	Date of Monitoring	:	**22.07.2023**
			Sample Received on	:	**NA**
Sample Description	:	**Ambient Noise Level**	Sampling Procedure	:	IS: 9989:2020
Identification by Customer	:	**N-1 to N-4**	Sampling done by	:	VCSPL Representative

Location ID	Date of Monitoring	Location	Noise Level in dB(A) leq
N-1	**22.07.2023**	Near Boiler	**81.1**
N-2	**22.07.2023**	Near Brine Plant	**80.8**
N-3	**22.07.2023**	Near HCl Plant	**79.4**
N-4	**22.07.2023**	Near Hypo Plant	**79.1**
Standard as per SPCB			**85.0**

1. The Test result is relevant only to the item tested.
2. This report shall not be reproduced in full or part without written approval of Visiontek consultancy services.(P) Ltd
3. The laboratory is not responsible for the authenticity of photocopied test report.
4. The test item will not be retained for more than 15 days from the date of issue of test report except in case as required by applicable regulations.
5. The laboratory's responsibility under this report is limited to; proven willful negligence.

*** End Report***

Reviewed by

Approved by

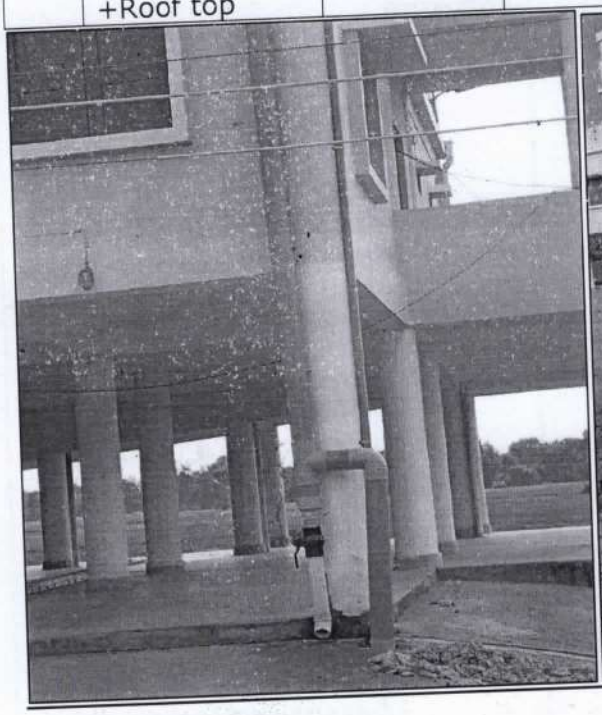
14.1 Rainwater Harvesting and Artificial Ground water table Recharging-
(100% work completed, and recharging performance trial completed)

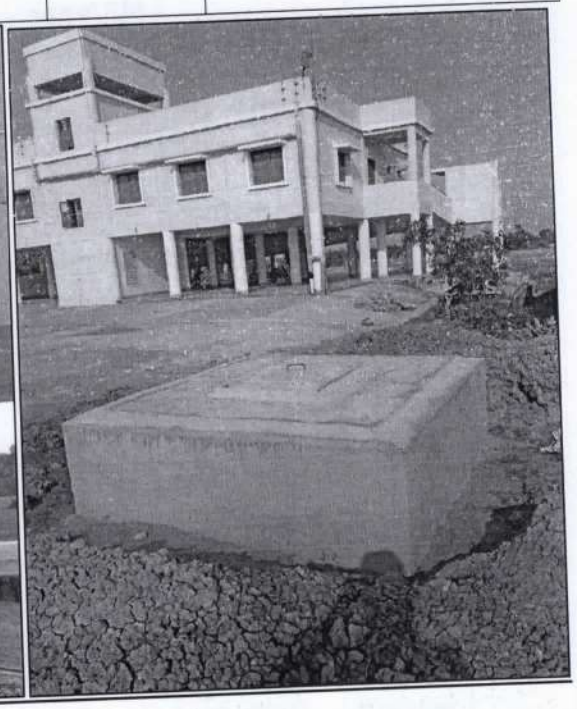
Unit has undertaken several Water conservations projects as an imperative need for augmenting the valuable groundwater resource. Artificial recharge and roof top rainwater harvesting has done at the prime focus to revive the precious resource.
Some of the major ground water recharging structure have been done for ground water restoration- and achieved a quantity 2,86,687 m3/Year (2,40,387 + 46300)

S.No.	Description of activities	Recharge quantity in M3/year	Enclosed as Annexure	Remarks
1	Surface runoff water harvesting (check dam) + Roof top harvesting in colony, Admin building ,Schools etc.	43,053	Annexure I	Existing implemented techniques as per NOC granted vide letter no. 21-4(17)/SER/CGWA/2007-573-Dt.15.03.2017
2	Ground water recharging Bore-well (including check dam, bund wall construction etc.) near Pump house area-Kalyanpur – 6 Nos.	1,00,482	Annexure II	As per condition no. 3 as specified in NOC (partial modification) granted vide 21-4(17)/SER/CGWA/2007-27 Dt-07.06.2019
3	Ground water recharging well/ Injection well at Grasim colony, Schools, Colleges and Government office area (Tehasil Office etc.) – 21 Nos.	96,816	Annexure III	As per condition no. 3 as specified in NOC (partial modification) granted vide 21-4(17)/SER/CGWA/2007-27 Dt-07.06.2019
4	Ground water recharging project done in 2017	46,300		
	Total	**2,86,687 M3/year**		

Surface runoff water harvesting + Roof top harvesting in colony ,Admin building ,Schools etc :-

Sr no	Identified Area	Average rainfall (m/Year)	Total area m2	Total Volume M3/year	Location
1	Surface runoff +Roof top	1.24	34720	43,053	Klyanpur+colony+Plant





ANNEXURE- II (Ground water recharging Bore-well near Pump house area-Kalyanpur)

Sr.no	Identified Area	Average rainfall (m/Year)	Total area m2	Total Volume m3	Location
1	Recharging Borewell-1	1.24	9743	12082	Kalyanpur
2	Recharging Borewell-2	1.24	11290	14000	Kalyanpur
3	Recharging Borewell-3	1.24	15000	18600	Kalyanpur
4	Recharging Borewell-4	1.24	14113	17500	Kalyanpur
5	Recharging Borewell-5	1.24	15960	19790	Kalyanpur
6	Recharging Borewell-6	1.24	14927	18510	Kalyanpur
			Total	**1,00,482**	

Construction of Ground water Recharging bore well:-

Total Bore-well- 6 (Total area 200m x 150m + 300m x 300m)- Near Existing Bore well area.

- Depth of injection Bore wells : 42meters
- Total Number of Recharging perforated /Slotted injection well: 3
- Type of pipes:- Perforated/Slotted (all pipes)
- Flow arrester Bund with HDPE liner.
- Location:- Near Existing bore-well area (Kalyanpur)