Joint Committee Inspection Report

In the Matter of

Original Application No.02/2023
'Sheikh Shakir Vs Grasim Industries Ltd. Chemical Division & Ors.'

w.r.to

Hon`ble National Green Tribunal Central Bench Bhopal
order dated 09th February, 2023

Date of Visit: 21st March, 2023
Location: Nagda, Distt.Ujjain(MP)

Joint Committee Inspection Report in the matter of
''Sheikh Shakir Vs Grasim Industries Ltd. Chemical Division &Ors.'

Hon'ble NGT (CZ), Bhopal vide its order dated 09thFebruary, 2023 in OA no. 02/2023''Sheikh ShakirVs Grasim Industries Ltd. Chemical Division &Ors.' directed as under vide para7,10 and 11 :-

7. A substantial issue of environment has been raised.

10. We deem it just and proper to call a report on the matter in issue in present Original Application, from a Joint Committee consisting of:-

i. Collector, Ujjain, (M.P.).
ii. One representative from MoEF&CC, Regional Office, Bhopal.
iii. One representative from Central Pollution Control Board, (M.P.).
iv. One representative from Madhya Pradesh Pollution Control Board

11. The Committee is directed to visit the place and submit the factual and action taken report within six weeks. The State PCB will be the nodal agency for coordination and logistic support.

The Committee was directed to ascertain verification of the violations and submit the factual report to the Hon'ble Tribunal. The joint committee constituted comprising of the following officers:

1. Sh.Anukul Jain, ADM Distt. Ujjain
2. Sh. Hemant Tiwari Regional Officer, M.P.P.C.B, Ujjain
3. Sh.Vishwa Bandhu Meena Scientist-D, MoEF&CC I.R.O. Bhopal
4. Dr. Anoop Chaturvedi, Scientist 'B' Regional Directorate, CPCB, Bhopal

In compliance of the above direction, the joint committee visited area under question in Nagda, District of Ujjainon21st March, 2023to assess the factual status of allegation made in petition andpresent compliancestatus of Zero liquid discharged, status of ambient air quality and emission through online system, river water quality, ground water quality and drain etc.

The issue was also discussed with the officials ofM/s Grasim Industries, (Chemical Division) Nagda(further referred as 'Unit') during visit. The other

officials present during the inspection are Dr. Deepak Kale, Scientist, Shri Dilip Keshare, Junior Scientist, MPPCB and Shri Rameshwar Bandewar, SSA CPCB, Bhopal. The main contentions of the petition are water pollution and illegal discharge of waste waterby Unit.

To find out facts as well as to know the extent of problem, the committee visited the nearby main villages which are mentioned in order dated 9.2.2023. To co-relate the visual observation samples of river and ground water has been collected.Besides of this stack monitoring of prominent parameterswas also carried out.

A brief on the industrial cluster & norms

The Nagda Industrial Cluster was developed prior to constitution of the State Pollution Control Boards way back in year 1954 and M/s Grasim Industries ltd (Chemical Division) Nagda was established in 1972. The State Pollution Control Board constituted under the Water (Prevention and Control of Pollution) Act, 1974 started grant of consent for disposal of treated waste water as per prevailing norms. However, as on date none of the major industries discharging their effluent in river or land and maintained the Zero Liquid Discharged status and M/s Grasim Industries(Chemical Division)Nagda is one of them.

It is noted that the unit was granted Environment Clearance for "Expansion of Caustic Chlorine Products from and value added derivatives along with installation of new Chloromethane plant by M/s Grasim Industries Ltd. (Chemical Division) at Birlagram, Nagda, District Ujjain(Madhya Pradesh)" vide letter dated 07.01.2020.The copy of the Environment Clearance is enclosed as **Annexure-I**

The unit has valid Consent upto 31.01.2024 under Water (Prevention & Control of Pollution) Act, 1974 & Air (Prevention & Control of Pollution) Act, 1981for the production of the same. The copy of the consent is enclosed as **Annexure-II**

Back Ground of present case in brief:

M/s Grasim Industries (Chemical Division)Birlagram, Nagda is engaged in production of various chemical compounds like Caustic Soda, HCl, Liq.

Chlorine, NaOCl, Stable bleaching powder, Poly Aluminum Chloride, Chlorosulphonic Acid, Chlorinated Paraffin, Calcium Chloride etc.

The present OA.No.02/2023 has been filed before the Hon'ble NGT by Sh.ShaikhSakir. The main issues raised applicantsthrough the petition are as given below:

1. The unit discharging untreated water on land and in river Chambal and adversely affecting the water body.
2. The unit involved in various chemical production and Durgapura and Mehatwasare located at just adjacent to the unit.
3. The unit using various acidic elements i.e. Sulphur, mercury, Chlorine and HCl etc. leading to cause of pollution in the area.
4. The unit using toxic chemicals resulting un-breathable atmosphere for residents of Nagda.
5. The unit has not obtained the ground water extraction permission from CGWB.
6. Other substantial issues i.e. ground water and soil contamination in area, health related problems of nearby population were also mentioned in the report.

Previous complaints and action takenin the same matter:

During the inspection and interaction with the officials, it has come to the knowledge that the similartypes of complaints were received in various time intervals. The local administration and MPPCB already doing work on the same issues as mentioned in the petition. The chronology of the rescentely received complaints and its action taken as given below :

1. Sh. Anil Firojiya Hon'ble MP of Ujjain raised an issue of water pollution caused by Grasim group of industries and other industries of Nagda town in December 2019. In compliance of that a joint team of CPCB, Delhi and Regional Directorate, Bhopal visited the area and further CPCB, Delhi issued a direction to MPPCB under section of 18(1) b of the Water (prevention & control of pollution) Act, 1974. In compliance of that MPPCB issued a notice to Units located in Nagda area including M/s Grasim Chemical Division on 13.5.2020. The copy of notice and work completed by the Unit enclose as **Annexure-III.**

2. Recently Sh. Bhuvneshwar Kalita and Sh. Jawahar Sirkar Hon'ble MP of

Rajya Sabha have been forwarded a complaint letter related to the wastewater discharged by the Grasim group of industries and other industries of Nagda town in December 2022. The Regional Directorate of CPCB Bhopal investigated the matter thoroughly in November 2022 along with the complainant. The visiting team also interacted with the other complainant of Nagda who send their complaint at various time intervals. After inspectiona letter has been issued to MPPCB on 9.1.2023 for further improvement by CPCB, Delhi. A copy of the letter issued to MPPCB is enclosed as **Annexure-IV**.

3. With reference to public complaints of Nagda area Collector Ujjain constituted a team of six departmentsi.e. Health, agriculture, ground water board, labor department, SPCB, CPCB and district administration for thorough investigation of the area above committee visited the area in Jan. 2020 and based on the inspection instruction for further improvement has been given to unit.

The committee made the following observation during site visit on the above mentioned issues:-

Issue No. 01: The unit discharging untreated water on land and in river Chambal and adversely affecting the water body.

M/s Grasim Industries Ltd. (Chemical Division) has installed 1000 KLD ETP to treat effluent of alkaline, acidic and neutral characteristics. The effluent quantity of about 320 m^3/day is generated from the caustic soda plant which is being recycled and reused for various process and utility requirements.

- The effluent, clari-flocculated & clarified in flocculation & clarifier units respectively. The clarified effluent further treated through two-staged filtration system i.e., sand filter & activated carbon filter.
- To reduce the TDS, industry has installed brackish water RO followed by Multi Effect evaporator (MEE) & Sea Water RO followed by Agitated Thin Film Dryer (ATFD).
- The condensate water recovered from MEE is reused in Process & cooling. Whereas dried powder sent to (TSDF) M/s Pithampur Industrial Waste Management Pvt. Ltd., Pithampur District- Dhar a unit of Ramky.
- Industry has attained Zero Liquid Discharge status after installing double

stage Reverse Osmosis (600KLD) Multi Effect Evaporator (MEE) (120KLD) &Agitated Thin Film Dryer(ATFD) on 31.03.2018 and same has been intimated to MPPCB vide letter dated 02.04.2018 which is enclosed as **Annexure-V**

- To treat the domestic waste, Activated Sludge Process based 02 STPs of total 80KLD capacity is installed. The treated effluent is used in horticulture & gardening.
- The combined electricity consumption of ETP & ZLD for last three-month Dec. 2022 to Feb. 2023 is 95995, 101889 and 103166KWH respectively.

Petitioner also mentioned about water pollution and claimed that the unit still discharging the untreated waste water in the drain but during visit no waste water discharged was observed in the main drain. To assess the present status of water quality samples of River Chambal up and down stream, ground water from nearby area, piezometer and drains has been collected and analyzedby MPPCB, laboratory at Ujjain. The samples were collected at representative locations on random basis so that they are uniformly distributed in the visited area. The results of water analysis as given below:

River Water Analysis

S. No.	Parameters	Unit	River Chambal at U/S near Water Supply Intake Point, Nagda	River Chambal at 1 K.M. D/S of Juna Nagda
1	**Temperature**	Centigrade	28	28
2	**Colour**	Pt.Co.Sc.	Colourless	Sl. Yellowish
3	**Odour**	--	Odourless	Odourless
4	**pH**	pH Units	7.88	6.90
5	**Specific Conductance**	micromho/cm	794	7974
6	**Turbidity**	N.T.U.	8.4	22.6
7	**Chloride as Cl^-**	mg/l	139	1400
8	**Total Alkalinity as $CaCo_3$**	mg/l	236	294
9	**Total Hardness as $CaCo_3$**	mg/l	254	1540
10	**Calcium Hardness as $CaCo_3$**	mg/l	186	1100
11	**Magnesium Hardness as $CaCo_3$**	mg/l	68	440
12	**Dissolved Oxygen**	mg/l	7.3	0.5
13	**Total Solids**	mg/l	646	6010
14	**Suspended Solids**	mg/l	14	32

15	**Total Dissolved Solids**	mg/l	632	5978
16	**B.O.D.(3 Days 27^{0}C)**	mg/l	2	24
17	**Chemical Oxygen Demand**	mg/l	20	110
18	**Ammonical Nitrogen as NH_3-N**	mg/l	0.314	6.84
19	**Nitrite as NO_2^- -N**	mg/l	0.007	0.003
20	**Nitrate as NO_3^- -N**	mg/l	0.721	8.21
21	**Phosphate as PO_4^{3-}-P**	mg/l	0.023	3.62
22	**Sulphate as SO_4^{2-}**	mg/l	44.9	2018
23	**Sodium as Na**	mg/l	79.26	1300
24	**Potassium as K**	mg/l	1.63	33
25	**Total Coliform**	MPN/100ml	49	≥1600
26	**Fecal Coliform**	MPN/100ml	2	≥1600
27	**Boron as B**	mg/l	ND	0.319
28	**Fluoride**	mg/l	0.710	0.598
29	**Copper (as Cu)**	mg/l	ND	0.019
30	**Lead (as Pb)**	mg/l	ND	ND
31	**Zinc (as Zn)**	mg/l	ND	0.178
32	**Nickel (as Ni)**	mg/l	ND	ND
33	**Iron (as Fe)**	mg/l	ND	0.969
34	**Total Chromium (as Cr)**	mg/l	ND	ND
35	**Mercury** (as Hg)	mg/l	ND	ND
Category			A	E

Classification of River water based on IS - 2296 – 1982, ND- Not Detected , BDL- Below Detectable Limit (BDL limit Zn-0.004, Fe-0.075, Pb-0.021, Cr-0.013,Ni-0.175 and Cu-0.006 mg/L)

Bases on the above analysis values of river Chambal it can be concluded that the TDS, COD and BOD values increased in 1 km downstream of the river Chambalw.r.to u/s water quality due to stagnant condition of water and mixing of city sewage and other non-industrial drains without any treatment.

It was observed that during visit two major drains (Nallah) joining the river Chambal at downstream side without any treatment i.e. Padliya drain and Mixed open drainof industrial area. Padliya drain mainly carrying city sewage and mix open drain carrying waste water generated from industrial area major source of inflow are vehicle washing, commercial activity etc. To assess the quality of mix drain waste water samples have been collected and the results as given below:

Drain (Nallah) water analysis

S. No.	Parameters	Unit	Nallah Water at Padliya Mandi, Nagda	Nallah Water at Mixed Open Drain, Nagda
1	**Appearance**	--	Turbid	Turbid
2	**Odour**	--	Unpleasant	Unpleasant
3	**pH**	pH Units	7.39	8.11
4	**Total Solids**	mg/l	1552	1936
5	**Suspended Solids**	mg/l	124	112
6	**Total Dissolved Solids**	mg/l	1428	1824
7	**Chloride as Cl^-**	mg/l	263	427
8	**B.O.D.(3 Days 27^0C)**	mg/l	46	28
9	**Chemical Oxygen Demand**	mg/l	130	120
10	**Phosphate as PO_4^{3-}-P**	mg/l	4.55	2.59
11	**Mercury (as Hg)**	mg/l	ND	ND
ND- Not Detected , BDL- Below Detectable Limit				

The above drain water analytical results indicate that the value of BOD and TSS in Padiliya nallah are higher side w.r.to discharged standards however no Hg concentration was observed which is a major concern. Both the drains are finally joining river Chambal at d/s side and increased the organic and inorganic load in river and stagnation/lean flow further deteriorated the water quality.

The samples of ground water were also collected from representative village locations as mentioned in order dated 9.2.2023 the location details and analysed values as given below:

Ground Water Analysis

S. No.	Parameters	Unit	Indian Standard Drinking Water Specification (Second Revision) IS 10500 : 2012		Hand Pump water at Mehatwas near Tanki, Nagda	Hand Pump water in front of Govt. Middle School, Takravada Vil, Nagda	Hand Pump water at Right Hand Side of Entrance of Pardi Village	Tube Well Water at Durgapura, Nagda
			Requirement (Acceptable Limit)	Permissible in the Absence of Alternate Source				
1	**Colour**	**Pt.Co.Sc.**	5	15	Colourless	Colourless	Colourless	Colourless
2	**Odour**	--	Agreeable	Agreeable	Odourless	Odourless	Odourless	Odourless
3	**pH**	pH Unit	6.5-8.5	No relaxation	7.59	7.66	7.12	7.69
4	**Specific Conductivity**	µMhos/cm.	--	--	1190	1148	1861	1481
5	**Turbidity**	NTU	1	5	3.6	1.4	1.9	2.6
6	**Total Solids**	mg/l	--	--	962	926	1500	1194
7	**Total Dissolved Solids**	mg/l	500	2000	952	918	1488	1184
8	**Suspended Solids**	mg/l	--	--	10	8	12	10
9	**Chloride as Cl**	mg/l	250	1000	208	122	391	278
10	**Total Alkalinity as $CaCo_3$**	mg/l	200	600	320	748	370	208
11	**Total Hardness as $CaCo_3$**	mg/l	200	600	540	392	596	438
12	**Calcium as (Ca)**	mg/l	75	200	23.6	36	124	34.4
13	**Magnesium as (Mg)**	mg/l	30	100	113.2	73.38	69.4	85.53
14	**Ammonical Nitrogen as NH_3-N**	mg/l	0.5	No relaxation	BDL	BDL	BDL	BDL
15	**Nitrate as NO_3**	mg/l	45	No relaxation	7.6	1	43.66	32.39
16	**Nitrite as NO_2- -N**	mg/l	--	--	BDL	BDL	BDL	BDL
17	**Sulphate as SO_4**	mg/l	200	400	124.5	10.15	72.1	102.9
18	**Phosphate as PO_4--P**	mg/l	--	--	0.024	0.014	0.053	0.082
19	**Sodium as Na**	mg/l	--	--	70	172.6	148.5	84.8
20	**Potassium as K**	mg/l	--	--	2.9	0.98	11.75	3.67
21	**Chemical Oxygen Demand**	mg/l	--	--	10	12	14	12
22	**B.O.D. (3 Days 27^0 C)**	mg/l	--	--	1	1	1.6	1.4
23	**Fluoride (as F)**	mg/l	1	1.5	0.904	1.12	0.982	0.96
24	**Copper (as Cu)**	mg/l	0.05	1.5	0.026	0.041	0.029	0.079
25	**Lead (as Pb)**	mg/l	0.01	No relaxation	ND	ND	ND	0.012
26	**Zinc (as Zn)**	mg/l	5	15	0.047	0.021	0.031	0.244
27	**Nickel (as Ni)**	mg/l	0.02	No relaxation	0.095	0.079	0.108	0.020
28	**Iron (as Fe)**	mg/l	0.3	No relaxation	ND	ND	ND	ND
29	**Total Chromium (as Cr)**	mg/l	0.05	No relaxation	0.019	0.019	0.034	0.020
30	**Mercury (as Hg)**	mg/l	0.001	No relaxation	ND	ND	ND	ND
ND- Not Detected , BDL- Below Detectable Limit								

The Unit has also installed piezometers in North & South direction of plant, along with other prominent locations to assess any leakage from SLF. The samples of piezometer were also collected from representative locations of up and down gradient. The details and analyzed values as given below:

Piezometric Point Analysis

S. No.	Parameters	Unit	Piezometric Point near Weigh Bridge at Pardi Gate at U/S of SLF Site of M/S Grasim Ind. Ltd. (Chemical Division) , Nagda	Piezometric Point near Road to Bottling Plant at U/S of SLF Site of M/S Grasim Ind. Ltd. (Chemical Division), Nagda	Piezometric Point at Chemical Division Staff Colony at D/S of SLF Site of M/S Grasim Ind. Ltd. (Chemical Division), Nagda
1	**Colour**	Pt.Co.Sc.	Colourless	Colourless	Colourless
2	**Odour**	--	Odourless	Odourless	Odourless
3	**pH**	pH Units	7.72	7.91	7.87
4	**Specific Conductance**	micromho/ cm	1819	1061	1305
5	**Turbidity**	N.T.U.	6.2	3.9	8.4
6	**Chloride as Cl^-**	mg/l	116	104	241
7	**Total Alkalinity as $CaCo_3$**	mg/l	124	112	110
8	**Total Hardness as $CaCo_3$**	mg/l	246	224	540
9	**Calcium Hardness as $CaCo_3$**	mg/l	48	60	296
10	**Magnesium Hardness as $CaCo_3$**	mg/l	198	284	244
11	**Total Solids**	mg/l	1166	976	1056
12	**Suspended Solids**	mg/l	14	10	12
13	**Total Dissolved Solids**	mg/l	1152	866	1044
14	**Copper (as Cu)**	mg/l	ND	ND	0.002
15	**Lead (as Pb)**	mg/l	ND	ND	0.001
16	**Zinc (as Zn)**	mg/l	ND	ND	0.006
17	**Nickel (as Ni)**	mg/l	ND	ND	ND
18	**Iron (as Fe)**	mg/l	ND	ND	ND
19	**Total Chromium (as Cr)**	mg/l	ND	ND	0.004
20	**Mercury** (as Hg)	mg/l	ND	ND	ND
ND- Not Detected , BDL- Below Detectable Limit					

On the basis of the analysis results of the ground water and piezometers it can be concluded that none of the parameter is showing abnormal values. Mercury (Hg) was also not observed in any ground water sample.

The unit has maintained Zero Liquid Discharged condition at the time of visit and MEE and ATFD found operational. The unit has also installed 02 PTZ cameras at ETP area and back side of the unit. The access of the camera having with MPPCB to monitor the status remotely at round the clock basis.

It was observed that a stone crusher located at the backside of the industrial area at Takrawada village side and water was found accumulated in the mined pit. However, no waste water discharged was observed in this area.

Issue No 02-The unit involved in various chemical production and Durgapura and Meahtwas is located to just adjacent to the unit.

As mentioned above the unit involved in production of various chemicals and having valid consent from MPPCB and permission from petroleum and explosion safety organisation (PESO) for storage and handling of Chlorine which is valid upto 30.09.2032. The permission of PESO is enclosed as **Annexure-VI**

The one of the main contentions of the petition is location of Mehtwas village which is located in close proximity of the industrial cluster. Generally minimum buffer zone is 500 meters has been fixed but in present case village is located near to Nagda industrial cluster. The other houses and villages also located within the range of 200 to 500 meter distance from this cluster. As per industry representative the plant was established in 1972and at that time, population was very less and at that time no concept of buffer zone was existed.However, to control emission from stack the unit has provided scrubbersattached with stack. The details of the installed air pollution control devices are as tabulated below:

S.No.	Unit	APCDs & Stack height (mtrs)
1.	Caustic Soda Unit_1	Alkali Scrubber (32m) Water Scrubber (34m)
2.	Caustic Soda Unit_2	Alkali Scrubber (34m) Water Scrubber (34m)
3.	Calcium Chloride	Water Scrubber (34m)
4.	Chlorinated Paraffin Unit	Alkali scrubber (30m) Water Scrubber (30m)
5.	Chlosulphonic Acid plant	H2SO4 scrubber (30m)

		Water scrubber (30m)
6.	Poly Aluminum Chloride Plant	Water Scrubber (34m) Spray Dryer Scrubber (34m)
7.	Stable bleaching powder Plant	Bag Filter, Cyclone,Dust Collector, Gravity Settling Chamber, Hood Cover

Industry has provided CEMS in Caustic soda unit 1 & 2 and Chlorinated paraffin units stacks for continuous monitoring of HCl & Cl_2. Total 88 sensors for Cl_2& HCl leak detection areinstalled in plant premises during visitsome of them has been verified at random basis. The location details of the installed sensors are enclosed as **Annexure-VII.**

Issue No. 03-The unit using various acidic elements i.e. Sulphur, mercury, Chlorine and HCl etc. causing pollution in the area.

The unit involved mainly in the production of Chlorine based product.The representative of the unit informed that sulphur and Mercury is nowhere used in the process.The unit produces caustic soda through membrane technology which is safer production method as compared to earlier method i.e. Mercury cell. The unit has switchover of mercury cell to membrane technology in 2006 the intimation letter issued in this regard is enclosed as **Annexure-VIII**

The stack emission is point source of air pollution, in any chemical industry. In this unit the main stacks are Caustic soda unit 01 and unit 02at the time of visit both are operational hence stack emission has been monitored for consented parameters i.e.HCl and Cl. The details of the monitored stack and emission valuesareas given below:

S.No.	Stack emission monitoring location	Control equipment	HCl (mg/Nm^3)	Cl (mg/Nm^3)	CEMS provided
01	Caustic Soda unit- 01	Alkali and Water Scrubber	2.6	1.8	All the units have installed the OCEMS and the data shows that during the emission monitoring all values within the limit as given in consent.
02	Caustic Soda unit- 02	Scrubber	1.8	0.24	
Emission standards			35	15	

On the basis of the above stack emission monitoring data, it was observed that the emission values complying the norms.

As per the guideline of CPCB, the unit has installed OCEMS in all the stacks of chemical plant to monitor HCl and Clemission round the clock. The CEMS data available at MPPCB/CPCB website and transmission was verified during visit.As per the OCEMS data all the stack emission of HCl & Cl2 was well within the consented limits i.e. 35mg/Nm3 & 15mg/Nm3 respectively. The OCEMS data of last one month including day of visit (21.2.2023 to 21.3.2023) is enclosed as **Annexure-IX**

As mentioned in above para the unit has switchover of mercury cell to membrane technology and as on date no Mercury used in process.The unit has constructed new SLF which has Double Composite Liner System and designed as per the CPCB guideline, 2001. Bottom is lined with compacted clay, HDPE liners & leachate collection system. After the switchover the production technology from Mercury to membrane the characteristic of sludge also changed in result.

As per the direction of MPPCB a study on "Environmental Assessment For Evaluating The Strength Of Abandoned Secured Landfill Site Of M/S. Grasim Industries Ltd, Nagda, Madhya Pradesh" was carried out by National Environmental Engineering Research Institute, Hyderabad Zonal Centre. The report concludes as:

"Possibility of leaching of metals including mercury from the mercury bearing sludge and ash layers from the secured landfill is minimal. Two locations, one each in upstream and downstream of secured land fill site were identified for drilling borewells and groundwater samples were collected from various depths at each location in order to assess the strength of the SLF. Mercury levels in the groundwater, collected from drilled sites, were below detectable levels. The groundwater quality of the monitored locations in the path of groundwater flow from SLF indicates that mercury was below detectable level. Furthermore, the new drilled borewells also did not show mercury levels in the groundwater. Based on the TCLP analysis of mercury bearing sludge and the groundwater quality, no leaching of mercury from the SLF was observed. This indicates that the SLF has the capacity of not allowing the chemicals from sludge to the groundwater and the SLF site is intact.

The present study revealed that the mercury sludge in SLF is stabilized and there is no considerable evidence for leaching of mercury from SLF. Geologically, the study area is comprised of Basalts rocks and has no permeability. However, the groundwater as well as soil quality surrounding the SLF site need to be monitored on annual basis." The

conclusion part of the report is enclosed as **Annexure-X**

Issue No 04-The unit using toxic chemicals resulting un-breathable atmosphere for residents of Nagda.

As mentioned in the above paragraph the unit is involved in the Chlorine based derivatives and to detect any fugitive emission proper sensor has been installed at prominent locations. The unit has provided proper scrubber system to control emissions if process disturbed. The unit has also provided all the stacks above 30 meter from ground for proper dispersion of pollutant.

In this industrial cluster, 03 numbers of Continuous Ambient Air Quality Monitoring System (CAAQMS) are established at following locations to monitor ambient air concentration of $PM_{2.5}$, PM_{10}, SO_2, NO_2,HCl , Cl etc.

1. Guest House No.2
2. Temple Guest House &
3. Chemical division Labor Club

The CAAQMS data of the 21.02.2023 to 21.03.2023were also collected. It was observed that the CAAQMS data showing that the air quality data within the NAAQM standards. The data sheet ofCAAQMS are enclosed as **Annexure-XI.**

Issue No. 05-The unit has not obtained the ground water extraction permission from CGWB.

As informed by the unit representative the unit does not have any borewell for extraction of ground water and all the water requirement is being fulfilled through Chambal river water and recycled water. The unit also reduced its water requirement after reuse of treated water of ETP and condensate. The unit consumed about 2600 KLD water in production and about 650 KLD water is being recycled. The unit also intimated to CGWA, Bhopal on 06.10.2021 regarding no requirement of NOC as unit not extracting ground water. The letter is enclosed as **Annexure-XII**.The agreement of MPWRD and M/s Grasim industries is enclosed as **Annexure-XIII**.

Issue No. 06 - Other substantial issues i.e.health related problems of nearby population, ground water and soil contamination in area and odour related issues were also mentioned in the report.

In compliance of the direction issued byMPPCB at time to time the unit has carried out various studies from central government institutes i.e. NEERI, NIREH to assess the environmental status of the area. The said studies covered all the aspects of health and environment as mentioned in the petition and implementations of the recommendations are under progress or completed. The main studies carried out in recent yearsas given below:

Brief about Health study by ICMR-NIREH

Central Pollution Control Board (CPCB) issued direction on 19th February 2020 under section 18 (1) (b) of the Water (Prevention & Control of Pollution) Act, 1974 to Madhya Pradesh Pollution Control Board (MPPCB). One of the specified direction states as:

"xiv. A detailed health study of Nagda region to be carried out in light of synergistic health effects of pollutant by engaging any reputed government institute working in the field of research in environmental health by MPPCB."

In compliance of the above direction MPPCB has issued direction under section 33/A of water (Prevention and Control of Pollution) Act 1974 to occupiers of the industries of Nagdaincluding M/s Grasim Industries (Chemical Division) on 13th may 2020.

In compliance of the above, occupiers viz. M/s Grasim Staple Fibre Division, M/s Grasim Chemical Division & M/s Lanxess (I) Pvt Ltd, combindly awarded a health study to Indian Council Of Medical Research - National Institute For Research In Environmental Health (ICMR-NIREH), Bhopal (M.P.). The Terms of Reference (TOR) were finalized after due discussion among concern authority viz. CPCB, CGWB, MPPCB, Municipal Authority and occupiers. The final report was submitted by occupiers on 13th July 2022.
A brief of the health study is as tabulated below:

<table>
<tr><td>S.No.</td><td>Particulars</td><td>Details</td></tr>
<tr><td>1.</td><td>Village covered</td><td>23(Bhagatpuri, Nagda mandi, Banbana, Banbani, Khajuria, Gidgarh, Jhanjharkhedi, Kilodiya, Nipaniya, Parmarkhedi, Alsi, Dewel, Ginwaria, Kalsi, Khurmundi, Azimabad Pardi, Durgapura, Mehatwas, Amladiya, Lasudiya, Nayan, Padsutiya&Navtiya)</td></tr>
<tr><td>2.</td><td>Sampled area</td><td>Upto 10KMs from Industrial region in (0-2KM, 2-5KM & 5-10KM)</td></tr>
<tr><td>3.</td><td>Sampled adults</td><td>3006 Directional & distance-wise distribution
<table>
<tr><td>Direction</td><td>Village covered</td><td>0-2 KM</td><td>2-5 KM</td><td>5-10 KM</td><td>Total</td></tr>
<tr><td>North-East</td><td>10</td><td>503</td><td>497</td><td>505</td><td>1505</td></tr>
<tr><td>South-East</td><td>05</td><td>378</td><td>121</td><td>-</td><td>499</td></tr>
<tr><td>South-West</td><td>03</td><td>-</td><td>336</td><td>162</td><td>498</td></tr>
<tr><td>North-West</td><td>05</td><td>-</td><td>-</td><td>504</td><td>504</td></tr>
<tr><td>Total</td><td>23</td><td>881</td><td>954</td><td>1171</td><td>3006</td></tr>
</table></td></tr>
<tr><td>4.</td><td>Downward direction</td><td>North-east</td></tr>
<tr><td>5.</td><td>Investigation carried out</td><td>- Socio-demographic & anthropometric
- Medical & family history
- Health (Spirometry, Electrocardiogram, Neurobehavioral test & laboratory test (Complete Blood Count, lipid profile, random blood sugar)
- Heavy metal (Al, Pb, Hg) level in blood</td></tr>
<tr><td>6.</td><td>Monitoring</td><td>- Air: SO_2, HCl, Cl2, H_2S, CS_2
- Groundwater: Al, Pb, Hg, Cl^-, SO_4^{-2}</td></tr>
</table>

Recommendations of the Study:

1. Even though a majority of surveyed population was found to be healthy the proportion of participants who were found to have abnormal findings in health assessments should be subjected to detailed investigation especially because the tests used in this study were meant for screening purposes.
2. Many of the health data obtained as part of this cross-sectional studies such as blood pressure, spirometry and ECG reflects the need for further in-depth health evaluation of the community, especially keeping in mind

the limitation of cross-sectional studies such as one time measurement, lack of populations exposure to such tests resulting in inadequate performance in effort dependent tests and residual confounding effects.

3. In the present study, majority of the participants showed normal neuro-behavioral functions further investigations are recommended for the establishment of the neuro-behavioral diagnosis if any in screening positive participant in this study.
4. The abnormal lipid profile seen in multiple participants highlights the need for advocating for lifestyle modification in the community such an increasing physical activity, healthier diet including consumption of good quality fat.
5. One time measurement of gaseous pollutants may not reflect the dose-response relationship. Considering the known detrimental health effects of the gaseous pollutants their periodic or seasonal monitoring is recommended.
6. It is recommended to have a mechanism for periodic monitoring of ambient air pollutant concentration in the vicinity of the industrial region.
7. It is recommended to have periodic monitoring for detection of groundwater contamination by heavy metals at early stage and to prevent adverse health effects if any from the consumption of contaminated groundwater.

   The conclusion part of the report is enclosed as **Annexure-IVX.**

Brief about Ground Water study by CSIR-NEERI

CSIR-NEERI, Hyderabad Zonal Centre has previously conducted groundwater quality assessment studies in and around Chemical Division, Grasim Industries Limited (GIL), Nagda during November-December 2017. Based on the recommendations of CSIR-NEERI, M/s GIL approached CSIR-NEERI to undertake a detailed study to assess the groundwater quality and identify the pollution source over a period of 4 hydrological cycles, this study started in 2018. Accordingly, to assess the groundwater quality over a period of 4 hydrological cycles and to identify the pollution source through integrated geophysical, stable isotopic and groundwater modelling studies is going on andbased on the final recommendation further action will be taken.

This study started in 2018 in the buffer zone of 5 km surrounding the Chemical Division, Grasim Industry. The study is to be completed in 2024. The

concluding part of recent six monthly progress report of NEERI ground water study i.e. Oct 2022 is enclosed as **Annexure-XV**

Brief about Environmental auditcarried out by CSIR-NEERI

As per the direction of MPPCB, a study on "Environmental Audit of the Secured Landfill Site of Chemical Division Grasim Industries Ltd, Nagda, Madhya Pradesh" was carried out by National Environmental Engineering Research Institute, Hyderabad Zonal Centrein 5 Km radius of the SLF and completed in June 2021. The report concluded mainly that

The heavy metal concentrations in the soils are below the screening level for Industrial area as per MoEF&CC Guidelines for contaminated sites in India.

The heavy metals are below TCLP concentration Limit as per Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

The present study revealed that the mercury sludge in SLF is stabilized and there is no considerable evidence for leaching of mercury from SLF. Geologically, the study area is comprised of Basalts rocks and have no permeability. However, the groundwater as well as soil quality surrounding the SLF site need to studied at least once in a year.

The conclusion part of the report is enclosed as **Annexure-XVI.**

Brief about Monitoring of odour and odours compound

A study on "Monitoring of odour and odourous compounds at Grasim industries Ltd (Chemical Division)" was carried out by J.M.EnvironetPvt. Ltd Gurugram and completed in January 2020. The conclusion part of the report enclosed as Annexure-**XVII**

Action Takenso far for improvement of environmental condition in Nagda

Chambal river stretch from Nagda to Rampura declared as polluted river stretch based on the increased level of BOD level based on monthly water quality monitoring data. In compliance of the Hon'ble NGT order in O.A. 673/2018, action plans for polluted river stretches were prepared and its execution is under progress. Measures taken by different government agencies to improve the water quality in Chambal River are as below:

1. The Municipal council of Nagda has prepared DPR for the sewerage line & treatment of domestic waste water generated from Nagda Town. The project is under consideration in M.P. Urban Development Company Bhopal (MPUDC).

2. PHED & the M.P. Jal Nigam MaryadithPeriyogna scheme of Rs 29.29 Crore is already in implementation to supply potable water in affected village along the bank of Chambal River.

3. Industries like M/s Grasim Industries Ltd (Chemical Division), M/s Lanxess India Pvt Ltd and M/s Grasim Industries Ltd (SFD) Nagdahave achieved zero liquid discharge.

Conclusion:

On the basis of present inspection, it was observed that the unit has maintained Zero Liquid Discharged status through installation of MEE and ATFD since 2018 and no waste water found discharged during visit which is the main contention of the petition.

To control the emission from the stacks the unit has provided scrubbers. The manual monitoring values as well as CEMS data were also found within the limit as given in consent.

The unit has installed CEMS system to monitor emission on real time basis and also installed PTZ cameras at two locations to observed live activity remotely and all data transmitted on MPPCB portal.

It is pertinent to mention that the district administration and MPPCB have already takeup the issues mentioned in the petition and various studies related to ground water, health, soil contamination and odour has been completed by central institutes very recently and execution work on the recommendation of studiesaregoing on. The unit also informed that the recommendations/ suggestions made in the reports/studies are being implemented.

Recommendations

On the basis of the above observations made during inspection of the committee, the following recommendations may be communicated to Unit for further improvement:

1. The unit should take measures to control the odour/smell in the area as per recommendations/suggestions in the odor related study.

2. District Administration should ensure water supply in nearby villages under “Har Ghar Jal” Mission in light of high TDS in ground water of the village.

3. The unit should ensure the study of groundwater as well as soil quality surrounding the SLF site at least once in a year and report to be submitted to MPPCB.

4. The unit should ensure to proper treatment of untreated/chemical water should be done and disposed off as per the norms.

5. The final outcome of the ongoing ground water study may be intimated to MPPCB and compliance of the recommendation must be ensured.

6. The rain water harvesting pits for ground water quality improvement may be installed in nearby village after consultation with CGWA.

7. The unit shall ensure proper calibration and periodic maintenance of all installed CEMS and maintain proper records w.r.t. calibration.

8. Health check up camps may be organised in nearby village in association with local health authorities.

9. Municipal Council, Nagda should expedite the approval & construction of Sewage Treatment Plant without further delay.

10. District Administration / MPPCB shall ensure proper treatment of effluents generated from commercial activities and vehicle washing prior to their discharge into the drain reaching the Chambal river.

11. MPPCB and local authority may keep constant vigil over the industry.

Sh. Anukul Jain,
ADM Ujjain

Sh. Hament Tiwari Regional Officer, M.P. Pollution Control Board, Ujjan

Dr. Anoop Chaturvedi, Scientist 'B'
Regional Directorate, CPCB, Bhopal

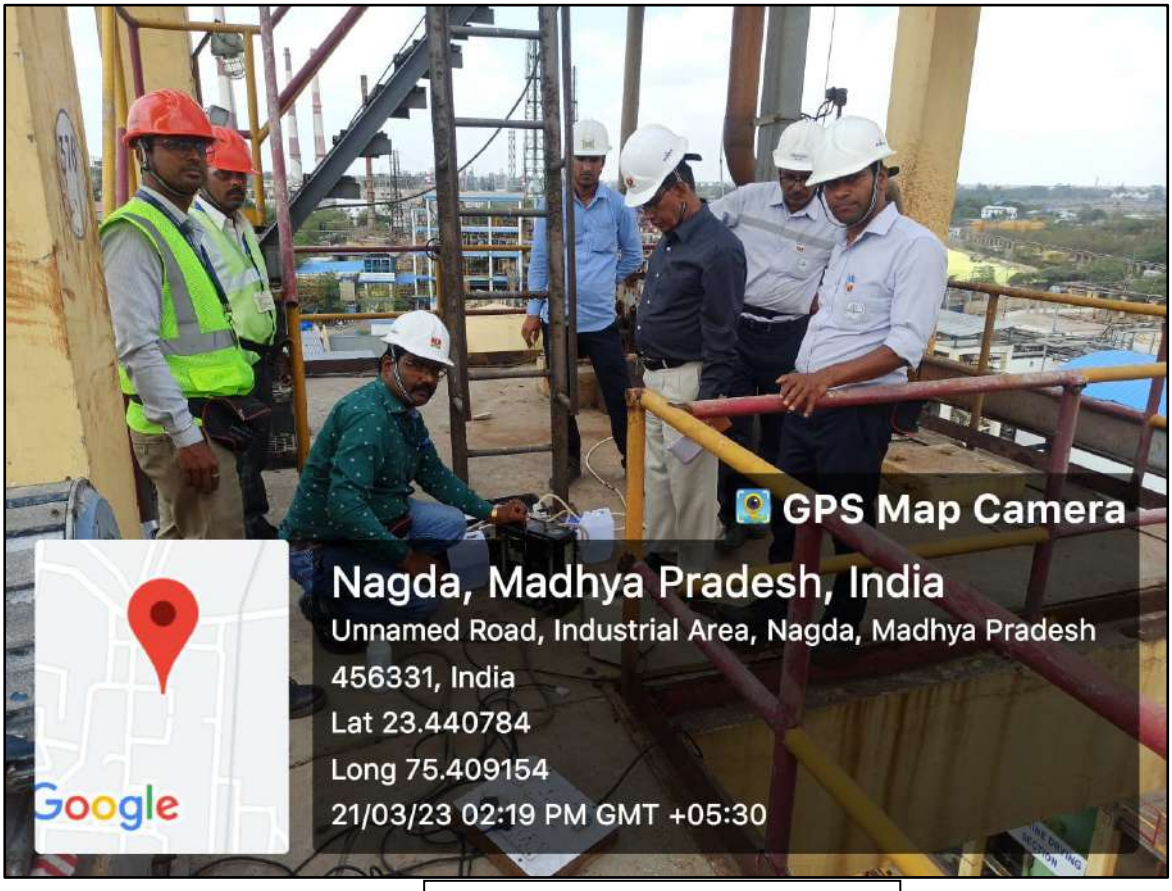
Sh.Vishwa Bandhu Meena Scientist-D, MoEF&CC I.R.O. Bhopal

Photograph of the committee visit

Joint Committee members at site.

View of Unit

Committee at MEE site.



Stack emission monitoring by team

Piezometer sampling.

Ground water sampling at Takrawda vill age

GW sampling at Pardi village

Back side area of unit

River Chambal at 1 KM D/S

Padliya drain carrying city sewage

सत्यमेव जयते

F. No. J-11011/119/2015-IA-II (I)
Government of India
Ministry of Environment, Forest & Climate Change
Impact Assessment Division
***

Indira Paryavaran Bhavan,
Vayu Wing, 3rd Floor, Aliganj,
Jor Bagh Road, New Delhi-110 003

Dated: 7th January, 2020

To,

M/s Grasim Industries Ltd.,
Village- Birlagram, Nagda,
District-Ujjain-456 331 (Madhya Pradesh)

Sub: Expansion of Caustic Chlorine Products from and Value Added Derivatives along with installation of new Chloromethane Plant by M/s Grasim Industries Ltd. (Chemical Division) at Birlagram, Nagda, District Ujjain (Madhya Pradesh) – Environmental Clearance reg.

Sir,

This has reference to your online proposal No.IA/MP/IND2/26969/2015, dated 30th September, 2019 along with the EIA/EMP report and Public hearing proceedings for the above mentioned project.

2. The details of proposed products are as under –

S. No.	Particulars	Existing (TPA)	Additional (TPA)	Total (TPA)
A.	**Main Products**			
1.	Caustic Soda	270000	180000	450000
2.	Poly Aluminum Chloride	27720	137280	165000
3.	Stable Bleaching Powder	29436	25314	54750
4.	Chlorinated Paraffin	27000	18645	45645
5.	Chloromethane	Nil	36000	36000
6.	Chloro Sulphonic Acid	23400	Nil	23400
7.	Calcium Chloride (100 %)	54000	Nil	54000
B.	**C0-Products and By-Products**			
1.	Chlorine	215200	149800	365000
2.	Hydrochloric Acid (100%)	79000	56000	135000
3.	Sodium Hypochlorite (100%)	53520	36480	90000
4.	Hydrogen	6730	4670	11400
5.	Compressed Hydrogen	960	500	1460
6.	Carbon Dioxide (By-product)	23760	Nil	23760

3. The proposed project/activity is listed under category A of item 4(d) 'Chlor - Alkali Industry' and 5(f) 'Synthetic organic chemical industry' in the schedule of Environment Impact Assessment (EIA) Notification, 2006, and requires appraisal/approval at central level by sectoral Expert Appraisal Committee (EAC).

4. The terms of reference for the project was granted on 29th July, 2015 followed by validity extension of ToR vide letter dated 11th December, 2018. Public Hearing for the

proposed expansion project was conducted by State Pollution Control Board on 04th June, 2019. The Public Hearing was chaired by ADM Ujjain. The main issue raised during the public hearing are related to Employment, Water source & Water pollution, Effluent discharge, Gaseous Emission etc.

5. Project Proponent reported that the existing land area is 61.92 ha (619200 m2). No additional land will be required for proposed expansion. Industry has already developed greenbelt in an area of 38% i.e. 23.68 ha (236800 m2) out of total area of the project. Project Proponent reported that there is no National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger/Elephant Reserve, and Wildlife Corridor within 10 km distance from the project site. Dam is at a distance of 2.13 km in NW direction, Bangerl Nadi flows at distance of 2.5 km in West direction, Chambal River flows at a distance of 0.6 km in West direction, Khajuri Nala is at 0.5 km in South direction.

6. Project Proponent reported that total water requirement is 6000 m3/day including fresh water requirement of 5400 m3/day proposed to be met from Chambal river. Effluent of 610 m3/day quantity is being/will be treated in Effluent Treatment Plant. The plant is being/will be based on Zero Liquid discharge system. Power requirement after expansion will be 141 MW including existing 80 MW and will be met from Outsource & Madhya Pradesh State Electricity Board (MPSEB). Existing unit has 2 Nos. DG sets of 2000 KVA capacity each, having 30 metre stack height as per CPCB norms used during power failure. Additionally, no DG sets will be required for proposed expansion project. Existing unit has 2 Hydrogen gas fired boilers of 9 TPH capacity each. No new boiler will be installed.

7. Project Proponent reported that the Ambient air quality monitoring was carried out at 8 locations during Winter Season (Dec., 2016 to Feb., 2017) and the baseline data indicates the ranges of concentrations as: PM10 (63.2 to 90.1 µg/m3), PM2.5 (28.2 to 47.4 µg/m3), SO2 (7.3 to 32.9 µg/m3), NO2 (12.6 to 30.6 µg/m3), respectively. AAQ modeling study for point source emissions indicates that the maximum incremental GLCs after the proposed expansion project would be 0.024 µg/m3, 0.085 µg/m3, 0.10 µg/m3, with respect to PM, Cl2, HCl. The resultant concentration of PM is within the National Ambient Air Quality Standards (NAAQS).

8. The estimated project cost for expansion of the project is ₹285 Crores. Total capital cost earmarked towards environmental pollution control measures is ₹20 Crores and the recurring cost (operation and maintenance) will be about ₹3.4 Crores/annum. The expenditure towards Corporate Environment Responsibility (CER) for the project would be ₹5 Crores of the project cost as committed by the project proponent. Total employment will be 1545 persons (Regular: 245 + Contractual: 1300) including 128 persons (Regular: 28 + Contractual: 100) after expansion of the project.

9. The project proponent has informed that a case was filed in High court and transferred to NGT (Case no.77/2017 CZ) regarding pollution being caused in the river Chambal due to effluents from the industry. As per NGT order, Grasim Industries Ltd. Chemical Division received MPPCB directions, in compliance of which company has achieved ZLD in March, 2018. As on date no other case is due against the existing project.

10. The EAC, constituted under the provision of the EIA Notification, 2006 and comprising of Experts Members/domain experts in various fields, have examined the proposal submitted by the Project Proponent in desired form along with EIA/EMP report prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent. The EAC noted that the Project Proponent has given undertaking

that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP report and public hearing process. If any part of data/information submitted is found to be false/misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

11. The Committee noted that the EIA/EMP report is in compliance of the ToR issued for the project, reflecting the present environmental concerns and the projected scenario for all the environmental components. Issues raised during the public hearing has been properly addressed in the EIA/EMP report. The EAC has deliberated the proposal and has made due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC have found the proposal in order and have recommended for grant of Environmental Clearance (EC).

12. The proposal was considered by the Expert Appraisal Committee (Industry-2) in its meeting held on **20-22 November, 2019**, wherein the project proponent and their accredited consultant presented the EIA/EMP Report. The Committee found the EIA/EMP report to be satisfactory, complying with the ToR, and **recommended** the project for grant of environmental clearance.

13. The Ministry of Environment, Forest and Climate Change has examined the proposal in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments there to and hereby accords the environmental clearance under the provisions thereof to the above mentioned proposal of **M/s Grasim Industries Ltd. (Chemical Division) for Expansion of Caustic Chlorine Products from 2,70,000 TPA to 4,50,000 TPA of Caustic soda and Value Added Derivatives along with installation of new Chloromethane Plant (Para 2 of Page 1), located at Birlagram, Nagda, District Ujjain, Madhya Pradesh** subject to compliance of the followings terms and conditions and environmental safeguards mentioned below:-

A. <u>Specific Conditions:</u>

(i) This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, as may be applicable.

(ii) Necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, as applicable from time to time, shall be obtained from the State Pollution Control Board.

(iii) As already committed by the project proponent, ZLD shall be ensured and no waste/treated water shall be discharged outside the premises.

(iv) Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016; Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.

(v) To control source and the fugitive emissions, suitable pollution control devices shall be installed to meet the prescribed norms and/or the NAAQS. The gaseous

emissions shall be dispersed through stack of adequate height as per CPCB/SPCB guidelines.

(vi) Solvent management, if any, shall be carried out as follows company shall undertake waste minimization measures as below:-

(a) Reactor shall be connected to chilled brine condenser system.
(b) Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
(c) The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 98% recovery.
(d) Solvents shall be stored in a separate space specified with all safety measures.
(e) Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
(f) Entire plant shall be flame proof. The solvent storage tanks shall be provided with breather valve to prevent losses.

(vii) Odour shall be prevented at the source and effective odour management scheme shall be implemented.

(viii) Total fresh water requirement shall not exceed 5400 m^3/day proposed to be met from Chambal River. Prior permission in this regard shall be obtained from the concerned regulatory authority.

(ix) Rain water harvesting structures shall be provided to reduce dependency of fresh surface water for industrial purposes. In any case, no ground water shall be used for the plant.

(x) The storm water from the premises shall be collected and discharged through a separate conveyance system.

(xi) Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm and the solvent transfer through pumps.

(xii) ETP sludge, process inorganic & evaporation salt shall be disposed through Captive Secured Landfill.

(xiii) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.

(xiv) The company shall undertake waste minimization measures as below:-

a. Metering and control of quantities of active ingredients to minimize waste.
b. Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
c. Use of automated filling to minimize spillage.
d. Use of Close Feed system into batch reactors.
e. Venting equipment through vapour recovery system.
f. Use of high pressure hoses for equipment clearing to reduce wastewater generation.

(xv) The green belt of 5-10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.

(xvi) As proposed ₹5 Crores shall be allocated for CER. The CER funds shall be utilized for greenbelt development, skill development and check dam construction, as suggested during public hearing. The CER plan shall be completed within a period of two years or before commissioning of the project.

(xvii) For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.

(xviii) The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.

(xix) Storage of raw materials shall be either stored in silos or in covered areas to prevent dust pollution and other fugitive emissions.

(xx) Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For ZLD, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises. For continuous discharge the unit shall install pH, TSS, BOD, COD and flow meter at the ETP outlet.

(xxi) The energy sources for lighting purposes shall preferably be LED based.

(xxii) Transportation of raw materials/products should be carefully performed using GPS enabled vehicles.

(xxiii) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act. PP shall submit the six monthly compliance report to the Regional Office of the Ministry.

(xxiv) The project proponent shall conduct 3D modeling for risk management and mitigation measures as the flammable and hazardous chemicals are being stored and processed in the Plant. PP shall conduct a study comprise the details of detectors and its locations and outcome of the study shall be implemented and the compliance shall be submitted six monthly to the Regional Office of the Ministry.

(xxv) There shall be adequate space inside the plant premises earmarked for parking of vehicles for raw materials and finished products, and no parking to be allowed outside on public places.

14. The project proponent shall strictly comply the sector specific conditions as mentioned in the Ministry's Office Memorandum No. 22-34/2018-IA.III, dated 9th August, 2018. The said OM is available at the Ministry's website (PARIVESH portal i.e. www.parivesh.nic.in). The grant of Environmental Clearance is further subject to compliance of generic conditions as mentioned in the Ministry's Office Memorandum No. 22-34/2018-IA.III, dated 9th August, 2018.

15. The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest & Climate Change, its regional office, Central Pollution Control Board and State Pollution Control Board.

16. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

17. 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 environmental clearance, if implementation of any of the above conditions is not found satisfactory.

18. 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 Environment (Protection) Act, 1986.

19. Any appeal against this environmental 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.

20. The above conditions will be enforced, *inter-alia* under the provisions of the Water (Prevention & Control of Pollution) Act, 1974; Air (Prevention & Control of Pollution) Act, 1981; Environment (Protection) Act, 1986; Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991, read with subsequent amendments therein and also any other orders passed by the Hon'ble Supreme Court of India/High Court of Madhya Pradesh/Hon'ble NGT and any other Court of Law relating to the subject matter.

21. This issues with the approval of the competent authority.

(Dr. R. B. Lal)
Scientist 'E'/Additional Director

(डा. आर. बी. लाल)
(Dr. R. B. LAL)
वैज्ञानिक 'ई'/Scientist 'E'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min.of Environment,Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi

Copy to: -

1. Principal Secretary, Environment, Forest and Climate Change Department, Govt. of Madhya Pradesh.
2. The Principal Chief Conservator of Forests (PCCF), Satpuda Bhawan, Bhopal, Madhya Pradesh.
3. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi -32.
4. The Chairman, Madhya Pradesh State Pollution Control Board, Paryavaran Parisar, E-5, Arera Colony, Bhopal – 462 016, Madhya Pradesh.
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi – 3.
6. Member Secretary, Central Ground Water Authority, 18/11, Jamnagar House, Man Singh Road,

New Delhi-110011.

7. District Collector, Ujjain, Madhya Pradesh.
8. Guard File/ Record File/ Monitoring File/ Website of MoEF&CC

(Dr. R. B. Lal)
Scientist 'E'/Additional Director

Annexure-02

Consent Order

M.P. Pollution Control Board
E-5, Arera Colony
Paryavaran Parisar, Bhopal - 16 MP
Tele : 0755-2466191, Fax-0755-2463742

RED-LARGE	CCA-Renewal	Validity (A/W): 31.01.2024	CONSENT NO: ***	PCB ID: 25471

Outward No:116713,26/10/2022 Consent No:AW-56933

To,

The Occupier,

M/s. Grasim Industries Ltd., (Chemical Division),

Survey No.-22/1, Birlagram Nagda, Industrial Area Mehatwas,
Tal : Nagda, Dist : Ujjain (M.P.)- 456331

Subject: Grant of Renewal of Consent under section 25 of the Water (Prevention & Control of Pollution) Act,1974 & under section 21 of the Air (Prevention & Control of Pollution) Act,1981

Ref: Your Consent to Operate Application Receipt No. 1212131 Dt. 27/09/2022 and last communication received on Dt.24/09/2022

With reference to your above application for renewal of consent to operate has been considered under the aforesaid Acts and existing rules therein. The M. P. Pollution Control Board has agreed to grant consent up to **31/01/2024**, subject to the fulfillment of the terms & conditions, enclosed with this letter and-

SUBJECT TO THE FOLLOWING CONDITIONS :-

a. Location: Survey No.-22/1, Birlagram Nagda, Industrial Area Mehatwas, Tal : Nagda, Dist : Ujjain (M.P.)- 456331
Latitude : 23.4373, Longitude : 75.4118

b. The capital investment : Rs. 936.14 Cr.

c. Product & Production Capacity:

S. No.	Product	CCA Qty / year
1.	Caustic Soda Lye	3,00,000.0 M.T
2.	Chlorine	2,39,111.0 M.T
3.	Hydrogen	7480.0 M.T
4.	Sodium Hypo	59,470.0 M.T
5.	Hydrochloric Acid	87,800.0 M.T
6.	Compressed Hydrogen	1070.0 M.T
7.	Stable Bleaching Powder	43800.0 M.T
8.	Poly Aluminium Chloride	36,500.0 M.T
9.	Chloro Sulphonic Acid	23,400.0 M.T
10.	Chlorinated Paraffin Wax	27,000.0 M.T
11.	Calcium Chloride	54,000.0 M.T
12.	Carbon Di Oxide	23,760.0 M.T
13.	DG – Set (Electricity Generation)	2X 2000KVA

Note :- (1) For any change in above industry shall obtain fresh consent from the board.

(2) This consent is being granted without prejudice to the Criminal proceeding pending against the industry in the Court of Law. This consent in no way be taken as measures of proof that the industry has not violated any pollution control laws at any time in the past. Hence, whatsoever may be decision of the Hon'ble Court shall be binding to the industry and this Board.

(3) The hydrochloric acid generated from air pollution control arrangement shall be treated as hazardous waste and same shall be handled and transported as per category 33.1 of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 and need to obtain permission under Rule 9 even used or treated within the plant.

The Validity of the consent is up to **31/01/2024** and has to be renewed before expiry of consent validity. Online application through XGN with annual license fees in this regard shall be submitted to this office **6 months before expiry of the consent**. Board reserves the right to amend/cancel / revoke the above condition in part or whole as and when required.

By the order of Chairman, MPPCB

Achyut mishra

Signature Not Verified
Digitally Signed by : A. A Mishra, Member Secretary
Date: 26/10/2022 04:25:41 PM

ACHYUT ANAND MISHRA
Member Secretary

under Water Act
under Air Act
General Conditions
(Organic Authentication on AADHAR from UIDAI Server)
TPAV # 6B9SD8F9F6

53

M.P. Pollution Control Board
E-5, Arera Colony
Paryavaran Parisar, Bhopal - 16 MP
Tele : 0755-2466191, Fax-0755-2463742

CONDITIONS PERTAINING TO WATER (PREVENTION & CONTROL OF POLLUTION) ACT 1974 :-

1. The daily quantity of trade effluent of the unit shall not exceed **433.0 KL/day**, and the daily quantity of sewage of the unit shall not exceed **60.0 KL/day.**

2. Trade Effluent Treatment:-

The applicant shall operate comprehensive effluent treatment system including ETP, RO MEE & Dryer to remain Zero Liquid Discharge (ZLD) and in case of accidental discharge the waste shall be treated properly to achieve following standards

pH	Between	5.5 – 9.0
Suspended Solids	Not exceed	100 mg/l.
BOD_3 Days 27 °C	Not exceed	30 mg/l.
COD	Not exceed	250 mg/l.
Oil and grease	Not exceed	10 mg/l.

TDS	Not exceed	2100 mg/l.
Chlorides	Not exceed	1000 mg/l.

For other parameters general standards of discharge as notified under EP Act 1986 notified by MPPCB from time to time shall be applicable

3. Sewage Treatment :-

The applicant shall provide comprehensive sewage treatment system and maintain the same properly to achieve following standards-

pH	Between	6.5 – 9.0
Suspended Solids	Not exceed	100 mg/l.
BOD_3 Days 27 °C	Not exceed	30 mg/l.
COD	Not exceed	250 mg/l.
Oil and grease	Not exceed	10 mg/l.
Fecal Coliform (MPN/100ml)	Not exceed	1000

4. The effluent shall be treated up to prescribed Standards and reuse in the process, for cooling and for green belt devolvement/gardening within premises. Hence **zero discharge condition** shall be practiced. In no case treated effluent shall be discharged outside of industry/unit premises.

5. Water meter preferably electromagnetic/ultrasonic type with digital flow recording facilities shall be installed separately for category wise consumption of water for Industrial cooling/boiler feed, process & domestic purposes and data shall be submitted online through XGN monthly patrak/statements. The industry/unit shall also monitor the treated wastewater flow and report the same online through monthly patrak/statements.

Sr	Water Code (Qty in KLD)	WC : 3293.0	WWG 493.0	:Water Source
1	Cooling Water	1510.0	345.0	Local Body
2	Domestic Purpose	93.0	60.0	Local Body
3	Manufacturing Process	1690.0	88.0	Local Body

6. Any change in production capacity, process, raw material used etc. and for any enhancement of the above prior permission of the Board shall be obtained. All authorized discharges shall be consistent with terms and conditions of this consent. Facility expansions, production increases or process modifications which result new or increased discharges of pollutants must be reported by submission of a fresh consent application for prior permission of the Board.

7. All treatment/control facilities/systems installed or used by the applicant shall be regularly maintained in good working order and operate effectively/efficiently to achieve compliance of the terms and conditions of this consent

8. The specific effluent limitations and pollution control systems applicable to the discharge permitted herein are set forth as above conditions.

9. Compilation of Monitoring data-

i. Samples and measurements taken to meet the monitoring requirements specified above shall be representative of the volume and nature of monitored discharge.

ii. Following promulgation of guidelines establishing test procedures for the analysis of pollutants, all sampling and analytical methods used to meet the monitoring requirements specified above shall conform to such guidelines unless otherwise specified sampling and analytical methods shall conform to the latest edition of the Indian Standard specifications and where it is not specified the guidelines as per standard methods for the examination of Water and Waste latest edition of

the American Public Health Association, New York U.S.A. shall be used.
iii. The applicant shall take samples and measurement to meet the monthly requirements specified above and report online through XGN the same to the Board.

10. Recording of Monitoring Activities & Results-
i. The applicant shall make and maintain online records of all information resulting from monitoring activities by this Consent.
ii. The applicant shall record for each measurement of samples taken pursuant to the requirements of this Consent as follows:

(i) The date, exact place and time of sampling
(ii) The dates on which analysis were performed
(iii)Who performed the analysis?
(iv)The analytical techniques or methods used and
(v)The result of all required analysis

iii. If the applicant monitors any Pollutant more frequently as is by this Consent he shell include the results of such monitoring in the calculation and reporting of values required in the discharge monitoring reports which may be prescribed by the Board. Such increased frequency shall be indicated on the Discharge Monitoring Report Form.
iv. The applicant shall retain for a minimum of 3 years all records of monitoring activities including all records of Calibration and maintenance of instrumentation and original strip chart regarding continuous monitoring instrumentation. The period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the applicant or when requested by Central or State Board or the court.

11. Reporting of Monitoring Results:-
Monitoring Information required by this Consent shall be summarized and reported by submitting a Discharge Monitoring report on line to the Board.

12. Limitation of discharge of oil Hazardous Substance in harmful quantities:-
The applicant shall not discharge oil or other hazardous substances in quantities defined as harmful in relevant regulations into natural water course. Nothing in this Consent shall be deemed to preclude the institution of any legal action nor relive the applicant from any responsibilities, liabilities, or penalties to which the applicant is or may be subject to clauses.

13. Limitation of visible floating solids and foam:
During the period beginning date of issuance the applicant shall not discharge floating solids or visible foam.

14. Disposal of Collected Solid waste/sludge-
All hazardous waste/sludge shall be disposed of as per the Authorization issued under Hazardous & other waste (M&TM) Rules 2016. And/other Solids Sludges, dirt, silt or other pollutant separated from or resulting from treatment shall be disposed of in such a manner as to prevent any pollutant from such materials from entering any such water Any live fish, Shall fish or other animal collected or trapped as a result of intake water screening or treatment may be returned to eaters body habitat.

15. Provision for Electric Power Failure-
The applicant shall assure to the consent issuing authority that the applicant has installed or provided for an alternative electric power source sufficient to operate all facilities utilized by the applicant to maintain compliance with the terms and conditions of the Consent.

16. Prohibition of By pass system of treatment facilities-
The diversion or by-pass of any discharge from facilities utilized by the applicant to maintain compliance with the terms and conditions of this Consent in prohibited except:
i. where unavoidable to prevent loss of life or severe property damage, or
ii. Where excessive storm drainage or run off would damage any facilities necessary for compliance with the terms and conditions of this Consent. The applicant shall immediately notify the consent issuing authorities in writing of each such diversion or by-pass in accordance with the procedure specified above for reporting non-compliance.

17. Industry management shall submit the information online through XGN in reference to compliance of consent conditions.

Additional Water condition:-

1. The industry shall take all the effluent through closed conduit to effluent treatment plant and ZLD system and maintain ZLD.
2. Domestic sewage shall be treated in STP up to the prescribed standards and shall be recycled/reused within the plant in process, cooling, gardening etc to remain ZLD unit.
3. The industry shall operate and maintain wastewater flow meter at each unit and inlet of ETP to ensure complete collection of

wastewater for treatment.

4. The industry shall operate and maintain CEQMS at inlet of ETP & MEE to monitor TDS, Flow, Chlorides, pH, COD etc and display the same in public domain though web based realtime display Board.
5. The industry shall comply with the industry specific standards notified by the MoEF&CC.

CONDITIONS PERTAINING TO AIR (PREVENTION & CONTROL OF POLLUTION) ACT 1981 :-

1. The applicant shall provide comprehensive air pollution control system consisting of control equipments as per the proposal submitted to the Board with reference to generation of emission and same shall be operated & maintained continuously so as to achieve the level of pollutants to the following standards:-

Name of section	Capacity	Stack height (mtrs)	Fuel	Control equipment to be installed	(mg/NM^3)	CEMS
Caustic unit-I	5.5 m^3/Hr	32	---	Alkali Scrubber,	Chlorine-15	**Online real- time emission monitoring systems to be installed and connected to MPPCB, ESC, Bhopal on orbefore application for CTO**
	2 m^3/Hr	34	---	Water Scrubber,	HCl mist-35	
	2 m^3/Hr	34	---	Water Scrubber,	HCl mist-35	
Caustic Unit-II	0.5m^3/Hr	34	---	Alkali Scrubber,	Chlorine-15	
	1 m^3/Hr	34	---	Water Scrubber,	HCl mist-35	
	1 m^3/Hr	34	---	Water Scrubber,	HCl mist-35	
Stable bleaching Powder (De-dusting unit)	2 m^3/hr	30	---	Bag Filter, Cyclone ,Dust Collector, Gravity Settling Chamber, Hood Cover,	PM-50, Cl_2-15	
	2 m^3/hr	30	---	Bag Filter, Cyclone ,Dust Collector, Gravity SettlingChamber, Hood Cover,	PM-50, Cl_2-15	
PAC Liquid	3.5 m^3/hr	34	---	Water Scrubber	HCl Mist-35	
PAC Dryer-I	6 m^3/hr	34	---	Water Scrubber	HCl Mist-35	
PAC Dryer-II	5.5 m^3/hr	34	---	Water Scrubber	HCl Mist-35	
Chloro sulphonic Acid	1.5 m^3/hr	30	---	H_2SO_4 scrubber	SO_3-50	
	1.5 m^3/hr	30	---	Water Scrubber,	HCl Mist-35,PM-50	
CPW Plant	5 m^3/hr	34	---	Water Scrubber	HCl Mist-35	
				Alkali Scrubber	Cl_2 -15	
Calcium Chloride Plant	5 m^3/hr	34	---	Water Scrubber	HCl Mist-35	
D.G. Sets	2 x 2000 KVA	30	Diesel	Acoustic enclosure, Muffler,	As per CPCB/MoEFCC	

2. Ambient air quality at the boundary of the industry/unit premises shall be monitored and reported to the Board regularly on quarterly basis: The Ambient air quality norms are prescribed in MoEF gazette notification no. GSR/826(E), dated: 16/11/09. Some of the parameters are as follows:
   a. Particulate Matter (less than 10 micron) - 100 µg/m³ (PM10 µg/m³ 24 hrs. basis)
   b. Particulate Matter (less than 2.5 micron) - 60 µg/m³ (PM2.5 µg/m³ 24 hrs. basis)
   c. Sulphur Dioxide [SO2] (24 hrs. Basis) - 80 µg/m³
   d. Nitrogen Oxides [NOx] (24 hrs. Basis) - 80 µg/m³
   e. Carbon Monoxide [CO] (8 hrs. Basis) - 2000 µg/m³

3. The industry shall take adequate measures for control of noise level generated from industrial activities within the premises less than 75 dB(A) during day time and 70 dB(A) during night time.

4. The industry/unit shall make the necessary arrangements for control of the fugitive emission from any source of emission/section/activities.

5. All other fugitive emission sources such as leakages, seepages, spillages etc shall be ensured to be plugged or sealed or made airtight to avoid the public nuisance.

6. The industry/ unit shall ensure all necessary arrangements for control of odour nuisance from the industrial activities or process within premises

7. All the internal roads shall be made pucca to control the fugitive emissions of particulate matter generated due to transportation and internal movements. Good housekeeping practices shall be adopted to avoid leakages, seepages, spillages

etc.

8. Industry shall take effective steps for extensive tree plantation preferably of the local tree species within or around the industry/unit premises for general improvement of environmental conditions and as stated in below. **(Minimum number of plants to be planted by the unit:-59200)**

Additional Air condition:-

1. Online real-time emission monitoring systems shall be installed, operated and maintained at all emission points and shall remain connected to MPPCB, ESC, Bhopal all the time. For any break down, immediate intimation shall be sent.

2. The industry shall install adequate numbers of the HCl mist & Chlorine detection censors within the plant premises and the same shall be connected to the public display system .

3. The industry shall submit the sources emission monitoring report to the Board regularly on monthly basis to ensure the emission within norms and effective performance of the scrubbers.

GENERAL CONDITIONS:

1. The non hazardous solid waste arresting in the industry/unit/unit premises sweeping, etc. be disposed off scientifically so as not to cause any nuisance/pollution. The applicant shall take necessary permission from civic authorities for disposal to dumping site. If required.

Non Hazardous Solid wastes:-

Type of waste	Quantity	Disposal
STP Sludge	4.167 MT	**Composting and used as manure or land fill after composting**
Food Waste	0.833 MT	
Glass Waste	0.167 MT	**The materials to be sold to the authorized and consented actual users and the intimation of each dispatch shall be given to the Board**
PVC Frills Cooling Tower	0.167 MT	
Paper wastes, Waste Carton, Discarded Poster, Carpet	0.833 MT	
Wooden Waste	8.330 MT	
General Trash/Refuse, Gardening Waste	8.330 MT	
Metal Scrap, Valve & Pipe, Copper & Aluminium Cables	83.330 MT	
Discarded Equipment/machinery	8.330 MT	
Construction and Demolition Waste	83.330 MT	**As per Construction and demolition Rules 2016, disposal shall be ensured**
Other Sludge (Drain & Pit)	25.00 MT	
CaCl2	291.670 MT	**It shall be given to the actual users**

2. The applicant shall allow the staff of Madhya Pradesh Pollution Control Board and/or their authorized representative, upon the representation of credentials:

a. To inspect raw material stock, manufacturing processes, reactors, premises etc to perform the functions of the Board.

b. To enter upon the applicant's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this Consent.

c. To have access at reasonable times to any records required to be kept under the terms and conditions of this Consent.

d. To inspect at reasonable times any monitoring equipment or monitoring method required in this Consent: or,

e. To sample at reasonable times any discharge or pollutants.

3. This consent is transferable in nature, in case of any change in ownership / management, the new owner / partner / directors / proprietor shall immediately apply for the consent with new requisite information.

4. The issuance of this Consent does not convey any property rights in either real or personal property or any exclusive privileges, nor does it authorise any invasion of personal rights, nor any infringement of Central, State or local laws or regulations.

5. Industry shall install separate electric metering arrangement for running of pollution control devices and this arrangement shall be made in such fashion that any non functioning of pollution control devices shall immediately stop electric supply to the production and shall remain tripped till such time unless the pollution control device/devices are made functional. The record of electricity consumption for running of pollution control equipment shall be maintained and submitted to the Board every month

6. This consent is granted in respect of Water pollution control Act 1974 or Air Pollution Control act, 1981 only and does not relate to any other Department/Agencies. License required from other Department/Agencies have to be obtained by the unit separately and have to comply separately as per there Act / Rules.

7. Balance consent fee, if any shall be recoverable by the Board even at a later date.

8. The applicant shall submit such information, forms and fees as required by the board not letter than 180 day prior to the date of expiration of this consent.

9. The industry/unit shall establish a separate environmental cell, headed by senior officer of the unit for reporting the environmental compliances. The industry/ Unit shall submit environmental statement for the previous year ending 31st March on or before 30th September every year to the Board.

10. Industry shall obtain membership of Emergency Response Center of the Board if needed.

11. Knowingly making any false statement for obtaining consent or compliance of consent conditions shall result in the imposition of criminal penalties as provided under the section 42(g) of the Water Act or section 38 (g) of the Air Act.

12. After notice and opportunity for the hearing, this consent may be modified, suspended or revoked by the Board in whole or in part during its term for cause including, but not limited to, the following :

(a) Violation of any terms and conditions of this Consent.
(b) Obtaining this Consent by misrepresentation of failure to disclose fully all relevant facts.
(c) A change in any condition that requires temporary or permanent reduction or elimination of the authorized discharge.

13. On violation of any of the above-mentioned conditions the consent granted will automatically be taken as canceled and necessary action will be initiated against the industry.

Additional condition:-

1. The Industry shall operate & maintain Outdoor HD Industrial grade IP (Internet Protocol) Cameras with pan-Tilt Zoom (PTZ) feature, minimum focal length 20X with night vision facility and temper proof mechanism at suitable location to display all emission sources and effluent discharge point and connect the same with Environment Surveillance Centre, MP Pollution control board Bhopal for remote surveillance.

2. The industry shall inventorise the solid waste generation from the unit and submit the details within one month to the board and update same within 06 months for actual quantities.

3. The industry shall obtain the public liability insurance under Public Liability Act 1991 and shall maintain valid copy of the same.

4. The industry shall maintain valid Onsite Emergency Plan/ Disaster Management Plan duly approved by Department of Industrial Health & Safety.

5. The industry shall obtain membership of Emergency Response Center, MPPCB, Bhopal.

6. The industry shall comply with the all conditions of CREP Charter conditions, EC stipulations issued vide F No. 11011/119/2015- IA-I(I) dated 07/01/2020 and standards notified by Ministry of Environment, Forests and Climate Change, GoI, Dehli under EPA 1986 .

7. The industry shall not be permitted to store the hazardous wastes more than 90 days as prescribed in HOWM Rules, 2016 and firm arrangements shall be made with the end users and copy of MoUs shall be submitted within 03 months to the Board.

8. Based on hazard identification and risk analysis, risk mitigation measures, industry shall ensure all possible efforts with coordinations local bodies to reduce risk and enhance safety at the plant and its surroundings.

9. The industry shall maintain the material balance for each product and submit the same to the Board annually.

10. Information of each Mock drill shall be given to local body, local administration & MPPCB RO, Ujjain atleast 07 days in advance.

11. The fire safety arrangements shall be maintained properly and tested during each mock drill.

Renewal of Consent as required under the Water (Prevention & Control of Pollution) Act, 1974 & The Air (Prevention & Control of Pollution) Act, 1981 is granted to your industry subject to fulfillment of all the conditions mentioned above. For further renewal purpose you shall have to make an application to this Board through XGN at least Six months before the date of expiry of this consent. The applicant without valid consent (for operation) of the Board shall not bring in to use any outlet for the discharge of effluent and gaseous emission.

For and on behalf of
M.P. Pollution Control Board

By the order of Chairman, MPPCB

Achyut mishra

ACHYUT ANAND MISHRA
Member Secretary

eSign Seeding from UIDAI Server
Digitally Sign with Aadhaar

(Organic Authentication on AADHAR from UIDAI Server)
TPAV # 6B9SD8F9F6

Consent No:AW-56933

MADHYA PRADESH POLLUITON CONTROL BOARD

Paryawaran Parisar, E-5, Arera Colony, Bhopal - 462 016 (M.P.)

Phone : (0755) 2466191/ 24664428 Fax : (0755) 24663742 E-mail : it_mppcb@rediffmail.com

Annexure-03

No. 856 /HO/MPPCB/CPCB-Dir/2020 Bhopal, dt. 13/05 /2020

To,

The Occupier,
M/s. Grasim Industries Ltd.,
Chemical Division,
Survey No.-22/1, City : Birlagram Nagda,
Tehsil : Nagda, Dist : Ujjain, (M.P.)

SPEED POST

Sub: Direction under 33-A of Water (Prevention and Control of Pollution) Act 1974 –reg.
Ref: CPCB Directions to MPPCB vide letter B-29016/04/06/IPC-I/ February 19,2020

WHEREAS, you are operating an industry M/s. Grasim Industries Ltd., (Chemical Division) at Survey No. 22/1, City : Birlagram Nagda, Tehsil : Nagda, Dist : Ujjain, (M.P.) against the provisions of Water (Prevention and Control of Pollution) Act, 1974 ; and

WHEREAS, M.P. Pollution Control Board has granted conditional consent u/s 25/26 of Water (Prevention and Control of Pollution) Act, 1974 and under section 21 of Air (Prevention and Control of Pollution) Act 1981; and

WHEREAS, CPCB has received a reference from Hon'ble Member of Parliament (Lok Sabha) Ujjain, Madhya Pradesh dated December 30, 2019 regarding water pollution in the river Chambal caused by industries located in Nagda region, Madhya Pradesh; and

WHEREAS, the Chambal river stretch from Nagda to Rampura has been identified by Central Pollution Control Board as polluted river stretch and Madhya Pradesh Pollution Control Board (MPPCB) has prepared an action plan for rejuvenation of river Chambal in compliance of the Hon'ble NGT order dated 20.09.2018 in the matter of O.A. 673/2018; and

WHEREAS, a team of officers from CPCB Head office Delhi and Regional office Bhopal along with a representative nominated by Hon'ble M.P. inspected the area during January 07.08.2020 to investigate the matter and observed the following :

a. The pH values found 5.9 & 5.5 at 02 locations of river Chambal i.e. 200m downstream after confluence of industrial domestic & 3.5 km downstream of river Chambal near Parmarkhedi village respectively, which indicate water is not fit for irrigation as per designated best use Water Quality Criteria.
b. High Level of Mercury in the range of 0.0025 mg/l 0.0364 mg/l (more than 0.001 mg/l) found in 06 water samples, Lead in the range of 0.015 mg/l, 0.375 mg/l (more than 0.01 mg) found in 7water samples & Aluminum in the range of 0.04 mg/l – 2.565 mg/l (more than 0.03 mg/l) found in 10 water samples collected from river Chambal, dug well(s) and hand pump(s) and which indicates water is not fit for drinking purpose as per BIS-10500:2012.
c. High level of Mercury in the range of 0.004 mg/l 0.0364 mg/l (more than 0.001 mg/l) found in 03 water samples, Lead 0.025 mg/l (more than 0.01mg/l) found in 03 water samples, & Aluminium in the range of 0.06 mg/l – 0.735 mg/l (more than 0.03 mg/l) found in 6 water samples collected and which indicates contamination with old secured land fill (SLF) containing mercury bearing brine sludge.
d. M/s. Grasim Industries Ltd., (Chemical Division) has installed peizometers in North & South direction of industry to assess any leakage from new SLF site and it was observed that river Chambal is flowing in West direction of industry.
e. A study was conducted by CSIR-NEERI, Hyderabad on "Assessment of groundwater quality in

40

MADHYA PRADESH POLLUITON CONTROL BOARD
Paryawaran Parisar, E-5, Arera Colony, Bhopal - 462 016 (M.P.)
Phone : (0755) 2466191/ 24664428 Fax : (0755) 24663742 E-mail : it_mppcb@rediffmail.com

and around M/s. Grasim Industries Limited, (Chemical Division), Nagda in May 2018, which mentioned that lead concentration in the ground water samples many time higher than the desirable limits (0.01 mg/l) under BIS 10500:2012 at buffer zone of 5 km surrounding the industry.

f. M/s. Grasim Industries Ltd., (Chemical Division) and M/s. laxness India Pvt. Ltd., have achieved zero liquid discharge (ZLD).
g. High values of Sulphate i.e. 3161 mg/l was found in river Chambal water sample at downstream of the M/s. Grasim Industries Ltd., (staple Fiber Division) which due to discharge of industrial effluent after treatment to the industrial drain joining to river Chambal. M/s. Grasim Industries Ltd., (SFD) Nagda has submitted action plan to fulfill zero liquid discharge (ZLD) conditions till January 2021 & deposited bank guarantee of Rs. 15 crore to MPPCB, Bhopal on 30.11.2019. Currently, industry is restricted by MPPCB to discharge up to 12500 KLD.
h. The Municipal council of Nagda has prepared DPR of Rs. 61.40 Crore for the sewerage line & treatment of domestic waste water generated from Nagda Town. The project is pending for sanctioning & tendering in M.P. Urban Development Company Bhopal (MPUDC).
i. The water Resources Department, Ujjain informed that Barrage-Cum-diversion scheme of Rs. 64.14 Cr. is proposed at Ninawada Kheda (about 7 km downstream of Nagda town) and will be used for dilution purpose of polluted water coming from Nagda town.
j. The Public Health Engineering Department (PHED) & the M.P. Jal Nigam Maryadith Periyogna ahs prepared scheme of Rs. 29.29 Crore to supply potable water coming from Nagda town.
k. The Regional office, MPPCB has prepared & submitted a study project named "Study of Underground water quality in adjacent villages of River Chambal from village Pipoloda (Dist Ujjain) to village. Tal (Dist. Ratlam of Rs. 1.14 Crore for sanctioning from MPPCB, Bhopal Head Office.

WHEREAS, water quality of the surrounding area including river Chambal has been deteriorated due to the discharge of industrial effluent as well as domestic effluent; and

WHEREAS, in view of the above, CPCB in exercising the powers conferred to them under Section 18(1) (b) of the Water (Prevention & Control) of Pollution Act, 1974, has issued mandatory directions to Madhya Pradesh Pollution Control Board (MPPCB) to issue necessary directions u/s 33 A of the Water Act, 1974 to the industries of Nagda i.e. M/s. Grasim Industries Ltd., (Chemical Division) (ii). M/s. Grasim Industries Ltd., (SFD) (iii) Lanxess India Pvt. Ltd., and also to the local bodies of Madhya Pradesh for compliance.

In light of the above facts and mandatory directions of CPCB, now therefore in exercise of the power conferred upon under section 33 A of the Water (Prevention and Control of Pollution) Act 1974, you are hereby directed as follows :-

(i) Industry shall establish peizometers in proper direction of river Chambal to detect the groundwater contamination. The unit shall carry out a detailed leak detection study around the old SLF w.r.t. damage liners of old SLF leakages to be repaired immediately for prevention of further contamination of ground water.
(ii) Industry shall include their by-product acids in hazardous waste authorization immediately.
(iii) Industry shall maintain the installed PTZ camera and online flow meter at ETP area and remain connected with MPPCB server without failure.
(iv) Industry in consultation with the Public Health Engineering Department, Nagda shall ensure supply drinking water immediately in affected villages along the bank of Chambal River & help PHED to identify and seal the water source where increased concentration of Lead (Pb)

41

MADHYA PRADESH POLLUITON CONTROL BOARD
Paryawaran Parisar, E-5, Arera Colony, Bhopal - 462 016 (M.P.)
Phone : (0755) 2466191/ 24664428 Fax : (0755) 24663742 E-mail : it_mppcb@rediffmail.com

was found in CSIR-NEERI (2018) report.

(v) The hazardous waste generated from the industry shall be transported only through GPS enable transport vehicles and MPPCB shall keep a vigil on the same.

(vi) Industry shall keep complete track record of acid and wastes generated in the unit and shall submit on monthly basis to Local administration to ensure vigil on illegal discharge of acid/industrial waste in river Chambal in closed co-ordination with Emergency Response Centre, MPPCB, Bhopal and Sub-regional office of MPPCB, Nagda.

(vii) Industry shall submit plan of remediation measures of ground water contamination in Nagda & adjacent villages immediately.

(viii) A detailed health study for Nagda region to be carried out in light of synergistic health effects of pollutant like Cl_2, HCl etc. by engaging any reputed government institute working in the field of Research in Environmental Health in consultation with MPPCB and Regional Director, Health services within 6 months.

You are hereby directed to submit an action plan for the compliance of above directions within a period of 15 days from the date of issue of these directions failing which the interlia action shall be initiated against the industry and all responsible occupiers under section 41 of the Water (Prevention & Control of Pollution) Act, 1974.

For and on behalf of
M.P. Pollution Control Board,

(R.S. Kori)
Member Secretary

Copy to:

Endt. No. 857 /HO/MPPCB/CPCB-Dir/2020 Bhopal, dt. 13/05 /2020

1. Shri Dilip Gaur, Managing Director, M/s. Grasim Industries Limited, Aditya Birla Centre, S. K. Ahire Marg, Worly Mumbai (India)-400030 for compliance.
2. Shri Shushil Agarwal, Director, M/s. Grasim Industries Limited, Aditya Birla Centre, S. K. Ahire Marg, Worly Mumbai (India)-400030 for compliance.
3. The Collector, Ujjain for information and necessary action please.
4. Sub-Divisional Magistrate, Nagda, District Ujjain for information and necessary action please.
5. The Executive Engineer, Public Health Engineering Department, Ujjain for information and necessary action please.
6. The Regional officer, Regional Office, M.P. Pollution Control Board, Ujjain, for information necessary action please.
7. Incharge, Legal Section, M.P. Pollution Control Board, Bhopal, for information please.

(R.S. Kori)
Member Secretary

42

GRCD | 6

ADITYA BIRLA
GRASIM

To,
Member Secretory
MP, Pollution Control Board,
Paryavaran Parisar, E-5, Area Colony,
Bhopal-462016

Date: 27.05.2020

Dear Sir,

Subject: Direction issued by MPPCB under 33-A of Water (Prevention and Control of Pollution) Act 1974 regarding reference CPCB direction to MPPCB vide letter B-29016/04/06/IPC-I/February 19,2020

This is in reference to your letter No. 856/HO/MPPCB/CPCB-Dir/2020, Bhopal dated 13th May 2020, we would like to respectfully submit pointwise action plan as under;

Direction	Reply
1. Industry shall establish Piezometers in proper direction of river Chambal to detect the groundwater contamination.	Unit has contacted Central Ground Water Authority, Bhopal for inspection of existing locations of Piezometers and establish the right direction. Also for installation of new Piezometers around the secured land fill site if required. The request submitted vide letter No. GRCD/699 dated 14.03.2020 under copy to MPPCB, Bhopal and waiting for the response from their end. We also requesting MPPCB to advise us on the same accordingly so that the same can be execute on priority (Copy of the letter is attached as Annexure:1)
The unit shall carry out a detailed leak detection study around the old SLF w.r.t. damage liners of old SLF leakages to be repaired immediately for prevention of further contamination of ground water	To carried out the leak detection study for liners of old SLF. Site has contacted NEERI, Nagpur and received proposal, enclosed as Annexure 2 for reference. Unit also in contact with IIT Delhi & IIT Kanpur, through mail to Mr. Manoj Dutta and Mr. Mukesh Sharma respectively for above study. Response awaited.
2. Industry shall include their by-product acids in hazardous waste authorization immediately.	The acids manufactured by Unit are Co – Product and by product. Acids produces under controlled and well established graphite absorption system having superior quality and used in all processes. The details of manufacturing process are enclosed as Annexure 3 for reference. Being the by

Grasim Industries Limited
Chemical Division
Birlagram - 456 331, Nagda (M.P.) INDIA Tele: +91 7366 246760-66 Fax : +91 7366 246176, 246767
E-mail : grasimchem@adityabirla.com Website : www.adityabirlachemicals.com CIN : L17124MP1947PLC000410
Regd. Office : P.O. Birlagram, Nagda - 456 331 (M.P.)

43

	product and Co – Product these acids not covered under the Hazardous Waste Rules 2016. In reference to the CPCB guidelines for identification of material as Waste or by Product as per hazardous Waste Rule 2016, we are planning for the comprehensive analysis for characterization of these Acids from MoEF approved laboratory, share the report with MPPCB once the sample get analysed.
3. Industry shall maintain the installed PTZ camera and online flow meter at ETP area and remain connected with MPPCB server without failure.	Site has already installed PTZ Camera as well as flow meter as per guidelines and real time connectivity well established with MPPCB & CPCB server. The report of online connectivity enclosed as Annexure 4 for reference.
4. Industry in consultation with the Public Health Engineering Department, Nagda shall ensure supply drinking water immediately in affected villages along the bank of Chambal River & help PHED to identify and seal the water source where increased concentration of Lead (Pb) was found in CSIR-NEERI (2018) report	Lead is not used in any of our manufacturing process of either as raw material or as catalyst or in any other processes. However, Grasim Industries Limited our group Unit already installed drinking water RO plant in Parmarkhedi village and we are providing drinking water in Pardi village through pipeline. For further action Unit will discuss with Public Health Engineering Department, Nagda.
5. The hazardous waste generated from the industry shall be transported only through GPS enable transport vehicles and MPPCB shall keep a vigil on the same.	GIL is transporting the hazardous waste to Common TSDF M/S Ramky Waste Management, Pithampur through GPS enabled vehicles and Monthly Report is being submitted regularly to MPPCB along with Manifest details (Copy of March 2020 report enclosed as Annexure 5). Presently Unit transporting all Chemicals produced through GPS enabled vehicles only.
6. Industry shall keep complete track record of acid and wastes generated in the unit and shall submit on monthly basis to Local administration to ensure vigil on illegal discharge of acid/industrial waste in	Unit from last several year preparing details monthly report for acid and waste generation, dispatch to various customer with details and disposal, submit the same to MPPCB. From

Grasim Industries Limited
Chemical Division
Birlagram - 456 331, Nagda (M.P.) INDIA Tele: +91 7366 246760-66 Fax: +91 7366 246176, 246767
E-mail : grasimchem@adityabirla.com Website : www.adityabirlachemicals.com CIN : L17124MP1947PLC000410
Regd. Office : P.O. Birlagram, Nagda - 456 331 (M.P.)

4H

ADITYA BIRLA

GRASIM

river Chambal in closed co-ordination with Emergency Response Centre, MPPCB, Bhopal and Sub-regional office of MPPCB, Nagda.	May 2020 the same report will submit to Local Administration, Nagda as per direction.
7. Industry shall submit plan of remediation measures of ground water contamination in Nagda & adjacent villages immediately	Unit have already contracted with CSIR -NEERI for comprehensive and detailed assessment of ground water quality with the consultation of MPPCB (Work order is enclosed as Annexure 6) for 5 years. Report of year 2018 already with MPPCB, while report of year 2019 awaited and will receive very soon as per NEERI. Based on NEERI recommendation Unit will prepare the remediation plan to improve the ground water quality.
8. A detailed health study for Nagda region to be carried out in light of synergistic health effects of pollutant like Cl_2, HCl etc. by engaging any reputed government institute working in the field of Research in Environmental Health in consultation with MPPCB and Regional Director, Health services within 6 months	Being a Corporate Citizen Unit is requesting your good self to advise us for engaging the reputed government institute working in the field of Research in Environmental Health. In the meantime Unit will also contact with Regional Director Health Services to complete the study within time frame.

We assure our best co-operation and commit to adopt best operational practices for the protection of environment.

Thank you

Yours sincerely,

Prem Tiwari
Unit Head
Grasim Chemical Division
Birlagram, Nagda

CCTO: [1] R O, MP Pollution Control Board, Ujjain
[2] Collector office Ujjain: for Kind Information Please
[3] SDM office Nagda: for Kind Information Please
[4] Executive Engineer, PHED Ujjain: for Kind Information Please

Encl: as above

Grasim Industries Limited
Chemical Division
Birlagram - 456 331, Nagda (M.P.) INDIA Tele: +91 7366 246760-66 Fax : +91 7366 246176, 246767
E-mail : grasimchem@adityabirla.com Website : www.adityabirlachemicals.com CIN : L17124MP1947PLC000410
Regd. Office : P.O. Birlagram, Nagda - 456 331 (M.P.)

ADITYA BIRLA

GRASIM

To: GRCD/ENV/152

Date: 2nd Sept 2020

Member Secretory
MP, Pollution Control Board,
Paryavaran Parisar, E-5, Area Colony,
Bhopal-462016

Dear Sir,

Subject: Direction issued by MPPCB under 33-A of Water (Prevention and Control of Pollution) Act 1974 regarding reference CPCB direction to MPPCB vide letter B-29016/04/06/IPC-I/February 19,2020

This is in continuation to our letter GRCD/6/dated 27th May 2020 in reference to your letter No. 856/HO/MPPCB/CPCB-Dir/2020, Bhopal dated 13th May 2020 and subsequent to our last virtual meeting dated 16th June 2020 and your letter no. 1163 dt. 30.06.2020 and 1490 dt. 31.08.2020 we would like to respectfully submit the present progress status of action plan as of 2nd September 2020 as under:

Direction	Reply
1. Industry shall establish Piezometers in proper direction of river Chambal to detect the groundwater contamination.	Unit continuously follow up with Central Ground Water Authority, Bhopal under copy to MPPCB regarding inspection of existing locations of Piezometers and establish the right direction. Also, for installation of new Piezometers around the secured land fill site if required.
	Letter received from Regional Director of CGWA and copy to you and they advised approach to MPPCB for guidance.
The unit shall carry out a detailed leak detection study around the old SLF w.r.t. damage liners of old SLF, leakages to be repaired immediately for prevention of further contamination of ground water	For carrying out leak detection study for leakages of liners at old SLF, we have received and submitted proposal from NEERI Nagpur for your kind perusal & approval. We are also in contact with IIT Delhi but due to COVID-19 situation, they are unable to visit site for further discussion and assessment before moving forward to next stage.

Grasim Industries Limited
Chemical Division
Birlagram - 456 331, Nagda (M.P.) INDIA Tele: +91 7366 246760-66
E-mail : grasimchem@adityabirla.com Website : www.grasim.com CIN : L17124MP1947PLC000410
Regd. Office : P.O. Birlagram, Nagda - 456 331 (M.P.) India

46

ADITYA BIRLA

GRASIM

2. Industry shall include their by-product acids in hazardous waste authorization immediately.	As discussed/informed during last virtual meeting on 16th June 2020, we have submitted our request to CPCB to provide clarification on hydrochloric acid manufactured by Unit is not a waste and also not covered under the Hazardous Waste Rules 2016. Response/guidance from CPCB is awaited.
3. Industry shall maintain the installed PTZ camera and online flow meter at ETP area and remain connected with MPPCB server without failure.	Complied.
4. Industry in consultation with the Public Health Engineering Department, Nagda shall ensure supply drinking water immediately in affected villages along the bank of Chambal River & help PHED to identify and seal the water source where increased concentration of Lead (Pb) was found in CSIR-NEERI (2018) report	**We are providing drinking water in Pardi village through pipe line and Grasim Industries Limited already installed drinking water RO plant in Parmarkhedi.** For further action Unit awaited guidance from Public Health Engineering Department, Nagda.
5. The hazardous waste generated from the industry shall be transported only through GPS enabled transport vehicles and MPPCB shall keep a vigil on the same.	Presently Unit transporting hazardous waste through GPS enabled vehicles only. **We have provided connectivity to Regional Office Ujjain for tracking of acid transportation.**
6. Industry shall keep complete track record of acid and wastes generated in the unit and shall submit on monthly basis to Local administration to ensure vigil on illegal discharge of acid/industrial waste in river Chambal in closed co-ordination with Emergency Response Centre, MPPCB, Bhopal and Sub-regional office of MPPCB, Nagda.	Unit started submitting acid dispatched and waste generation report to Local Administration, Nagda as per direction from May 2020 under copy to MPPCB. **As per Letter of Regional officer Ujjain we have agreed three no's camera installation for tracking the tankers movement of acid and connectivity to Police station Nagda. The proposal of the same has been sent to RO Ujjain for approval.**

Grasim Industries Limited
Chemical Division
Birlagram - 456 331, Nagda (M.P.) INDIA Tele: +91 7366 246760-66
E-mail : grasimchem@adityabirla.com Website : www.grasim.com CIN : L17124MP1947PLC000410
Regd. Office : P.O. Birlagram, Nagda - 456 331 (M.P.) India

47

ADITYA BIRLA

GRASIM

7. Industry shall submit plan of remediation measures of ground water contamination in Nagda & adjacent villages immediately	Unit waiting for response and guidance from Central Ground Water Authority, Bhopal regarding ground water remediation measures.
	Letter received from Regional Director of CGWA and copy to you and they advised approach to MPPCB for guidance.
8. A detailed health study for Nagda region to be carried out in light of synergistic health effects of pollutant like Cl_2, HCl etc. by engaging any reputed government institute working in the field of Research in Environmental Health in consultation with MPPCB and Regional Director, Health services within 6 months	A proposal from NIREH, Bhopal (ICMR) is submitted for your kind perusal & approval regarding detailed health study.

As a responsible corporate house, we assure our best co-operation and commitment to adopt best operational practices for the protection and preservation of environment. This is for your kind perusal and further guidance.

Thank you

Yours sincerely,

Prem Tiwari
Unit Head
Grasim Chemical Division
Birlagram, Nagda

CCTO: R O, MP Pollution Control Board, Ujjain

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

Annexure-04

Email/ Speed Post

B-29016/CPCB/IPC-I/

January 11, 2023

To

Dr. Sonu Singh,
Scientist "E",
Ministry of Environment, Forest and Climate Change
3rd floor, Jal Wing, Indira Paryavaran Bhawan,
Jor Bagh Road, New delhi- 110003

Sub: VIP reference of Shri Bhubaneswar Kalita, Hon'ble Member of Parliament, Rajya Sabha, regarding violation of environmental norms by various industries in District Ujjain, Madhya Pradesh.

Sir,

This has reference to the D.O. letter no. BK/MP/47/2022 dated 20.09.2022 received from Shri Bhubaneswar Kalita, Hon'ble Member of Parliament, Rajya Sabha, regarding violation of environmental norms by various industries in District Ujjain, Madhya Pradesh.

Another VIP reference from Shri Jawhar Sircar M.P. (Rajya Sabha) has been received vide letter dated December 22, 2022 wherein public complaint of Shri Abhishek Chaurasia has been forwarded on same subject matter.

In this regard, Regional Directorate, Bhopal visited the region during 25th to 27th November 2022. A brief self contained note and copy of letter to MPPCB is enclosed herewith for your kind perusal.

Yours faithfully

11/1/23

(Dinabandhu Gouda)
Divisional Head IPC-I

Encl.: *as above*

Copy to:

1. PPS to Hon'ble Minister,
   Ministry of Environment, Forests & Climate Change,
   Indira Paryavaran Bhavan,
   Jorbagh Road, Aliganj,
   New Delhi- 110003
2. AS Section, CPCB

(Dinabandhu Gouda)
Divisional Head IPC-I

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

Email/ Speed Post

B-29016/CPCB/IPC-I/ 7826

January 09, 2023

To

The Member Secretary
Madhya Pradesh State Pollution Control Board
Paryavaran Parisar, E-5 Arera Colony
Bhopal – 462016
Madhya Pradesh

Sub: VIP reference of Shri Bhubaneswar Kalita, Hon'ble Member of Parliament, Rajya Sabha, regarding violation of environmental norms by various industries in District Ujjain, Madhya Pradesh.

Sir,

This has reference to the D.O. letter no. BK/MP/47/2022 dated 20.09.2022 received from Shri Bhubaneswar Kalita, Hon'ble Member of Parliament, Rajya Sabha, regarding violation of environmental norms by various industries in District Ujjain, Madhya Pradesh.

Another VIP reference from Shri Jawhar Sircar M.P. (Rajya Sabha) has been received vide letter dated December 22, 2022 wherein public complaint of Shri Abhishek Chaurasia has been forwarded on same subject matter.

In this regard, Regional Directorate, Bhopal visited the region during 25th to 27th November 2022 (Brief Summary report is attached) and has recommended the following:

1. Municipal Council, Nagda should expedite the approval & construction of Sewage Treatment Plant without further delay.
2. MPPCB may co-ordinate with stakeholders and implement the Action Plan submitted to Hon'ble NGT for Polluted River Stretch i.e., River Chambal at Juna Nagda to Rampura.
3. MPPCB may be directed to study the area (GPS location 23.4353418, 75.41162641 in light of the increase Electrical Conductivity & others and ensure adequate remediation.
4. M/s Grasim Chemical Division may be directed to engage CGWB, Bhopal in executing the groundwater quality improvement study going on with NEERI.
5. M/s Grasim SFD may be directed to provide server connectivity of OCEMS with CPCB for CS2 and H2S parameters to, as they have provided with MPPCB.

50

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032
दूरभाष/Tel : 43102030, 22305792, वेबसाईट/Website : www.cpcb.nic.in

6. M/s Lanxess Pvt Ltd may be directed to increase the sewage pumping capacity at Mehtwas, Dadawadi sewage pit and erect a wall of 2-3ft on Drain end point & increase sewage utilization in their plant after required treatment.
7. District Administration should ensure water supply in Takrawada village under "Har Ghar Jal" Mission in light of high TDS & Fluoride in handpumps of the village.

It is, therefore, requested to comply the above recommendation of the team and submit the action taken report to this office for further necessary action at this end.

Yours faithfully

Encl.: *as above*

(Dinabandhu Gouda)
Divisional Head IPC-I

Copy to:

1. The Regional Director : to follow up with MPPCB
   Regional Directorate (Central)
   Central Pollution Control Board
   Parivesh Bhawan, Paryavaran Parisar,
   E-5, Arera Colony, Bhopal
   Madhya Pradesh- 462016
2. Dr. Sonu Singh,
   Scientist "E"
   3rd floor, Jal Wing,
   Indira Paryavaran Bhawan,
   Jor Bagh Road, New delhi- 110003
3. AS Section, CPCB
4. Divisional Head, WQM-I

9/1/23

(Dinabandhu Gouda)
Divisional Head IPC-I

51

Brief summary note on "VIP reference of Shri Bhubaneswar Kalita, Hon'ble Member of Parliament regarding violation of environmental norms by various industries in District Ujjain, Madhya Pradesh".

In compliance to the VIP reference dated 3.11.2022 Regional Directorate, Bhopal visited the site during 25th to 27th November 2022. The VIP reference was based on the complaint letter of Shri Abhishek Chaurasia, Ex. Member of Zonal Railways Users Consultative Committee regarding violation of environmental norms caused by M/s Grasim Industries Limited, M/s Lanxess India Pvt Ltd & M/s Grasim Chemical Division based in Nagda, Ujjain. Similarly, another VIP reference from Shri Jawhar Sircar M.P. (Rajya Sabha) has been received vide letter dated December 22, 2022 of Shri Abhishek Chaurasia on same subject matter. There was VIP reference in year 2019 of Sh Anil Firojiya, Member of Parliament, under which detailed field inspection was carried out and direction u/s 18 (1) b of the Water Act on 19.02.2020 was issued to MPPCB for the compliances. The directions were compiled by the industries.

All three industries, M/s Grasim Industries Limited, Viscose Staple Fibre (VSF) division, M/s Grasim Industries (Chemical Division), Birlagram, Nagda and M/s Lanxess India Pvt Ltd (LIPL) has installed Zero Liquid Discharge (ZLD) since 30.09.2021, March 2018 and 30.10.2012 with valid consent to operate (CTO) up to 30.11.2024, 31.01.2023 and 31.12.2022 respectively. The 43 Ton recovered salt from the ZLD is sent to TSDF, Pithampura. By installing ZLD, M/s Grasim (VSF) has reduced river intake of water from 22022 KLD to 11969 KLD by increasing reuse of treated water.

In compliance of the above mentioned VIP references of Hon'ble Member of Parliament, CPCB has collected 27 water samples and analysed for pH, TDS, Chloride, Fluoride, Sulphate, COD, BOD, Heavy metals (Hg, Pb & Al). The analysis result reveals that after the commissioning of ZLD plant of M/s Grasim SFD, the Sulphate, Total Dissolved Solids (TDS) load reduced significantly in river Chambal stretch. Earlier, the river Chambal at 3.5KMs downstream shown pH 5.5 that suspected of acid discharge. However, during Nov. 2022, nowhere acidic pH was observed in River Chambal. This reveals that strict vigilance on the HCl transporting vehicles have resulted in positive manner. Soil samples were also collected from 02 locations (affected area & controlled area) at 05 different depths to assess any pollution/contamination. The higher EC values reveals that the affected area is high in salt concentration.

Regarding deterioration of water quality in Chambal River, the domestic effluent is the major source of pollution w.r.t. increase in BOD level after the installation & commissioning of ZLD plant of 13.5MLD capacity by M/s Grasim SFD unit. Earlier about 12.5MLD was the discharge of M/s Grasim SFD unit, as now this has been stopped after ZLD plant. For further improvement in the water quality of river Chambal at downstream, installation of STP is very much required.

Municipal Body, Nagda needs to expedite the work of approval and construction of STP. However, there is no progress on the ground level.

All Industries have installed Online Continuous Emission Monitoring System (OCEMS) and PTZ camera & CAAQMS to monitor the emission concentration and ambient air respectively and provided server connectivity with CPCB & MPPCB. Hazardous waste generated from the units are sent to authorized recycler/ TSDF and transported through MPPCB authorized GPS enabled vehicles.

As per CPCB directions, a study on "Environmental Assessment for Evaluating the Strength of Abandoned Secured Landfill Site of M/S. Grasim Industries Ltd, Nagda, Madhya Pradesh" was carried out by National Environmental Engineering Research Institute, Hyderabad Zonal Centre. The present study revealed that the mercury sludge in SLF is stabilized and there is no considerable evidence for leaching of mercury from SLF. Geologically, the study area is comprised of Basalts rocks and has no permeability.

A detailed health study was also carried out by Indian Council of Medical Research - National Institute for Research in Environmental Health (ICMR-NIREH), Bhopal (M.P.). 23 villages and 3006 subjects residing in the periphery of 10KMs from the industrial cluster were studied. Even though a majority of surveyed population was found to be healthy the proportion of participants. In the present study, majority of the participants showed normal neurobehavioral functions.

STPs of 16 MLD capacities are proposed by Municipal Council Nagda having project cost Rs 7871 lakhs and the proposal has been sent to M.P.U.D.C Bhopal for further approval. Municipal Council, Nagda submitted the status of implementation of the action plan vide letter dated 20.1.2021. Wherein it was reported that the Detailed Project Report (DPR) for STP prepared and pending at Madhya Pradesh Urban Development Company Limited (MPUDC) for further tendering & others. The bio-remediation is adopted in Banbana drain, Indra Nagar Drain and Vidhya nagar. **However, on the day of field visit i.e., 25.11.2022, NO bio-remendiation system was found in place.**

Presently water supply in affected villages is being carried out by PHED from wells /shallow depth tube wells, tankers. Water supply scheme of Rs 29.0 crores to supply potable water in affected villages along the bank of Chambal River has been commissioned on 24-01-2020 by M.P Jal Nigam. One RO plant (1500Ltr/Hr) has been installed at Parmarkhedi village by M/s Grasim Industries Limited (SFD).

The periodic inspections and compliance verification is being carried out by MPPCB and action under Water Act, Air Act are taken. CPCB has inspected the industries and carried out field visits on the VIP references, Court matters, public complaints, event of accident report etc.

Recommendations by the inspecting team:

1. Municipal Council, Nagda should expedite the approval & construction of Sewage Treatment Plant without further delay.
2. MPPCB may co-ordinate with stakeholders and implement the Action Plan submitted to Hon'ble NGT for Polluted River Stretch i.e., River Chambal at Juna Nagda to Rampura.
3. MPPCB may be directed to study the area (GPS location 23.4353418, 75.41162641 in light of the increase Electrical Conductivity & others and ensure adequate remediation.
4. M/s Grasim Chemical Division may be directed to engage CGWB, Bhopal in executing the groundwater quality improvement study going on with NEERI.
5. M/s Grasim SFD may be directed to provide server connectivity of OCEMS with CPCB for CS2 and H2S parameters to, as they have provided with MPPCB.
6. M/s Lanxess Pvt Ltd may be directed to increase the sewage pumping capacity at Mehtwas, Dadawadi sewage pit and erect a wall of 2-3ft on Drain end point & increase sewage utilization in their plant after required treatment.
7. District Administration should ensure water supply in Takrawada village under "Har Ghar Jal" Mission in light of high TDS & Fluoride in handpumps of the village.

ADITYA BIRLA
GRASIM

2nd April 2018

The Member Secretary
Madhya Pradesh Pollution Control Board
Bhopal

Dear Sir,

Sub: Implementation of zero liquid discharge scheme at Grasim – Chemical Division, Nagda

I am happy to inform that we have completed the Zero Liquid Discharge project at Grasim – Chemical Division, Nagda.

The project was mechanically complete on 30th March 2018 and trials were started from 31st March '18. We have started getting dry salt from MEE & ATFD section of the project. The project would be stabilized in next few days for operating the plant continuously and meeting zero liquid discharge status.

We thank you for your support in implementation of Zero Liquid Discharge project at Grasim – Chemical Division, Nagda.

Regards

Suresh Sodani
President & Unit Head
Grasim - Chemical Division

4-4-18

Copy to : The Regional Officer
Madhya Pradesh Pollution Control Board
17, Bharat Puri, Ujjain

Grasim Industries Limited
Chemical Division

Annexure-06

भारत सरकार /Government of India
वाणिज्य और उद्योग मंत्रालय/Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन /Petroleum & Explosives Safety Organisation (PESO)
ई - 7/77, द्वितीय तल, लाला लाजपत रा.य सोसाइटी, 12 नंबर बस स्टॉप के पास,अरेरा कालोनी
भोपाल- 462016
E - 7/77, IInd Floor, Lala Lajpat Rai Society, Near 12 No. Bus Stop, Arera Colony, Bhopal - 462016

इमेल /E-mail : dyccebhopal@explosives.gov.in
दूरभाष /Phone/Fax No : (0755) 2445270/2420775/4293966 FAX 2429997

सं/No : G/HO/MP/05/158 & G/HO/MP/06/134(G20631) दि/Dated : 20/07/2022

सेवा में /To,

M/S. GRASIM INDUSTRIES LTD,
BIRLAGRAM NAGDA,
Nagda,
Nagda,
Taluka: Nagda,
District: UJJAIN
State: Madhya Pradesh
Pin : 456331

विषय/Sub : Plot No, -, BIRLA GRAM NAGDA, BIRLA GRAM NAGDA, Nagda, Taluka: Nagda, District: UJJAIN, State: Madhya Pradesh, Pin : 456331में सिलण्डरों में CHLORINE गैस का भरण-एवं भण्डारण-गैस सिलेण्डर नियम, 2016 के अंतर्गत फार्म 'इ' एवं 'एफ' में जारी अनुज्ञप्ति सं. G/HO/MP/05/158 & G/HO/MP/06/134(G20631) नवीकरण के बारे में / Filling of CHLORINE and Storage of CHLORINE at Plot No, -, BIRLA GRAM NAGDA, BIRLA GRAM NAGDA, Nagda, Taluka: Nagda, District: UJJAIN, State: Madhya Pradesh, Pin : 456331 Licence No. G/HO/MP/05/158 & G/HO/MP/06/134(G20631) granted in Form E & F of Gas Cylinders Rules, 2016 - Renewal regarding

महोदय/Sir(s),

कृपया आपके दि. 20/07/2022 के पत्र सं. OIN1105819 का संदर्भ ग्रहण करें/ Please refer to your application No.OIN1105819 dated 20/07/2022 .

अनुज्ञप्ति संख्या G/HO/MP/05/158 & G/HO/MP/06/134 30th Septemebr, 2032 तक नवीनीकृत कर भेजी जा रही है / Licence Number: G/HO/MP/05/158 & G/HO/MP/06/134 is renewed and valid upto 30th Septemebr, 2032 is forwarded herewith.

कृपया नोट करें कि गैस सिलेण्डर नियम, 2016 के नियम 55(5) के अनुसार, अनुज्ञप्ति के पुनः नवीकरण हेतु आवेदन The Jt. Chief Controller of Explosives, Bhopal Circle, Bhopal (M.P.) इस कार्यालय को इस अनुज्ञप्ति की वैधता समाप्त होने के पूर्व (दिनांक 30 सितम्बर2032 को या इससे पूर्व) जमा कर दें । दिनांक 30 सितम्बर 2032 के पश्चात परंतु दिनांक 30 सितम्बर 2033 से पूर्व प्राप्त नवीनीकरण आवेदन, गैस सिलेण्डर नियम, 2016 के नियम 55(7) के अनुसार विलंब शुल्क के साथ ही विचाराधीन होगा । दिनांक 30 सितम्बर 2033 तक कोई नवीनीकरण आवेदन प्राप्त नही होने की स्थिति में यह अनुज्ञप्ति स्वतः निरस्त हो जाएगी । /Please note that application for renewal of the licence should be submitted so as to reach the The Jt. Chief Controller of Explosives, Bhopal Circle, Bhopal (M.P.) before the licence expires (i.e. on or before 30th Septemebr, 2032) as required under Rule 55(5) of Gas Cylinders Rules, 2016. Application for renewal of licence received after 30th Septemebr, 2032 but not later than 30th September, 2033 shall be considered only with late fee applicable vide Rule 55(7) (a)(b) of said Rules. The licence will automatically expire if no application is received upto 30th Septemebr, 2033 .

कृपया इस पत्र की प्राप्ति की पावती दें/ Please acknowledge the receipt of the same.

भवदीय /Yours faithfully,

((तेजवीर सिंह)
(Tejveer Singh))
उप विस्फोटक नियंत्रक
Dy. Controller of Explosives
कृते संयुक्त मुख्य विस्फोटक नियंत्रक
For Jt. Chief Controller of Explosives
भोपाल/Bhopal

[अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क तथा अन्य विवरण के लिए कृपया हमारी वेबसाइट http://peso.gov.in देखें ।]
(For more information regarding status,fees and other details please visit our website http://peso.gov.in)

Note:-This is system generated document does not require physical signature.

Digitally signed by TEJVEER SINGH
Reason: Licence No. : G/HO/MP/05/158 & G/HC
Location:Bhopal [G20631]
Date:2022.07.20 04:58:33 +05:30

56

भारत सरकार /Government of India
वाणिज्य और उद्योग मंत्रालय/Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन /Petroleum & Explosives Safety Organisation (PESO)
ई - 7/77, द्वितीय तल, लाला लाजपत राय सोसाइटी, 12 नंबर बस स्टॉप के पास, अरेरा कालोनी
भोपाल- 462016
E - 7/77, IInd Floor, Lala Lajpat Rai Society, Near 12 No. Bus Stop, Arera Colony, Bhopal - 462016
ईमेल/E-mail :
dyccebhopal@explosives.gov.in
दूरभाष/Phone/Fax No : (0755)
2445270/2420775/4293966 FAX
2429997

सं/No : G/CC/MP/06/748(G15845)

दि/Dated : 24/09/2021

सेवा में/To,

M/S GRASIM INDUSTRIES LTD. ,
BIRLAGRAM NAGDA,
City: Nagda,
Taluka: Nagda,
District: UJJAIN
State: Madhya Pradesh
Pin : 456331

विषय/Sub : Plot No: -, BIRLAGRAM, Village/Town: BIRLAGRAM , City: Nagda, Taluka: Nagda, District: UJJAIN, State: Madhya Pradesh, Pin : 456331 - में सिलेंडरों में CHLORINE गैस का भंडारण- गैस सिलेंडर नियम, 2016 के अंतर्गत नवीकरण के बारे में/Storage of CHLORINE gas in cylinders at Plot No: -, BIRLAGRAM, Village/Town: BIRLAGRAM , City: Nagda, Taluka: Nagda, District: UJJAIN, State: Madhya Pradesh, Pin : 456331 - under Gas Cylinders Rules, 2016 - Renewal regarding.

Sir(s),

कृपया आपके दि. 24/09/2021 के आवेदन सं. **OIN863240** का संदर्भ ग्रहण करें/Please refer to your application No.**OIN863240** dated 24/09/2021 .

30th September 2026 तक विधिमान्य अनुज्ञप्ति संख्या **G/CC/MP/06/748** इसके साथ नवीकरण कर अग्रेषित की जा रही है।/ Licence Number: **G/CC/MP/06/748** is renewed and valid upto 30th September 2026 is forwarded herewith.

कृपया नोट करें कि गैस सिलेंडर नियम, 2016 के नियम 55(5) के अनुसार, अनुज्ञप्ति के पुनः नवीकरण हेतु आवेदन, इस कार्यालय को इस अनुज्ञप्ति की वैधता समाप्त होने के पूर्व (दिनांक 30 सितम्बर **2026** को या इससे पूर्व) जमा कर दें । दिनांक 30 सितम्बर 2026 के पश्चात परंतु दिनांक 30 सितम्बर 2027 से पूर्व प्राप्त नवीनीकरण आवेदन, गैस सिलेंडर नियम, 2016 के नियम 55(7) के अनुसार विलंब शुल्क के साथ ही विचाराधीन होगा । दिनांक 30 सितम्बर 2027 तक कोई नवीनीकरण आवेदन प्राप्त नही होने की स्थिति में यह अनुज्ञप्ति स्वतः निरस्त हो जाएगी । /Please note that application for renewal of the licence should be submitted so as to reach this office before the licence expires (i.e. on or before 30th September, **2026**) as required under Rule 55(5) of Gas Cylinders Rules, 2016. Application for renewal of licence received after 30th September, **2026** but not later than 30th September, **2027** shall be considered only with late fee applicable vide Rule 55(7) (a)(b) of said Rules. The licence will automatically expire if no application is received upto 30th September, **2027**.

कृपया इस पत्र की प्राप्ति की पावती दें । /Please acknowledge the receipt of the same.

भवदीय/Yours faithfully,

((वजी उद्दीन)
(Wajiuddin))

57

LIST OF SENSORS

S.NO	Sensor detail	Plant	Location	Detection Limit
1	Cl2	Cl2 MC2	Bullet Tank 701A Front	20 ppm
2	Cl2	Cl2 MC2	Bullet Tank 701A Rear	20 ppm
3	Cl2	Cl2 MC2	Bullet Tank 701C Front	20 ppm
4	Cl2	Cl2 MC2	Bullet Tank 701C Rear	20 ppm
5	Cl2	Cl2 MC2	Bullet Tank 701E Front	20 ppm
6	Cl2	Cl2 MC2	Bullet Tank 701E Rear	20 ppm
7	Cl2	Cl2 MC2	Near Bullet Tank Cl2 Pump	20 ppm
8	Cl2	Cl2 MC2	New Cl2 Comp	20 ppm
9	Cl2	Cl2 MC2	Cl2 Drying Tower	20 ppm
10	Cl2	Cl2 MC2	Cl2 Liquifier	20 ppm
11	Cl2	Cl2 MC2	50 TPD Furnace	20 ppm
12	Cl2	Cl2 MC2	Old Cl2 Comp	20 ppm
13	Cl2	Cell House MC-2	Cell House	20 ppm
14	Cl2	Cell House MC-2	Cell House	20 ppm
15	Cl2	Cell House MC-2	Cell House	20 ppm
16	Cl2	Cell House MC-2	Cell House	20 ppm
17	Cl2	Cell House MC-2	Cell House	20 ppm
18	Cl2	Cl2 MC2	H2 Analyser near Cl2 Office	20 ppm
19	Cl2	Cl2 MC2	Sniff Trap	20 ppm
20	Cl2	Cl2 MC2	Hypo 1st Floor	20 ppm
21	Cl2	Cl2 MC2	Cl2 Vaporiser	20 ppm
22	Cl2	Cl2 MC2	Cl2 Vaporiser	20 ppm
23	Cl2	MC-1	MC-1 HYPO PLANT	20 ppm
24	Cl2	MC-1	MC-1 CL2 COMP	20 ppm
25	Cl2	MC-1	MC-1 CL2 Between TK 'A/B'	20 ppm
26	Cl2	MC-1	MC-1 CL2 Between TK 'B/C'	20 ppm
27	Cl2	MC-1	MC-1 CL2 Between TK 'C/D'	20 ppm
28	Cl2	MC-1	MC-1 CL2 Between TK 'D/E'	20 ppm
29	Cl2	MC-1	MC-1 CL2 Between TK 'E/F'	20 ppm
30	Cl2	MC-1	MC-1 CL2 TK 'F' another side	20 ppm
31	Cl2	MC-1	MC-1 CL2 TK 'A' another side	20 ppm
32	HCl	MC-1	MC-1 HCL furnace 'G'	20 ppm
33	HCl	MC-1	MC-1 HCL furnace 'H'	20 ppm
34	HCl	MC-1	HCL Tank 02	20 ppm
35	HCl	MC-1	HCL Tank 13	20 ppm
36	HCl	MC-1	HCL Tank 11	20 ppm
37	Cl2	MC-1	Main Gate	20 ppm
38	Cl2	MC-1	GyaanKuteer	20 ppm
39	Cl2	MC-1	Laxess & Substation	20 ppm
40	Cl2	MC-1	CL2 Liquifier	20 ppm
41	Cl2	MC-1	Lanxess Vaporizer 6k	50 ppm
42	HCl	MC-1	Lanxess Vaporizer-01	20 ppm
43	HCl	MC-1	CSA PLANT	50 ppm
44	Cl2	MC-1	MC-1 Cell House	50 ppm
45	Cl2	MC-1	CSA PLANT	50 ppm
46	Cl2	VAP	Cl2 Bottling Near Degause Header	20 ppm
47	Cl2	VAP	Cl2 Bottling Near Post A7	20 ppm
48	Cl2	VAP	Cl2 Bottling Near Post C1	20 ppm
49	Cl2	VAP	Cl2 Bottling Cylinder loading Area	20 ppm
50	Cl2	VAP	Boudary wall near swastik corner	20 ppm
51	Cl2	VAP	Steel yard security post	20 ppm
52	Cl2	VAP	At Stack blower ladder	20 ppm
53	Cl2	VAP	At boundary wall center	20 ppm
54	Cl2	VAP	At road side security post	20 ppm
55	Cl2	VAP	Near Goyal Gass	20 ppm
56	HCl	VAP	Near Goyal Gass	20 ppm
57	Cl2	VAP	Pardi Gate	20 ppm
58	HCl	VAP	3rd Dryer Area	20 ppm
59	Cl2	VAP	Liquid Area Near	20 ppm
60	Cl2	VAP	At 1st phase godwon side S4	20 ppm
61	Cl2	VAP	At 1st phase godwon railway track side S2	20 ppm
62	Cl2	VAP	At 1st phase godwon railway track side S3	20 ppm
63	Cl2	VAP	At 1st phase godwon railway track side S1	20 ppm
64	Cl2	VAP	At 3rd phase godwon 1 & 2nd phase side S2	20 ppm
65	Cl2	VAP	At 3rd phase godwon CACL2 side S2	20 ppm
66	Cl2	VAP	At 3rd phase godwon CACL2 side S3	20 ppm
67	HCl	VAP	CP Plant NEAR BARDANA WALL	20 ppm
68	HCl	VAP	PAC Liquid plant	20 ppm
69	Cl2	VAP	SBP PLANT near III phase CL2 tank	20 ppm
70	Cl2	VAP	SBP PLANT at Ist phase godown Air washery area S5	20 ppm
71	Cl2	VAP	SBP PLANT at IIIrd phase godown I & II nd phase side	20 ppm
72	Cl2	VAP	SBP PLANT AT Ist PHASE VACUUM(S14)	20 ppm
73	Cl2	VAP	SBP PLANT AT Ist PHASE FILLING AREA(S15)	20 ppm
74	Cl2	VAP	SBP PLANT AT Ist PHASE CL2 HEADER(S16)	20 ppm
75	Cl2	VAP	SBP PLANT AT IIIrd PHASE VACUUM(S17)	20 ppm
76	Cl2	VAP	SBP PLANT AT IIIrd PHASE FILLING AREA(S18)	20 ppm
77	Cl2	VAP	SBP PLANT AT IIIrd PHASE CL2 HEADER(S19)	20 ppm
78	HCl	VAP	HCL sensor in HB plant towards goyal gas	20 ppm
79	Cl2	VAP	CL2 sensor in HB plant towards goyal gas	20 ppm
80	Cl2	VAP	CL2 sensor at Pardi Gate	20 ppm
81	HCl	VAP	Near HCL pump in CPW	20 ppm
82	Cl2	VAP	CPW Plant Security post at Bardana wall	20 ppm
83	Cl2	VAP	CPW Plant reactor area	20 ppm
84	Cl2	VAP	CPW Plant Cl2 filtter area	20 ppm
85	HCl	VAP	Middle of Bardana wall	20 ppm
86	Cl2	VAP	Cl2 Bottling Near Post B1	20 ppm
87	Cl2	VAP	Cl2 Bottling Near Unloading Area	20 ppm
88	Cl2	VAP	Cl2 Bottling Despatch Area	20 ppm

Total Cl2 Sensors:	74
Total HCl Sensors:	14

Grasim Industries Ltd. Chemical Division

संलग्नक - 1

Annexure-08

GRCD/P&QC/06/

26.09.06

To,
Member Secretary
M.P Pollution Control Board,
Prayavaran Parisar,
E--5, Arera Colony
Bhopal

Ref: Closure of Mercury cell plant as per consent conditions for switchover of technology from Mercury Cell to Membrane Cell Caustic Soda plant technology.

Dear Sir,

As per condition no-4 mentioned in the note of your letter no. 3545/TS/MPPCB/2006 granting us the "Permission to establish the unit for switchover of technology from Mercury cell to Membrane cell technology, we wish to inform you that we have completely closed down our plant based on Mercury cell technology since 22nd September-2006.

Further we wish to submit that we have completed the entire civil, mechanical and instrumentation related erection works and we are ready for trial commissioning of plant.
We request you to kindly grant us **"Consent to operate"** at the earliest.

Thanking you

Yours faithfully

For Grasim Chemical Division

N.K.Dubey
General Manager (P&QC)

Cc: **REGIONAL OFFICER**
M.P.Pollution Control Board
17, Bharatpuri
Ujjain (M.P)
Cc: SUB-REGIONAL OFFICER
M.P.Pollution Control Board
HIG-1, Ingoriya road, Nagda (M.P)

Online Pollution Monitoring Portal

Site Name: Grasim Industries Ltd. New Caustic Soda

From Date: 2023/02/21 To Date: 2023/03/21

Report Name: Custom Report

Report Created by GILNCSU on 2023-03-21 11:54:18

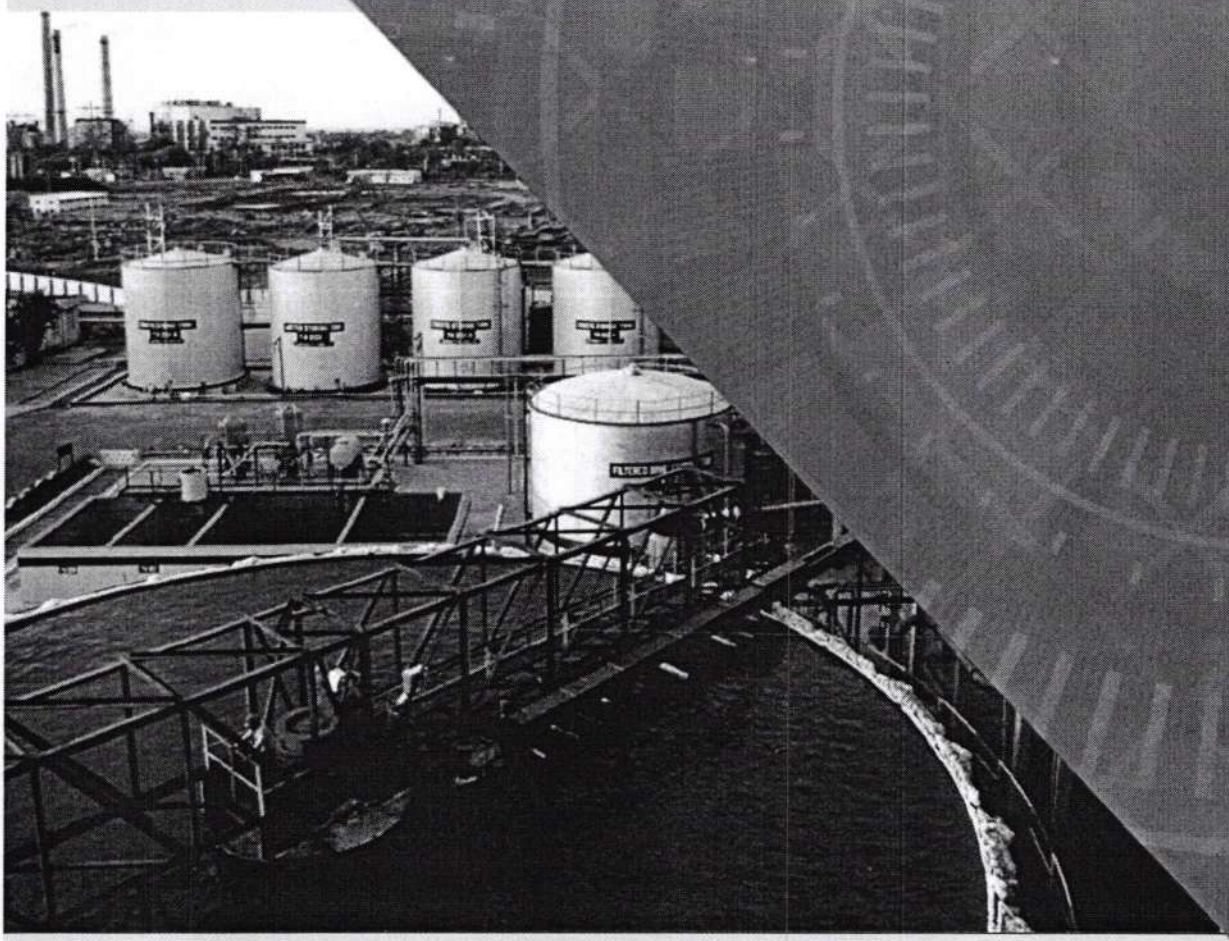
Sl No.	Time	Mem_1_Stack03-Cl2_U	Mem_1_Stack01-Hydrogen chloride_U	Mem_2_Stack02-Cl2_U	Mem_2_Stack01-Hydrogen chloride_U	Chlorinated_paraffin_Stack02-Cl2_U	Chlorinated_paraffin_Stack01-Hydrogen chloride_U	Mem_1_Stack02-Hydrogen chloride_U	CSA_Stack01-Hydrogen chloride_U	CSA_Stack02-SO2_U	CaCl2_Stack1-Hydrogen chloride_U	PAC1_Stack1-Hydrogen chloride_U	SBP1_Stack1-Cl2_U	SBP1_Stack1-PM_U	SBP3_Stack1-Cl2_U	SBP3_Stack1-PM_U
1	2023-02-21 00	1.72	1.68	0.54	2.1	3.34	2.23	1.65	1.19	0	2.52	1.97	3.96	10.07	1.77	4.13
2	2023-02-22 00	1.11	1.88	0.56	2.12	2.11	2.34	1.53	1.22	0	2.37	1.97	2.48	10.07	1.19	4.13
3	2023-02-23 00	0.35	2.12	0.58	2.12	0.62	2.3	1.24	1.21	0	2.1	1.9	0.87	10.07	0.45	4.13
4	2023-02-24 00	0.35	2.12	0.58	2.12	0.62	2.31	1.23	1.22	0	2.12	1.88	0.88	10.07	0.46	4.13
5	2023-02-25 00	0.35	2.12	0.58	2.12	0.61	2.3	1.23	1.21	0	2.11	1.88	0.87	10.06	0.45	4.12
6	2023-02-26 00	0.35	2.12	0.58	2.12	0.62	2.31	1.24	1.22	0	2.12	1.88	0.87	10.07	0.46	4.13
7	2023-02-27 00	0.35	2.13	0.58	2.12	0.61	2.29	1.23	1.21	0	2.11	1.88	0.87	10.07	0.46	4.13
8	2023-02-28 00	0.35	2.12	0.58	2.13	0.62	2.32	1.23	1.2	0	2.12	1.89	0.88	10.08	0.46	4.14
9	2023-03-01 00	0.35	2.11	0.58	2.12	0.62	2.33	1.23	1.21	0	2.11	1.9	0.87	10.07	0.46	4.14
10	2023-03-02 00	1.38	1.8	0.55	2.12	2.67	2.34	2.83	1.22	0	2.47	1.99	3.04	10.08	1.44	4.14
11	2023-03-03 00	1.1	1.89	0.55	2.12	2.08	2.29	2.71	1.21	0	2.36	1.95	2.55	10.1	1.21	4.15
12	2023-03-04 00	0.35	2.12	0.58	2.12	0.62	2.36	1.24	1.23	0	2.12	1.89	0.87	10.11	0.45	4.16
13	2023-03-05 00	0.35	2.12	0.58	2.12	0.62	2.32	1.23	1.2	0	2.11	1.88	0.88	10.1	0.46	4.15
14	2023-03-06 00	0.35	2.12	0.58	2.12	0.62	2.3	1.24	1.21	0	2.13	1.89	0.87	10.08	0.46	4.16
15	2023-03-07 00	0.35	2.11	0.58	2.12	0.62	2.29	1.23	1.19	0	2.11	1.9	0.88	10.07	0.45	4.14
16	2023-03-08 00	0.35	2.13	0.58	2.14	0.62	2.31	1.24	1.23	0	2.12	1.88	0.88	10.07	0.46	4.15
17	2023-03-09 00	0.35	2.13	0.58	2.11	0.62	2.3	1.23	1.21	0	2.12	1.9	0.88	10.07	0.46	4.15
18	2023-03-10 00	0.35	2.12	0.58	2.12	0.62	2.32	1.23	1.21	0	2.12	1.9	0.87	10.07	0.46	4.15
19	2023-03-11 00	0.35	2.12	0.58	2.11	0.61	2.3	1.23	1.21	0	2.13	1.9	0.88	10.08	0.46	4.15
20	2023-03-12 00	0.35	2.13	0.58	2.13	0.61	2.31	1.24	1.21	0	2.11	1.91	0.88	10.09	0.46	4.17
21	2023-03-13 00	0.35	2.11	0.58	2.12	0.63	2.31	1.24	1.2	0	2.13	1.89	0.88	10.1	0.45	4.16
22	2023-03-14 00	0.35	2.12	0.58	2.12	0.61	2.29	1.23	1.22	0	2.11	1.88	0.88	10.11	0.46	4.16
23	2023-03-15 00	0.35	2.12	0.58	2.12	0.61	2.24	1.23	1.2	0	2.11	1.89	0.87	10.11	0.45	4.16
24	2023-03-16 00	0.35	2.08	0.58	2.12	0.63	1.79	1.27	1.1	0	2.24	1.96	0.94	10.11	0.5	4.15
25	2023-03-17 00	0.35	2.12	0.58	2.12	0.62	2.32	1.23	1.22	0	2.11	1.88	0.88	10.05	0.46	4.13
26	2023-03-18 00	0.29	2.12	0.49	2.12	0.52	2.29	1.24	1.22	0	2.12	1.9	0.88	10.04	0.45	4.09
27	2023-03-19 00	0.12	2.11	0.2	2.13	0.21	2.34	1.23	1.2	0	2.12	1.9	0.87	10.05	0.46	4.13
28	2023-03-20 00	0.12	2.12	0.2	1.79	0.21	2.3	1.25	1.19	0	2.11	1.89	0.87	10.05	0.46	4.18
29	2023-03-21 00	0.12	2.12	0.2	1.11	0.21	2.3	1.25	1.24	0	2.11	1.91	0.87	10.05	0.46	4.17
30	Prescribed Standards	0 - 15	0 - 35	0 - 15	0 - 35	0 - 15	0 - 35	0 - 35	0 - 35	0 - 50	0 -	0 -	0 -	0 -	0 -	0 -
31	Maximum Value	1.72	2.13	0.58	2.14	3.34	2.36	2.83	1.24	0	2.52	1.99	3.96	10.11	1.77	4.18
32	Maximum Value At Time	2023-02-21	2023-02-27 00	2023-02-23	2023-03-08 00	2023-02-21 00	2023-03-04 00	2023-03-02 00	2023-03-21 00	2023-02-21 00	2023-02-21 00	2023-03-02 00	2023-02-21 00	2023-03-04 00	2023-02-21	2023-03-20
33	Minimum Value	0.12	1.68	0.2	1.11	0.21	1.79	1.23	1.1	0	2.1	1.88	0.87	10.04	0.45	4.09
34	Minimum Value At Time	2023-03-19	2023-02-21 00	2023-03-19 00	2023-03-21 00	2023-03-19 00	2023-03-16 00	2023-02-24 00	2023-03-16 00	2023-02-21 00	2023-02-23 00	2023-02-24	2023-02-23 00	2023-03-18 00	2023-02-23	2023-03-18
35	Geometric Mean	0.46	2.08	0.53	2.07	0.84	2.29	1.37	1.21	0	2.16	1.9	1.17	10.08	0.59	4.14
36	Median	0.35	2.12	0.58	2.12	0.62	2.3	1.24	1.21	0	2.12	1.9	0.88	10.07	0.46	4.15
37	Standard Deviation	0.37	0.11	0.12	0.2	0.73	0.1	0.4	0.02	0	0.11	0.03	0.78	0.02	0.34	0.02
38	Valid Data Points	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
39	Total Data Points	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
40	Data Availablity %	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

09


Chemical Division

CSIR-NATIONAL ENVIRONMENTAL ENGINEERING RESEARCH INSTITUTE
HYDERABAD ZONAL CENTRE

Annexure-10



ENVIRONMENTAL ASSESSMENT FOR EVALUATING THE STRENGTH OF ABONDONED SECURED LANDFILL SITE OF M/s. GRASIM INDUSTRIES LTD, NAGDA, MADHYA PRADESH

APRIL 2021

SPONSOR
CHEMICAL DIVISION,
GRASIM INDUSTRIES LTD.,
NAGDA, MADHYA PRADESH

Foreword

Grasim Industries Limited, Chemical Division (GCD), Nagda set up a rayon grade caustic soda unit at with an initial capacity of 33,000 TPA and has since grown to 270,000 TPA making it the second-largest caustic soda manufacturer in India. The company manufactures caustic soda using the latest membrane cell technology. In the past years, mercury cell was used for the manufacture of caustic soda. The solid residue obtained from the manufacturing of soda is stored into a nearby secured landfill site that contained mercury bearing brine sludge. Since 2006, GCD has started using latest membrane cell technology in place of mercury cell technology. Owing to mercury bearing sludge being stored in landfill, and as a part of policy of technology upgrading to environment friendly technology, GCD started using membrane cell technology. It was essential for Grasim to install piezometers within the plant premises for continuous monitoring of groundwater quality.

Grasim Industries Limited has an old landfill site which is presently capped. MPPCB has directed Grasim Industries to assess the strength of the landfill site. In this regard, M/s GIL approached CSIR-NEERI to undertake a study to assess the strength of the landfill site of GIL. CSIR-NEERI had carried out the survey of the landfill site, groundwater and soil in the study area covering 5 km buffer around Grasim Industries in November 2020. The analysis results stated that the values for mercury were within the limits of BIS for all the samples around the landfill site. It was also inferred from the leaching tests that mercury does not leach from the landfill site of Grasim Industries, Nagda.

The help and cooperation extended by officials of GCD and the people in and around the villages and the officials of MPPCB is gratefully acknowledged.

(S Chandrasekhar)
Director

April 2021

6.0 SUMMARY & CONCLUSIONS

A systematic study on assessment for evaluating the strength of abandoned secured land fill (SLF) site of Grasim Chemical Division, Nagda was conducted through investigating the groundwater and sludge/soil quality in and around SLF site by monitoring the piezometers/bore wells/hand pumps/open wells as well as mercury bearing sludge and soils within 5km radius of the SLF. Two new borewells, one each in upstream and downstream were drilled near to the SLF site and groundwater samples were collected from various depths at each drilling site. The field work was conducted in the study area for collecting the groundwater samples from peizometers (6 nos.), wells (28 nos. of bore wells/tube wells/hand pumps/dug wells), new drilled wells (2 nos) and soil/sludge samples. The collected samples were analyzed for assessing the strength of SLF site and its impacts on groundwater and soil quality in the surrounding area.

The pH of water samples was normal and ranged from 6.82 to 7.87. Groundwater temperatures were recorded more than 25°C in majority of samples of study area and this may be attributed to local climatic conditions. The total dissolved solids values varied from 315 to 3535mg/l and high TDS levels may be due to leaching of major cations/anions from the underlying rocks in the study area. The underlying rocks consist of deccan trap basalts. Basalts (contains olivine, quartz, nepheline etc) chemically consist of aluminium, sodium, magnesium, calcium, potassium and iron oxides which increase the TDS of the groundwater samples. The alkalinity values in study area are ranged from 92 to 524mg/l. The sodium concentration ranged from 33 to 655mg/l.

The chloride concentration in groundwater ranged from 100 to 1220mg/l in the study area. The high chloride concentration may be attributed to the underlying rocks that make the water saline which increase the chloride concentration in water. The sulphate concentration varied from 2 to 177mg/l while the fluoride levels ranged from 0.1 to 1.18 mg/l in the study area and both parameters were within the permissible limits as per BIS. The total hardness content ranged from 60 to 1000mg/l and more than 12 locations exhibited the values above the BIS limits (600 mg/l). More than 95% of the samples displayed Mg and Ca levels above the permissible WHO permissible limit of 50mg/l and 75mg/l, respectively. High values of Na in ground water at few locations could be due to the underlying basaltic rocks in the study area. The heavy metal concentrations in groundwater of the study area revealed that all metals were within the limits of BIS except for the aluminium, cadmium, iron, manganese, lead. The high levels of these metals may be attributed to the underlying geological rocks that include weathered basalts and alluvium etc. All these rocks contain the heavy metals like aluminium, cadmium, iron, manganese and lead etc which contribute to the elevated levels in groundwater. Both Fe and Aluminium are the highly abundant metallic elements in groundwater of Nagda area due to the dissolution of underlying basaltic rocks.

63

The groundwater parameter analysis has been performed by the hydrochemical diagrams viz., Piper Plot, Gibbs Plot using AQUACHEM software for identifying the sources of the dissolved constituents in water. Piper plot revealed that most of the samples are in the order of mixed Na-Cl-CO3 >Na-Mg-Ca-CO3-Cl >Na-Ca-Cl. The vast majority of samples are mixed Na-Ca-Cl-HCO3, Na-Mg-Ca-CO3-HCO3-Cl, Na-Ca-Cl water types suggest mineral dissolution, an interaction between rock and water. The cation and anion Gibbs plots indicates that the samples fall in the rock dominance. Thus, the hydrochemical diagrams displayed the mechanisms that control the chemistry of groundwater chemistry from the relationship of chemical components with their respective lithologies in the aquifer, representing the water–rock interaction.

The weighted arithmetic average method used for the calculation of groundwater quality index considering the maximum permissible limits of BIS. The groundwater quality index values in the study area ranged from 19 to 291, indicating the status of groundwater quality ranges from excellent to unsuitable for drinking.

Twenty soil samples were collected from sixteen locations to assess the soil quality in and around the SLF site. Samples were collected from various depths of 0-15 cm, 15-30 cm and 30-45 cm at each of the identified locations near SLF and from 15-30 cm depth from locations of surrounding area. Fine sand (29.95 to 68.28%) and coarse sand (1.18 to 44.47%) content are found to be higher followed by silt content (0.22 to 56.03 %) in the soils of study region. The porosity of soil samples found in the range of 32.2-56.4%, as the soils of the study area are mostly sandy loam in texture. Many soil samples are moderately alkaline to strongly alkaline in nature with pH variation from 7.2 to 9.0 and Non-Salinized to weakly salinized range with respect to Chloride. The heavy metal concentrations including mercury in the soils are below the screening level for Industrial area as per MoEF&CC Guidelines for contaminated sites in India.

The mercury bearing sludge, top soil and ash samples were collected from secured landfill site analyzed for various physico chemical parameters and heavy metals including mercury. Top soil, ash and sludge samples are strongly alkaline in nature with pH variation from 8.6 to 11. Electrical conductivity (EC) of sludge and ash layer have been observed to be 3.51 mS/cm and 4.2mS/cm, respectively, indicating both sludge and ash layer were observed to be highly saline. Concentration of Mercury in the sludge (9.44 mg/kg) were found to be more as compared to top soil (0.28 to 1.72 mg/kg) and ash layer (7.36 mg/kg). TCLP analysis of mercury bearing sludge and ash layer were carried out to determine inorganic analytes in the leachate and observed that heavy metals were below TCLP concentration Limit as per Hazardous and Other Wastes (Management &Transboundary Movement Rules, 2016.

Therefore, possibility of leaching of metals including mercury from the mercury bearing sludge and ash layers from the secured landfill is minimal. Two locations, one each in upstream and downstream of secured land fill site were identified for drilling borewells and groundwater samples were collected from various depths at each location in order to assess the strength of the SLF. Mercury levels in the groundwater, collected from drilled sites, were below detectable levels. The groundwater quality of the monitored locations in the path of groundwater flow from SLF indicates that mercury was below detectable level. Furthermore, the new drilled borewells also did not show mercury levels in the groundwater. Based on the TCLP analysis of mercury bearing sludge and the groundwater quality, no leaching of mercury from the SLF was observed. This indicates that the SLF has the capacity of not allowing the chemicals from sludge to the groundwater and the SLF site is intact.

The present study revealed that the mercury sludge in SLF is stabilized and there is no considerable evidence for leaching of mercury from SLF. Geologically, the study area is comprised of Basalts rocks and have no permeability. However, the groundwater as well as soil quality surrounding the SLF site need to be monitored on annual basis.

65

Online Pollution Monitoring Portal

Site Name: Grasim Industries Ltd. New Caustic Soda

From Date: 2023/02/21 To Date: 2023/03/21

Report Name: Custom Report

Report Created by GILNCSU on 2023-03-21 11:57:12

Sl No.	Time	AQMS_GRCDCampus-PM10_U	AQMS_GRCDCampus-PM2.5_U	AQMS_GRCDCampus-CO_U	AQMS_GRCDCampus-SOx_U	AQMS_GRCDCampus-NOx_U	AQMS_GRCDCampus-HCl_U	AQMS_GRCDCampus-Chlorine_U	AQMS_Durgapure-HCl_U	AQMS_Durgapure-Chlorine_U	AQMS_TempleGH-HCl_U	AQMS_TempleGH-Chlorine_U
1	2023-02-21 00	36.8	16.31	0.15	0.24	1.76	0	0	0	0.01	0	0.03
2	2023-02-22 00	42.92	20.71	0.14	0.82	1.26	0	0	0	0.01	0	0.03
3	2023-02-23 00	40.01	18.52	0.14	0.26	1.28	0	0	0	0.01	0	0.03
4	2023-02-24 00	26.47	12.41	0.14	0.62	1.31	0	0	0	0.01	0	0.03
5	2023-02-25 00	35.21	26.33	0.14	0.55	1.28	0	0	0	0.01	0	0.03
6	2023-02-26 00	26.82	26.35	0.15	0.7	1.75	0	0	0	0.01	0	0.03
7	2023-02-27 00	41.43	16.13	0.13	11.07	1.3	0	0	0	0.01	0	0.03
8	2023-02-28 00	39.78	16.4	0.15	0.86	1.25	0	0	0	0.01	0	0.03
9	2023-03-01 00	37.82	30.58	0.27	0.87	1.87	0	0	0	0.01	0	0.03
10	2023-03-02 00	24.11	22.29	0.22	3.68	1.27	0	0	0	0.01	0	0.04
11	2023-03-03 00	48.69	24.7	0.13	1.39	1.26	0	0	0	0.01	0	0.04
12	2023-03-04 00	48.81	23.74	0.14	19.7	1.29	0	0	0	0.01	0	0.03
13	2023-03-05 00	30.28	14.8	0.13	3.49	1.26	0	0	0	0.01	0	0.03
14	2023-03-06 00	35.04	16.61	0.11	1.93	2.01	0	0	0	0.01	0	0.03
15	2023-03-07 00	10.58	3.97	0.16	0.69	1.28	0	0	0	0.01	0	0.03
16	2023-03-08 00	22.58	11.96	0.17	5.12	2.29	0	0	0	0.01	0	0.03
17	2023-03-09 00	16.2	4.82	0.15	7.76	1.34	0	0	0	0.01	0	0.03
18	2023-03-10 00	28.91	5.09	0.16	2.99	1.27	0	0	0	0.01	0	0.03
19	2023-03-11 00	24.13	11.12	0.18	2.2	1.82	0	0	0	0.01	0	0.03
20	2023-03-12 00	28.88	13.02	0.14	3.12	1.25	0	0	0	0.01	0	0.03
21	2023-03-13 00	36.79	14.77	0.14	0.76	1.26	0	0	0	0.01	0	0.03
22	2023-03-14 00	36.6	13.74	0.13	0.73	1.28	0	0	0	0.01	0	0.03
23	2023-03-15 00	48.62	17	0.17	0.9	1.3	0	0	0	0.01	0	0.03
24	2023-03-16 00	24.06	7.9	0.16	0.95	1.27	0	0	0	0.01	0	0.03
25	2023-03-17 00	25.05	9.54	0.15	0.73	1.29	0	0	0	0.01	0	0.03
26	2023-03-18 00	17.04	5.66	0.15	1.78	1.28	0	0	0	0.01	0	0.03
27	2023-03-19 00	17.27	4.24	0.15	0.75	1.24	0	0	0	0.01	0	0.03
28	2023-03-20 00	16.31	6.09	0.15	1.23	1.28	0	0	0	0.01	0	0.03
29	2023-03-21 00	28.42	12.73	0.16	0.77	1.27	0	0	0	0.01	0	0.03
30	Prescribed Standards	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -	0 -
31	Maximum Value	48.81	30.58	0.27	19.7	2.29	0	0	0	0.01	0	0.04
32	Maximum Value At Time	2023-03-04 00	2023-03-01 00	2023-03-01 00	2023-03-04 00	2023-03-08 00	2023-02-21 00	2023-02-21 00	2023-02-21 00	2023-02-21 00	2023-02-21 00	2023-03-02 00
33	Minimum Value	10.58	3.97	0.11	0.24	1.24	0	0	0	0.01	0	0.03
34	Minimum Value At Time	2023-03-07 00	2023-03-07 00	2023-03-06 00	2023-02-21 00	2023-03-19 00	2023-02-21 00	2023-02-21 00	2023-02-21 00	2023-02-21 00	2023-02-21 00	2023-02-21 00
35	Geometric Mean	30.88	14.74	0.15	2.64	1.41	0	0	0	0.01	0	0.03
36	Median	28.91	14.77	0.15	0.9	1.28	0	0	0	0.01	0	0.03
37	Standard Deviation	10.47	7.33	0.03	4.06	0.28	0	0	0	0	0	0
38	Valid Data Points	29	29	29	29	29	29	29	29	29	29	29
39	Total Data Points	29	29	29	29	29	29	29	29	29	29	29
40	Data Availability %	100	100	100	100	100	100	100	100	100	100	100

Annexure-11

Annexure-12

ADITYA BIRLA
GRASIM

GRCD/EHS/04 06.10.2021

To,
1-8/CGWB/NCR/TS/794
Central Ground Water Board
North Central Zone
Block I, Floor-IV, Paryavas Bhawan
Jail Road, Bhopal

Reference: Letter no. 1-8/CGWB/NCR/TS/794 received on 30.09.2021 via email.

Subject: Related to receiving of CGWA NOC, if extracting ground water.

Sir,

With reference to the above letter on the matter of applying CGWA NOC, we herewith submitting that Grasim Industries Limited, Chemical Division, Nagda does not have any borewell inside our plant premises and not extracting any ground water for any purpose. Hence the requirement for application of NOC from CGWA is not applicable for us.

Apart from this, we are having five numbers of Piezometer's installed in entire complex in past as per the consultation with MPPCB for the purpose and requirement of ground water quality monitoring.

Best Regards,

Vijay Ajmera
Caustic Soda Membrane Cell Unit-1
Grasim Industries Ltd,
Chemical Division
Birlagram Nagda

कार्यालय कार्यपालन यंत्री, जल संसाधन संभाग, उज्जैन

पत्र क्र. 3634 /राजस्व/2011-12/ उज्जैन दिनांक 7/9/11

प्रति,

प्रबंधक,
ग्रेसिम उद्योग
नागदा।

विषय – अनुबंध 30 वर्षो के लिये मान्य करने बाबत्।

संदर्भ – इस कार्यालय का पत्र क्रमांक 3821/राजस्व/ग्रेसिम/06/ दिनांक 31-08-2006।

संदर्भित पत्र द्वारा औद्योगिक कार्य में उपयोग आने वाले जल का अनुबंध दिनांक 01-06-2006 से प्रथम बार दिनांक 31-05-2007 तक किया था,जो कि शासन के आदेशानुसार दिनांक 01-06-2006 से आगामी 30 वर्षो के लिये मान्य है। अनुबंध का भी अवलोकन करें, जिसमें 30 वर्ष के अनुबंध का प्रावधान है।

शासन द्वारा समय-समय पर जो भी जल दर निर्धारित/ पुनर्निर्धारित की जावेगी उसी के अनुरूप भुगतान बंधनकारी होगा।

सहपत्र :– शून्य

कार्यपालन यंत्री,
जल संसाधन संभाग, उज्जैन

पृ. पत्र क्र. / राजस्व /11/ उज्जैन दिनांक
प्रतिलिपि:-

(1) अधीक्षण यंत्री, जल संसाधन मण्डल उज्जैन।
(1) अनुविभागीय अधिकारी जल संसाधन उपखण्ड खाचरोद की ओर सूचनार्थ प्रेषित।

कार्यपालन यंत्री,
जल संसाधन संभाग, उज्जैन

Copy received on 22/9/11

733

GM (Law)

Sir, Copy of agreement as desired. for Plant 4/7/11

AGREEMENT FORM FOR SUPPLY OF WATER TO INDUSTRIAL / POWER PLANTS
FORM-7 A
(See rule 71-A)

This agreement made on this day **01.04.2011** between the Governor of Madhya Pradesh acting through **Executive Engineer** Water Resources Department (here in after referred to as M.P.W.R.D.) which expression shall where the context so admits, include his successors assigned in the office of the first part and **Grasim Industries Ltd.** A company registered under the Indian Companies Act 1955 (No. 1 of 1956) and having its registered office at **Birlagram, Nagda** (herein after referred to as "the Company") which expression shall unless excluded by or repugnant to context meaning there of be deemed to include its successors assigned of the other part.

Where as the company has applied to the Government for permission to draw **1.25 Mcum (1250000 Cum)** of water per month from the **Chambal River at Nagda** (herein after referred to as" the said self constructed water source") for the use by the company's **Grasim Industries Ltd.** Plant located at **Birlagram, Nagda, district ujjain** (herein after referred to as "the said plant" and laying underground and surface pipes and drains for discharge of factory effluent).

And where as the Government has agreed to grant the aforesaid permission to the company to use water from "the said self constructed water source" at their own cost on the terms and conditions hereafter appearing.

And whereas prior to the execution of these presents, the company has deposited with the Government, the sum of **Rs 37.50 Lakhs (Rs Thirty seven lakh Fifty Thousand Only)** being the water rates for the quantity of water to be drawn by the company in three months.

And whereas it has been agreed that the said sum of **Rs 37.50 Lakhs (Rs Thirty Seven Lakh Fifty Thousand Only)** will not bear any interest,

Now this agreement witness as under,

(1) In Consideration of the company duly making payment to the government as herein after specified and duly observing and performing the covenants and conditions both herein contained Government hereby give permission to the company to draw **1250000 Cum** of water per month from the said self constructed water source to the company's said plant commencing six months before commissioning of the plant and for a term 30 years from the date of commissioning of the last unit. But during the pre commissioning period charges will be recovered as per actual use of water. The permission hereby granted shall be subject to the provisions of Madhya Pradesh Irrigation act 1931 (3 of 1931) amendments thereof and any executive orders issued in this behalf by the government from time to time and for the time being in force.

Dr. Prakash Maheshwari
Group Executive President
Grasim Industries Limited
Birlagram - 456331 (M.P.)

कार्यालय कार्यपालन अभियंता
आवेदक के.....
रेवांक.....
जल संसाधन

(2) The company shall pay to the government water rates for water drawn by it from said self constructed water source at the rates fixed by water resources department memo no. **18/1/91/m/31/400 dated 14.02.2006** which is **Fifteen paise per cum.**
(Note: the rates, which are going to apply to the company, must be shown and not other rates). For the quantities drawn in excess of agreed quantities and for any unauthorized drawl of water, 50% (Fifty percent) additional rates shall be charged in addition to the normal rates as specified above.

Government hereby reserves the right to revise the rates from time to time the said water rates to be paid by the company and company shall pay such revised water rates as may be fixed by government from time to time. Excepting the circumstances or short water supply specified in clause 4, the company shall any event, pay water charges for at least 90% of the total quantum of water to be drawn by unider clause (1)

(3) Where ever needed the company shall make its own arrangements at its own cost to use water either by construction of any civil engineering work which may include construction of pick up weir, barrage, dam, dug well, tube well etc. the design and drawing of such civil engineering facility will be prepared and submitted by the company for approval of the Water Resource Department. The concerning Chief engineer will give his decision with in thirty days. The decision of chief engineer shall be final.

(4) Subject to the terms and conditions of this agreement nothing herein contained shall be deemed to imply any guarantee on the part of the government the uninterruptability in the supply of water during an event of force Majeure. The government shall also not responsible for such non supply or inadequate supply of water as a result of any event of force Majeure or for damages or for losses due to any event of Force Majeure. During an event of Force Majeure, the company shall not be liable for payment of any water charges except those pertaining to water already received for by the company for which payment is due and unpaid, which amount shall remain due and payable in accordance with terms of this agreement. Force Majeure shall include droughts and other similar natural disasters, war or other disasters which are beyond control of state government.

(5) The company/corporation shall pay adequate compensation as determined by the competent authority to any person/persons affected due to submergence of land, property, public facilities etc. by the construction of the civil engineering works for creating the source of water supply.

(6) The water from said self constructed water source shall be used by the company for the purposes of the company's said plant including water supply to the colony and shall not be misused by the company by sale of water to other customer. In event of any such sale of water by the company, without prejudice to the government's right to revoke this

Dr. Prakash Maheshwari
Group Executive President
Grasim Industries Limited
Birlagram - 456331 (M.P.)

7

license, government shall be entitled to recover from the company, the proceeds of such sale of water realized by the company.

(7) The permission hereby granted shall not in any manner prejudicially affect the existing water rights vested in the upstream riparian owners nor shall it in any way, prejudice government's right to hereafter launch or implement any new scheme or schemes of its own at, on or in connection with the present source of the said self constructed water source. However Government of Madhya Pradesh hereby assures that any other water rights granted by them for the purposes of irrigation or any other industrial purposes shall be granted in a manner so as not to affect the availability of required water for the project through out the term of this agreement.

(8) The company shall not construct the civil engineering works viz pickup weir,barrage,reservoir, dam, dug well, tube well and lifting arrangements etc in the said water source unless the proposals, plant drawings, specifications, estimates and all other details thereof are previously submitted to and approved in writing by an officer authorized in that behalf by the government and while granting its approval to the construction of the civil engineering works viz pickup weir,barrage, reservoir, dam, dug well, tube well and lifting arrangements etc government may impose such conditions as it may in its absolute discretion think fit.

(9) The arrangement for measurement of water drawn by the company from the said water source shall be made by the company in such a manner as may be directed by the government. The automatic measuring device shall be installed and maintained by the company at its own cost after obtaining prior approval there to in writing from the executive engineer. In event of measuring device so installed by the company as aforesaid, ceases to function or goes out of order, the charges which the company would be liable to pay to government in respect of consumption of water for the days measuring device does not work shall be calculated alternatively on the basis of maximum hourly pumping capacity multiplied by the number of hours of operation of those pumps for which it will be obligatory for the company to maintain the records.

(10) The company shall treat the effluent (Discharge of water after use) for all the impurities ferrous and other chemicals and shall appropriately purify the water as per Central Government Public Health Environmental Engineering Organisation water supply manual, which specifies the standard of potable water.

(11) Within thirty days from the date monthly demands are received by the company from Executive Engineer,the company shall pay to the Executive Engineer the amount of water rates for the water drawn by the company during the proceeding month. Interest at the rate of 24% (Twenty Four percent) per year shall be recovered if the payment is not done with in three months from the date of the bill for water supplied. Non payment of

Dr. Prakash Maheshwari
Group Executive President
Grasim Industries Limited
Birlagram - 456331 (M.P.)

the bills upto three months from the due date of payment shall be treated as the breach of agreement.

(12) The company shall always keep deposit with the Executive Engineer the said sum of **Rs 37,50,000/-**(Three times of contracted monthly bill of contracted quantity of water) as security for due and proper payment of the water rates and due observance and performance of the terms and conditions herein. In event of failure by the company to duly pay the aforesaid dues, the outstanding due from the company shall be adjusted against the said deposit. On default of the company to punctually the water rates for a period of three months as aforesaid, the government shall with out prejudice to its any other rights and remedies, be entitled to terminate this agreement forthwith.

(13) Without prejudice to any other, its remedies and powers of the government, any sum due and payable by the company, under these presents shall be recoverable from the company in the same manner as an arrear of land revenue under the provisions of law for the time being in force in that behalf.

(14) No existing irrigation interests under the river, spring, channels and irrigation wells, shall be prejudiced. If in the opinion of the government such existing interests are prejudiced, the company shall pay such compensation to the concerned person or persons whose interests are affected as may be determined by the government.

(15) The company shall all times allow an officer of Water Resource Dpartment of the government of Madhya Pradesh authorized in that behalf, to inspect the measuring device as well as the water accounts and furnish to the government, copies of entries from the records maintained by the company.

(16) Any notice or other documents to be given to or served upon the company there under, may be given or served by the government and any such notice or documents shall be deemed to have been duly given to or served upon the company if it is sent by registered post or delivered at the registered office of the company.

(17) If company commits a breach of any of the terms and conditions hereof government shall be entitled to terminate this agreement after giving it opportunity to being heard and there upon the company shall discontinue draw water from "the said self constructed water source" with out government being liable for payment of any compensation whatsoever to the company.

(18) On the expiry of the term of this agreement government may renew this agreement for such further period and on such terms and conditions as the government may as per provisions of law or mutual agreements deem fit.

Dr. Prakash Maheshwari
Group Executive President
Grasim Industries Limited
Birlagram - 456331 (M.P.)

(19) The cost and incidental charges incurred in the execution of this agreement including stamp duty shall be borne and paid by the company.

(20) Order No.....dated.....(for water allocation and executive instruction etc.) will also form the part of this agreement.

(21) SETTLEMENT OF DISPUTES

(21.1) **Mutual Discussions**

The parties to the agreement agree that all disputes touching upon or arising out of this agreement including interpretation of Any of the clauses of this agreement, the respective rights and obligation of the parties or non performance of obligations on the part of any party shall be amicably resolved by mutual negotiations.

(21.2) **Arbitration**

If after sixty days of commencement of such negotiations, the parties have been unable to resolve amicably a contract dispute, such dispute or difference shall br referred to Arbitration under the provisions of the " Arbitration and Conciliation Act 1996". The award of arbitration panel shall be final and binding on the parties.

(22) SPECIAL CONDITIONS

(22.1) Company shall draw water from the four dams constructed by the company across non perennial river Chambal and the reservoir at village Takrawada. The source of water shall termed as " Self Constructed water source" in view of water resources Department memo no. 18/1/91/m/31/400 dated 14.02.2006 for the purpose of payment of water charges.

(22.2) As per state government's order no. CB/31/karya/Rast/03/1190 Dated 08.10.2003 issued by the Water Resource Department of Government of Madhya Pradesh the said "Self Constructed water Source" as described above in point no 22.1 has been created solely to meet company's industrial and drinking water requirement of industrial township, Birlagram. Moreover, Nagda and Khachrod Municipalities and Western Railways at Nagda are permitted to draw drinking water from company's Self Constructed water source.

(22.3) Subject to change in quantity monthly drawl of water by the company every year, this agreement shall be valid for a period of 30 years commencing from 01.05.1998, the date from which rates of water charges for " Self Constructed Water Source" are notified by the government.

(22.4) The quantity of water drawn shall be measured at intake well of the company.

(22.5) The Company shall comply with the conditions for treating effluent as prescribed by M.P. Pollution Control Board.

Dr. Prakash Maheshwari
Group Executive President
Grasim Industries Limited
Birlagram - 456331 (M.P.)

(23) Assignment of this agreement
Pursuant to the provisions of assignment in the PPA and implem... agreement, the company may also assign any of its rights hereu... the extent such assignment is made to the lenders subject to the ... of the consent agreement between GOMP and such lenders.

(24) **Waiver**

24 (a) No waiver by either party of any default by the other in the performance of any of the provisions of this agreement.

- **a.** Shall operate or be construed as a waiver of any other or further default whether of a like or different character; or
- **b.** Shall be effective unless or any occasion to insist upon the perforised representative of such party.

24 (b) The failure of either party on any occasion to insist upon the terms, conditions and provisions of this agreement, or time or other indulgence granted by one party to the other, shall not there by act as a waiver of such breach or acceptance of any variations.

(25) IN WITNESS WHERE OF Executive Engineer W.R.D. UJJAIN Division has for and behalf of Government of Madhya Pradesh hereto set his hand and affixed the seal of the office and common seal of the here upto affixed on the day and year first herein above written.

SIGNED SEALED DELIVERED

(by Executive Engineer, Water resource division, UJJAIN For and on behalf of Governor of Madhya Pradesh in presence of)

1.....

2.....

(THE COMMON SEAL OF .....was pursuant to the resolution of the board of the directors of the company dated the.....and.....Directors of the company who in token thereof have hereto set their respective hand in presence of).

Dr. Prakash Maheshwari
Group Executive President
Grasim Industries Limited
Birlagram - 456331 (M.P.)

Witness signature

1.

2. (Rajesh Sharma)

By order and in the name
Of the Governor of
Madhya Pradesh

Environmental health study of gaseous air pollutants and heavy metals in ground water in Nagda region

ICMR | NIREH

INDIAN COUNCIL OF MEDICAL RESEARCH | NATIONAL INSTITUTE FOR RESEARCH IN ENVIRONMENTAL HEALTH

ICMR-National Institute for Research in Environmental Health,
Bhopal Bypass Road, Bhauri, Bhopal, Madhya Pradesh, India

2022

Chapter 5. Recommendations

- Even though a majority of the surveyed population was found to be healthy, the proportion of participants who were found to have abnormal findings in health assessment should be subjected to detailed investigations, especially because the tests used in this study were meant for screening purposes.
- Many of the health data obtained as part of this cross-sectional study such as blood pressure, spirometry and ECG reflect the need for further in-depth health evaluation of the community, especially keeping in mind the limitations of cross-sectional studies such as one time measurement, lack of population's exposure to such tests resulting in inadequate performance in effort-dependent tests and residual confounding effect.
- The neurobehavioral tests are used as screening instruments for neurological or psychiatric disorders. The scores of these tests are highly dependent on participant's age, education level, and comprehension levels. Hence, such factors need to be considered before assigning a participant as screen-positive. In the present study, majority of the participants showed normal neuro-behavioural functions. Further investigations are recommended for the establishment of the neuro-behavioural diagnosis, if any, in screen-positive participants in this study.
- The abnormal lipid profile seen in multiple participants highlights the need for advocating for lifestyle modifications in the community such as increasing physical activity, healthier diet including consumption of good quality fat, etc. Further, smoking and alcohol cessation programs for the community is also recommended.
- The concentration of gaseous pollutants in ambient air is influenced by multiple factors such as source, wind speed, wind direction, temperature, humidity, atmospheric stability etc. Hence, one time measurement may not reflect the dose-response relationship. Thus, considering the known detrimental health effects of the gaseous pollutants, their periodic/seasonal monitoring is recommended.
- Though routine monitoring is being conducted in the industrial region, mechanism may be introduced for periodic monitoring of ambient air pollutant concentrations in the vicinity of the industrial region.
- The levels of heavy metals in groundwater samples are influenced by multiple factors including seasons and nature and age of pipes used for water collection. Hence, one time

measurement may not be conclusive. Periodic monitoring is recommended for detection of groundwater contamination by heavy metals at early stage and to prevent adverse health effects, if any, from human consumption of contaminated groundwater.

Chapter 6. References

Comprehensive groundwater quality assessment and pollution source identification using stable isotopic and groundwater modeling studies in and around Chemical Division, GIL, Nagda

Sponsor
Chemical Division, Grasim Industries Ltd., Nagda
Madhya Pradesh

CSIR-National Environmental Engineering Research Institute (NEERI)
Hyderabad Zonal Centre
Uppal Road, Tarnaka, Hyderabad – 500007.

October 2022

4.1 Conclusion

The present interim study aimed to assess the groundwater quality status in and around Chemical Division, Grasim through the monitoring of bore wells/hand pumps/open wells within 5 km radius of the Industry. The field work was conducted in the study area for collecting the groundwater samples from locations present in and around the Industry and collected samples were analyzed for assessing the groundwater quality. Based on both primary and secondary data collected during the study period, following conclusions are drawn:

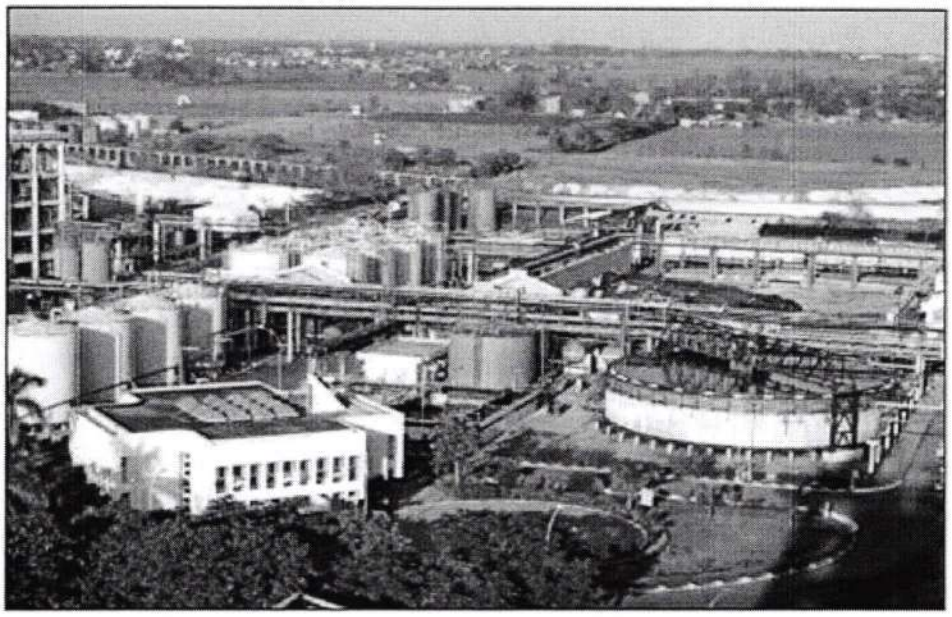
- Hydrochemical data of study area is compared with drinking water quality standards set by Bureau of Indian Standards to assess the suitability of groundwater from shallow aquifers for drinking purposes.
- The chloride (Cl) content in some of the groundwater samples were above the permissible limits of BIS. The chloride content increases as the soluble mineral content increases. The high chloride content may be due to the underlying rocks of the area
- The TDS concentration in some of the groundwater samples were above the permissible limits (2000 mg/l) as per the BIS. The high TDS values may be attributed to anthropogenic activities, high chloride concentration, etc in the study area.

4.2 Future Plan

These are the preliminary findings of the interim study. The future work includes the following:

- Collection of groundwater samples and analysis for the third phase
- Groundwater sample collection for isotopic analysis

ENVIRONMENTAL AUDIT OF THE SECURED LANDFILL SITE OF CHEMICAL DIVISION, GRASIM INDUSTRIES LTD, NAGDA, MADHYA PRADESH



Sponsor

Chemical Division, Grasim Industries Ltd., Nagda
Madhya Pradesh

CSIR-National Environmental Engineering Research Institute
Hyderabad Zonal Centre
Uppal Road, Hyderabad-500007

June 2021

FOREWORD

Grasim Industries Limited, Chemical Division (GCD), Nagda set up a rayon grade caustic soda unit at with an initial capacity of 33,000 tpa and has since grown to 270,000 tpa making it the second-largest caustic soda manufacturer in India. The company manufactures caustic soda using the latest membrane cell technology. In the past years, mercury cell was used for the manufacture of caustic soda. The solid residue obtained from the manufacturing of soda is stored into a nearby secured landfill site that contained mercury bearing brine sludge. Since 2006, GCD has started using latest membrane cell technology in place of mercury cell technology. Owing to mercury bearing sludge being stored in landfill, and as a part of policy of technology upgrading to environment friendly technology, GCD started using membrane cell technology. It was essential for Grasim to install piezometers within the plant premises for continuous monitoring of groundwater quality.

Grasim Industries Limited has an old landfill site which is presently capped. MPPCB has directed Grasim Industries to undertake the environmental audit of the landfill site. In this regard, M/s GIL approached CSIR-NEERI to undertake the environmental audit of the landfill site of Chemical Division, GIL, Nagda. CSIR-NEERI had carried out the environmental audit of the landfill site, air quality, groundwater quality, soil quality and sludge characteristics in the study area covering buffer zone around Grasim Industries.

The help and cooperation extended by officials of GCD and the people in and around the villages and the officials of MPPCB is gratefully acknowledged.

(S Chandrasekhar)
Director

2nd June, 2021

82

3.0 Conclusions

A systematic study on environmental audit of secured land fill (SLF) site of Grasim Chemical Division, Nagda was conducted through monitoring of piezometers/bore wells/hand pumps/open wells as well as mercury bearing sludge and soils within 5km radius of the SLF site. The field work was conducted in the study area for collecting the groundwater samples from peizometers (6 nos.), wells (12 nos. of bore wells/tube wells) and soil/sludge samples and collected samples were analyzed for assessing the impacts of SLF site on groundwater and soil quality.

The pH of groundwater samples in the study area was normal and ranged from 6.96 to 7.79. Groundwater temperatures were recorded more than 25°C in all the samples of study area and this may be attributed to climatic conditions prevailing in that area. The total dissolved solids values varied from 315 to 2560mg/l in the study area. High TDS levels also attributed to the leaching of major cations/anions from the underlying rocks in the study area which consequently increases the TDS. The alkalinity values in study area are ranged from 108 to 524mg/l. The sodium concentration was found to be in the range of 81 to 655mg/l.

The chloride concentration in groundwater varied in the range of 100 to 1220mg/l and the high chloride content may be attributed to the underlying rocks that make the water saline which increase the chloride concentration in water. The mineralisation taking place in groundwater due to excess silicate rocks (basalts) increases the chloride concentration. The sulphate concentration varied from 2 to 128mg/l in the study area. The fluoride concentration varied from 0.12 to 0.98 mg/l in the study area and within the permissible limits as per BIS.

Aluminium, Cadmium, Iron, Manganese, Lead concentrations at some of the locations were found to be higher than the permissible limits. The high levels of these metals may be attributed to the underlying geological rocks that include weathered basalts and alluvium etc. All these rocks contain the heavy metals like Aluminium, Cadmium, Iron, Manganese and Lead etc which contribute to the elevated levels in groundwater samples. Both Fe and Aluminium are the most abundant metallic elements in natural water of Nagda area due to the dissolution of underlying basaltic rocks. Mercury was not detected at any location in the study area.

The groundwater parameter analysis has been performed by the hydrochemical diagrams viz., Piper Plot, Gibbs Plot using AQUACHEM software for understanding the sources of the dissolved constituents in water. Piper plot revealed that most of the samples are in the order of mixed Na-Cl-CO_3 >Na-Mg-Ca-CO_3-Cl >Na-Ca-Cl. The vast majority of samples are mixed Na-Ca-Cl-HCO_3, Na-Mg-Ca-CO_3-HCO_3-Cl, Na-Ca-Cl water types suggest mineral dissolution, an interaction between rock and water. The cation and anion Gibbs plots indicates that the samples fall in the rock dominance. Thus, the hydrochemical diagrams displayed the mechanisms that control the chemistry of groundwater from the relationship of chemical components with their respective lithologies in the aquifer, representing the water–rock interaction.

The weighted arithmetic average method used for the calculation of groundwater quality index considering the maximum permissible limits of BIS. The groundwater quality index values in the study area ranged from 19 to 93, indicating water of excellent to unsuitable for drinking.

Twenty soil samples were collected from sixteen locations to assess the soil quality in and around the secure land fill (SLF) site of Grasim, Nagda. Samples were collected from various depths of 0-15 cm, 15-30 cm and 30-45 cm at each of the identified locations near SLF and from 15-30 cm depth from locations of surrounding area. Fine sand content (32.80 to 80.56%) and Coarse Sand (1.54 to 32.41%) of the soil samples collected from the study area are found to be higher followed by Silt content (5.8 to 41.82 %) as compared to clay content. The porosity of soil samples in study area are found in the ranges: 34.4-51.8%, as the soils of the study area are mostly sandy loam in texture. Majority of the soil samples are moderate to strongly alkaline in nature with pH variation from 7.2 to 9.8. Most of the samples from the study area are found to be in Non-Salinized to weakly salinized range with respect to chloride except S1 A samples which are Strongly salinized.

Soils have available nitrogen levels are poor (50.2 to 314 kg/ha) as per soil fertility ratings. Available K levels are found to be in the range of poor to medium (693 to 2964 kg/ha) and Available P levels are in fertile range i.e. from 173 to 530 kg/ha. The heavy metal concentrations in the soils are below the screening level for Industrial area as per MoEF&CC Guidelines for contaminated sites in India. The mercury concentration

84

in the soil samples were found to below the screening level for Industrial area as per MoEF&CC Guidance document.

The mercury bearing sludge, top soil and ash samples were collected from secured landfill site and analyzed for various physico chemical parameters and heavy metals including mercury. Top soil, Ash & Sludge samples are Strongly alkaline in nature with pH variation from 7.2 to 9.7. EC of Sludge and Ash layer have been observed to be 4.2mS/cm and 3.51mS/cm, respectively, whereas EC of top soil samples is observed to be in the range of 0.125 to 0.240 mS/cm, respectively. Therefore, Sludge, Ash Layer were observed to be highly saline and top soil samples are moderately saline in nature. Concentration of mercury in the sludge (9.44 mg/kg) were found to be more as compared to Top soil (0.28 to 1.72 mg/kg) and Ash layer (7.36 mg/kg).

TCLP analysis was carried out following USEPA hazardous waste test method to determine inorganic analytes in the leachate and observed that heavy metals are below TCLP concentration Limit as per Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016 (Appendix VIII). Therefore, possibility of leaching of metals including mercury from the mercury bearing sludge and ash layers from the secured landfill is minimal.

The present study revealed that the mercury sludge in SLF is stabilized and there is no considerable evidence for leaching of mercury from SLF. Geologically, the study area is comprised of Basalts rocks and have no permeability. However, the groundwater as well as soil quality surrounding the SLF site need to studied at least once in a year.

Annexure-17

REPORT

ON

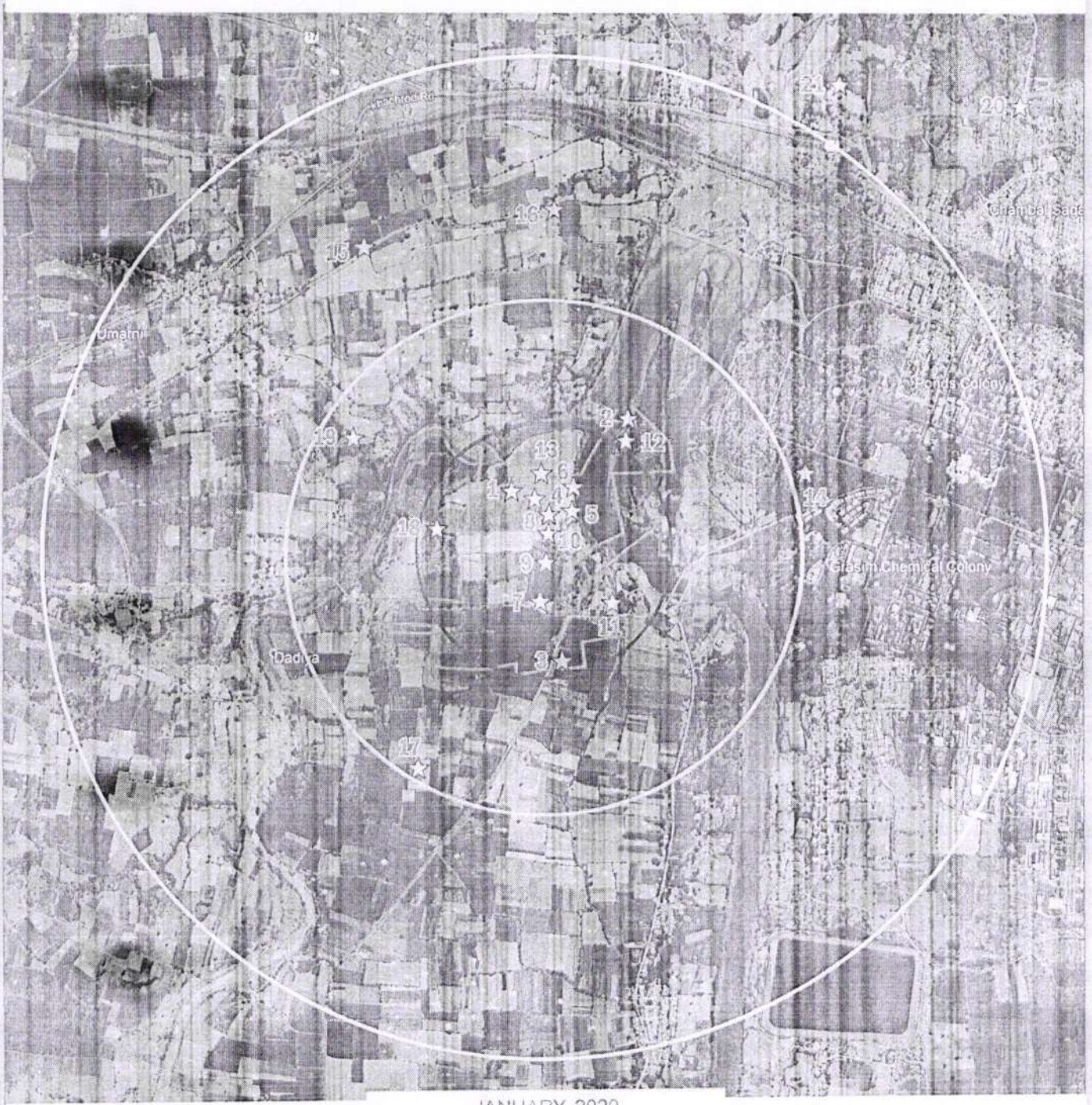
MONITORING OF ODOUR AND ODOUROUS COMPOUND

AT

Grasim Industries Limited

(Chemical Division)

Birlagram, Nagda, District: Ujjain (Madhya Pradesh)



JANUARY, 2020

J.M. ENVIRONET PVT. LTD.
202-A, ABW Tower, MG Road, IFFCO Chowk,
Sector-25, GURUGRAM-122 001 (HARYANA)
E-mail: jmenviron@hotmail.com
Website: www.jmenvironet.org

10. CONCLUSION

M/s. Grasim Industries Limited (Chemical Division) does not have any major source of odour generating compounds viz. hydrogen chloride, chlorine other volatile compounds. The monitoring station indicated maximum odour concentration to the tune of 115.0 ouE/m3 with an odour intensity of 2.53 in Near chlorine filling Station & Near Effluent treatment plant, while minimum odour concertation was 7.5 ouE/m3 with an odour intensity of 1.05 at Fabrication area, Near admin Block (Inside Plant boundary in west Direction).

The odour concertation was also monitored in residential areas and odour concertation was found to be in the range of 3.5 to 83.0 ouE/m3 and corresponding odour intensity is in the range of 0.63-2.35. These odour concentration in these residential areas may be attributed to improper disposal of house hold waste and collection of sewage and due to other industrial activities.

Further it is worthy to mention that the panellist of the olfactometric monitoring team perceived the odour nuisance with an odour concentration of 83.0 ouE/m3 having odour intensity of 2.35 at Vill. - Methwas (Near to Plant) but similar type of odour not perceived in the vicinity of M/s. Grasim Industries Limited (Chemical Division).

87

Regional Laboratory, M.P. Pollution Control Board, Ujjain

Date of Collection : 21-03-2023

S. No.	Parameters	Unit	River Chambal at U/S near Water Supply Intake Point, Nagda	River Chambal at 1 K.M. D/S of Juna Nagda
1	Temperature	Centigrade	28	28
2	Colour	Pt.Co.Sc.	Colourless	Sl. Yellowish
3	Odour	--	Odourless	Odourless
4	pH	pH Units	7.88	6.90
5	Specific Conductance	micromho/cm	794	7974
6	Turbidity	N.T.U.	8.4	22.6
7	Chloride as Cl^-	mg/l	139	1400
8	Total Alkalinity as $CaCo_3$	mg/l	236	294
9	Total Hardness as $CaCo_3$	mg/l	254	1540
10	Calcium Hardness as $CaCo_3$	mg/l	186	1100
11	Magnesium Hardness as $CaCo_3$	mg/l	68	440
12	Dissolved Oxygen	mg/l	7.3	0.5
13	Total Solids	mg/l	646	6010
14	Suspended Solids	mg/l	14	32
15	Total Dissolved Solids	mg/l	632	5978
16	B.O.D.(3 Days 27^0C)	mg/l	2	24
17	Chemical Oxygen Demand	mg/l	20	110
18	Ammonical Nitrogen as NH_3-N	mg/l	0.314	6.84
19	Nitrite as NO_2^--N	mg/l	0.007	0.003
20	Nitrate as NO_3^--N	mg/l	0.721	8.21
21	Phosphate as PO_4^{3-}-P	mg/l	0.023	3.62
22	Sulphate as SO_4^{2-}	mg/l	44.9	2018
23	Sodium as Na	mg/l	79.26	1300
24	Potassium as K	mg/l	1.63	33
25	Total Coliform	MPN/100ml	49	≥1600
26	Fecal Coliform	MPN/100ml	2	≥1600
27	Boron as B	mg/l	ND	0.319
28	Fluoride	mg/l	0.710	0.598
29	Copper (as Cu)	mg/l	ND	0.019
30	Lead (as Pb)	mg/l	ND	ND
31	Zinc (as Zn)	mg/l	ND	0.178
32	Nickel (as Ni)	mg/l	ND	ND
33	Iron (as Fe)	mg/l	ND	0.969
34	Total Chromium (as Cr)	mg/l	ND	ND
35	Mercury (as Hg)	mg/l	ND	ND
	CATEGORY		A	E

Classification of River water based on IS - 2296 – 1982

ND- Not Detected

(A.D. Sant)
Senior Scientific Officer

Regional Laboratory, M.P. Pollution Control Board, Ujjain

Date of Collection : 21-03-2023

S. No.	Parameters	Unit	Nallah Water at Padliya Mandi, Nagda	Nallah Water at Mixed Open Drain, Nagda
1	Appearance	--	Turbid	Turbid
2	Odour	--	Unpleasant	Unpleasant
3	pH	pH Units	7.39	8.11
4	Total Solids	mg/l	1552	1936
5	Suspended Solids	mg/l	124	112
6	Total Dissolved Solids	mg/l	1428	1824
7	Chloride as Cl^-	mg/l	263	427
8	B.O.D.(3 Days 27^0C)	mg/l	46	28
9	Chemical Oxygen Demand	mg/l	130	120
10	Phosphate as PO_4^{3-}-P	mg/l	4.55	2.59
11	Mercury (as Hg)	mg/l	ND	ND
ND- Not Detected				

(A.D. Sant)
Senior Scientific Officer

Regional Laboratory, M.P. Pollution Control Board, Ujjain

Date of Collection : 21-03-2023

S. No.	Parameters	Unit	Indian Standard Drinking Water Specification (Second Revision) IS 10500 : 2012		Hand Pump water at Mehatwas near Tanki, Nagda	Hand Pump water in front of Govt. Middle School, Takravada Village, Nagda	Hand Pump water at Right Hand Side of Entrance of Pardi Village	Tube Well Water at Durgapura, Nagda
			Requirement (Acceptable Limit)	Permissible in the Absence of Alternate Source				
1	Colour	Pt.Co.Sc.	5	15	Colourless	Colourless	Colourless	Colourless
2	Odour	--	Agreeable	Agreeable	Odourless	Odourless	Odourless	Odourless
3	pH	pH Unit	6.5-8.5	No relaxation	7.59	7.66	7.12	7.69
4	Specific Conductivity	µMhos/cm.	--	--	1190	1148	1861	1481
5	Turbidity	NTU	1	5	3.6	1.4	1.9	2.6
6	Total Solids	mg/l	--	--	962	926	1500	1194
7	Total Dissolved Solids	mg/l	500	2000	952	918	1488	1184
8	Suspended Solids	mg/l	--	--	10	8	12	10
9	Chloride as Cl	mg/l	250	1000	208	122	391	278
10	Total Alkalinity as $CaCo_3$	mg/l	200	600	320	748	370	208
11	Total Hardness as $CaCo_3$	mg/l	200	600	540	392	596	438
12	Calcium as (Ca)	mg/l	75	200	23.6	36	124	34.4
13	Magnesium as (Mg)	mg/l	30	100	113.2	73.38	69.4	85.53
14	Ammonical Nitrogen as NH_3-N	mg/l	0.5	No relaxation	BDL	BDL	BDL	BDL
15	Nitrate as NO_3	mg/l	45	No relaxation	7.6	1	43.66	32.39
16	Nitrite as NO_2- -N	mg/l	--	--	BDL	BDL	BDL	BDL
17	Sulphate as SO_4	mg/l	200	400	124.5	10.15	72.1	102.9
18	Phosphate as PO_4--P	mg/l	--	--	0.024	0.014	0.053	0.082
19	Sodium as Na	mg/l	--	--	70	172.6	148.5	84.8
20	Potassium as K	mg/l	--	--	2.9	0.98	11.75	3.67
21	Chemical Oxygen Demand	mg/l	--	--	10	12	14	12
22	B.O.D. (3 Days 27^0 C)	mg/l	--	--	1	1	1.6	1.4
23	Fluoride (as F)	mg/l	1	1.5	0.904	1.12	0.982	0.96
24	Copper (as Cu)	mg/l	0.05	1.5	0.026	0.041	0.029	0.079
25	Lead (as Pb)	mg/l	0.01	No relaxation	ND	ND	ND	ND
26	Zinc (as Zn)	mg/l	5	15	0.047	0.021	0.031	0.244
27	Nickel (as Ni)	mg/l	0.02	No relaxation	0.095	0.079	0.108	0.020
28	Iron (as Fe)	mg/l	0.3	No relaxation	ND	ND	ND	ND
29	Total Chromium (as Cr)	mg/l	0.05	No relaxation	0.019	0.019	0.034	0.020
30	Mercury (as Hg)	mg/l	0.001	No relaxation	ND	ND	ND	ND

ND- Not Detected , BDL- Below Detectable Limit

(A.D. Sant)
Senior Scientific Officer

Regional Laboratory, M.P. Pollution Control Board, Ujjain

Date of Collection : 21-03-2023

Piezometric Point Analysis

S. No.	Parameters	Unit	Piezometric Point near Weigh Bridge at Pardi Gate at U/S of SLF Site of M/S Grasim Ind. Ltd. (Chemical Division) , Nagda	Piezometric Point near Road to Bottling Plant at U/S of SLF Site of M/S Grasim Ind. Ltd. (Chemical Division), Nagda	Piezometric Point at Chemical Division Staff Colony at D/S of SLF Site of M/S Grasim Ind. Ltd. (Chemical Division), Nagda
1	**Colour**	Pt.Co.Sc.	Colourless	Colourless	Colourless
2	**Odour**	--	Odourless	Odourless	Odourless
3	**pH**	pH Units	7.72	7.91	7.87
4	**Specific Conductance**	micromho/ cm	1819	1061	1305
5	**Turbidity**	N.T.U.	6.2	3.9	8.4
6	**Chloride as Cl^-**	mg/l	116	104	241
7	**Total Alkalinity as $CaCo_3$**	mg/l	124	112	110
8	**Total Hardness as $CaCo_3$**	mg/l	246	224	540
9	**Calcium Hardness as $CaCo_3$**	mg/l	48	60	296
10	**Magnesium Hardness as $CaCo_3$**	mg/l	198	164	244
11	**Total Solids**	mg/l	1166	976	1056
12	**Suspended Solids**	mg/l	14	10	12
13	**Total Dissolved Solids**	mg/l	1152	866	1044
14	**Copper (as Cu)**	mg/l	ND	ND	0.002
15	**Lead (as Pb)**	mg/l	ND	ND	0.001
16	**Zinc (as Zn)**	mg/l	ND	ND	0.006
17	**Nickel (as Ni)**	mg/l	ND	ND	ND
18	**Iron (as Fe)**	mg/l	ND	ND	ND
19	**Total Chromium (as Cr)**	mg/l	ND	ND	0.004
20	**Mercury** (as Hg)	mg/l	ND	ND	ND

ND- Not Detected

(A.D. Sant)
Senior Scientific Officer