

**GOVERNMENT OF INDIA**  
**MINISTRY OF JAL SHAKTI**  
**DEPARTMENT OF WATER RESOURCES, RD & GR CENTRAL**  
**GROUND WATER AUTHORITY**  
**18/11, JAMNAGAR HOUSE, MANSINGH ROAD, NEW DELHI — 110011**  
Ph- 23383824 Fax- 23382051, 23386743, E-mail: cgwa@nic.in

**Minutes of Second meeting of the Expert Appraisal Committee held on 05.07.2021 held through video conferencing.**

Second meeting of the Expert Appraisal Committee was held on 05.07.2021 online through video conferencing to consider the applications for grant of No Objection Certificates for abstraction of groundwater as per the guidelines.

List of participants is enclosed.

Member, Central Ground Water Authority welcomed all the members of the committee. After a brief introduction of all the participants, Dr. Rajesh Chandra, CGWA gave a brief about the 1<sup>st</sup> meeting held 13.04.2021 and 16.04.2021 with the data submitted by the project proponents. It was advised that a tabular statement on decisions taken by the committee and action taken/ documents submitted by the project proponents may be placed before the Committee.

The Agenda Items were then taken up for discussion and the agenda were presented by the Consultants of the respective Project Proponents of 8 projects.

**Agenda Item No. 2.1 : M/S. SUREEL ENTERPRISE PRIVATE LTD., 513/B, AHMEDABAD – MEHSANA HIGHWAY,, GUJARAT, GANDHINAGAR, KALOL, Chhatral (CT), Application No. — 21-4/1739/GJ/IND/2017.**

The industry has applied for fresh NOC for ground water abstraction of 129 KLD of ground water. This is an existing industry located in Over-Exploited block. It was informed by the proponent that name of the firm has been changed to M/s Nirma Ltd., as it had given land on lease to Sureel Enterprises, which has not been renewed after expiry. Firm was advised to send request for change of name along with legal documents for change of name of the company.

The area is underlain by multilayer Alluvial Aquifer System of Cambay Basin of Western India. Within alluvial plains of Ahmedabad – Gandhinagar - Mahesana region, two major aquifers have been identified up to the explored depth of about 600 m below surface. The upper unit is mainly phreatic, but at places becomes semi-confined to confined while the lower unit comprises a few hundred meters of alternating arenaceous (sandy) and argillaceous beds and forms the confined aquifer system. The water quality in the phreatic aquifer is mostly brackish to saline. The industry is drawing ground water from the deeper aquifer, which is generally fresh. Cement sealing of the borewells has been done to avoid

any contamination of fresh water bearing aquifer. Piezometric surface varies from 80 to 100 m.

The Nirma Chhatral area is surrounded by Kadi –Chhatral-Kalol industrial zones as well as intensive groundwater based irrigation pockets. The south and western part is now covered with Narmada Canal Command. The domestic water requirement of entire Kadi Kalol and surrounding parts is now met through Narmada Canal Based Surface water sources. Sujalam – Sufalam Regional Recharge Canal – 20 to 30 KM northeast of Nirma Chhatral, unit has shown positive impact in this part of alluvium aquifer system. The overall stress on confined aquifer system is partially diminishing in parts of Kalol Kadi Area. This is reflected in rising trend in some Hydrograph Network Stations of Kadi – Kalol area. Industry has implemented rain water harvesting in its premises. No waste water is generated from industrial process. Waste water is generated from hand washing in Plant and is reused in cooling and gardening after pH correction in Primary Treatment. Domestic wastewater generated is disposed through septic tank/soak pit system.

Following observations were made by the Members:

1. Justification for water requirement by the industry was lacking. Water balance flow chart should depict total water requirement including fresh water as well as recycled component. Drawdown from cooling tower had not been taken into account. The firm was advised to submit product wise water daily water requirement and revise the water balance flow chart accordingly.
2. Firm should install STP and reduce fresh water requirement.

**The application was deferred.**

**Agenda Item No. 2.2 : DANOO TEXTILE PROCESSING CO., PLOT NO. 138, 139, TP-13, B/H. CALICO MILL, BEHRAMPURA, GUJARAT, AHMADABAD, AHMADABAD CITY, Ahmadabad (M Corp.) Application No. — 21-4/2797/GJ/IND/2017.**

The industry has applied for fresh NOC for ground water abstraction of 460 KLD of ground water. This is an existing industry located in Semi-Critical block. The area is underlain by multilayered alluvial aquifer system of Cambay basin. Two major aquifers exist down to depth of 300 m. The upper aquifer is mainly unconfined but becomes semi- confined to confined at places while the lower aquifer is confined. Quality of upper unconfined aquifer is brackish to saline. Lower aquifer yields fresh water. Industry is drawing water from the lower confined aquifer. Cement sealing of borewells has been done to avoid contamination of lower aquifer. The domestic water requirement of entire Ahmedabad City and Dascroi Taluka – both urban & rural clusters is presently met from surface water. Sabarmati River front has become the main recharge source to unconfined aquifer system underlying Ahmedabad City area. Agriculture draft has reduced drastically over the period as more area is getting converted into non-agriculture land.

Total fresh water requirement of the industry is 460 KLD, out of which 15 KLD is required for domestic use and rest 445 KLD for Industrial usage. The process involves dyeing, printing &

washing require and required 395 KLD and boiler makeup requirement is 50 KLD. Blowdown of 5 KLD from the boiler/ cooling and 395 KLD discharge from the industrial process is treated in ETP and discharged to AMC drain as per GPCB consent.

The following observations were made by the Members:

1. Details of evaporation and other losses during the process are not given in water balance flow Chart. Flow Chart to be corrected.
2. Water conservation not depicted as the entire waste water after primary treatment is sent to CETP.

The representative of the industry informed that it was not possible to reuse coloured water in the process.

**Application was recommended for approval subject to the modifications as suggested above.**

**Agenda Item No. 2.3 : KAJARIA CERAMICS LTD. (UNIT-I), 19 KM STONE, BHIWADI ALWAR ROAD, RAJASTHAN, ALWAR, TIJARA, Gelpur, Application No. — 21-4/1255/RJ/IND/2017.**

The industry has applied for fresh NOC for ground water abstraction of 374 KLD of ground water. This is an existing industry located in Over-Exploited block. The area is underlain by Quaternary older alluvium. In the east & south-east part of the buffer area, isolated hillocks of Alwar Quartzite exist as non potential zone. Ground water occurs under unconfined to semi-confined conditions. The occurrence and movement of ground water is mainly controlled by inter-granular pore spaces. The aquifer is dominantly argillaceous and calcareous at certain depths and so exhibits poor permeability in that zone. The average depth to bed rock in the project area is around 110 - 120 mbgl indicating thick alluvium cover. The depth to water level in the area ranges from 27.2 to 30.5 mbgl. Ground water flow is towards west. Ground water level data during the past twenty years shows declining trend.

Total water requirement of the industry is 573 KLD, out of which 90 KLD is used domestic purpose and 374 KLD is used for the process. In addition, 24 KLD treated sewage is used for gardening.

The following observations were made by the Members:

1. It was observed that hydrogeological map presented was plain without showing various hydrogeological parameters. The PP was advised to submit revised maps of hydrogeology, water quality, and Water Level Map, depicted location, regional geology, Hydrogeological parameters and other entities (major places, road etc.).
2. The domestic waste water depicted in the flow chart was much less. Sewage should be around  $3/4^{\text{th}}$  of domestic water requirement. The treated sewage water can also be utilized in the industrial process reducing the fresh water requirement. The firm was advised to revise its water balance chart.

**The application was deferred.**

**Agenda Item No. 2.4 : KAJARIA CERAMICS LTD. (UNIT-II) Village Gelpur, Block Tijara, District Alwar (Raj.) Application No. — 21-4/5395/RJ/IND/2017.**

This is an existing industry located in Over-Exploited block. The industry has applied for fresh ground water requirement 655 KLD with existing demand of 525 KLD and proposed demand of 130 KLD. The area is underlain by Quaternary older alluvium. In the east & south-east part of the buffer area, isolated hillocks of Alwar Quartzite exist as non potential zone. Ground water occurs under unconfined to semi-confined conditions. The occurrence and movement of ground water is mainly controlled by inter-granular pore spaces. The aquifer is dominantly argillaceous and calcareous at certain depths and so exhibits poor permeability in that zone. The average depth to bed rock in the project area is around 110 - 120 mbgl indicating thick alluvium cover. The depth to water level in the area ranges from 27.2 to 30.5 mbgl. Ground water flow is towards west. Ground water level data during the past twenty years shows declining trend.

The following observations were made by the Members:

1. It was observed that hydrogeological map presented was plain without showing various hydrogeological parameters. The PP was advised to submit revised maps of hydrogeology, water quality, and Water Level Map, depicted location, regional geology, Hydrogeological parameters and other entities (major places, road etc.).
2. The domestic waste water depicted in the flow chart was much less. Sewage should be around 3/4<sup>th</sup> of domestic water requirement. The treated sewage water can also be utilized in the industrial process reducing the fresh water requirement.
3. As per the revised guidelines, expansion programme of the industry cannot be permitted. Since the application as submitted in 2017, which could not be processed by CGWA due to ban imposed by NGT, firm was advised to submit documentary proof of expansion before issuance of revised guidelines. CTE/ CTO for expansion and other related documents regarding completion of installation of machinery work may be required. The firm was advised to revise its water balance chart.
4. CTE dated 31.03.2014 submitted by the industry shows their water requirement as 129.5 KLD while the firm has shown its existing water requirement as 525 KLD. Firm needs to submit clarification in this regard.

**The application was deferred.**

**Agenda Item No. 2.5 : TORRENT PHARMACEUTICALS LTD - RESEARCH AND DEVELOPMENT CENTRE Ahmedabad Airport- Gandhi Nagar road Near Indira Bridge, Village Bhat, District Gandhi Nagar, Gujrat Application No. — 21-4/2291/GJ/IND/2017.**

The industry has applied for fresh NOC for ground water abstraction. This is an existing industry located in Over-Exploited block. The area falls in Cambay basin and is underlain by multilayered alluvial aquifer system. Ground water occurs under semi-confined to confined

condition. Aquifer depth generally varies from 8 to 274m bgl. The discharge in the well varies from 600 to 1200 lpm. Depth to water level is around 90 mbgl. From the data of Pre-monsoon period from the year 2010 to 2019, an average rise of 3.6 mts in water level is observed. The rise in water levels in the area is largely attributed to the filling up of Sabarmati River with Narmada water in the River front project and also due to induced recharge created by canal irrigation water provided by Narmada Canal to farmers in the nearby areas. Ground water quality is generally good with TDS varying from 310 to 1307 ppm.

Fresh ground water requirement of the industry is 305 KLD out of which 180 KLD is required for drinking/ domestic use and other losses and the remaining 125 KLD for industrial use. The following observations were made by the Members:

1. Groundwater level trend analysis /graph need to be revised.
2. Drinking/ domestic requirement of 180 KLD seems to be quite high. What are other losses under domestic use? Also sewage generated should be approximately  $\frac{3}{4}$ th of quantum used for drinking /domestic purpose. Revised water requirement as per the CPHEEO Norms needs to be submitted.
3. Cooling. Evaporation losses are very high.
4. Revised water balance chart may be submitted justifying the water requirement.
5. Units of discharge rate need to be corrected in table mentioning the discharge.
6. Documentary proof about non availability of surface water supply shall be submitted by the firm.

**The application was deferred.**

**Agenda Item No. 2.6 : KASHI VISHWANATH TEXTILE MILL PVT LTD, 5th Km Stone, Ramnagar Road, Kharماسi, Kashipur, Udham Singh Nagar Uttarakhand Application No. — 21-4/673/UT/IND/2017.**

The industry has applied for fresh NOC for ground water abstraction of 406 KLD of ground water. This is an existing industry located in Semi-Critical block. The area has rolling plain land topography with general elevation of 230 amsl. Prominent slope is towards south. All the drainages emerge from Lower Siwaliks and merge with Bhala River, a tributary of Ram Ganga River. Study area is occupied by Tarai formation immediately lying south of Bhabar formation. It primarily consists of clay, sandy clay, fine to medium sand and occasionally gravel. There is preponderance of clayey successions over sandy beds. Bhabar formation touches the study area in the north and consists of boulder, sand and clay. As per ground water exploration and aquifer mapping done by CGWB in the area, aquifers are classified into 3(Three) groups namely, Aquifer I -Unconfined and extend down to 30 meter bgl. Aquifer II - Semi confined to confined & lies between 40-70meter depth. Aquifer III- Confined and extend & lies between 80-230 meter depth. Tarai formation forms highly productive aquifer having high transmissivity and nearby Bhabar zone being high recharge zone. Long term, water level data analysis reveals that decline rate is insignificant in the area since ground water levels are very shallow and artesian/free flow conditions also prevail in the area. Water quality in the area is generally fresh.

The unit is completely ZLD and water positive. Effluent treatment plant (ETP) having a capacity to treat 800 KLD waste water has been installed. Sewerage treatment plant (STP) having a capacity to treat 50 KLD liters waste water has been installed. Industry has constructed surface storage tank of 64 KL and is using this water in its process and for horticulture. It is proposed to construct additional tanks to collect rain water to the tune of 200 KL. Industry has adopted and renovated Four (4) villages ponds & is recharging 229276.5 cum/annum. Fresh ground water requirement of the industry is 406 KLD.

**The application for NOC was recommended for approval by the committee.**

**Agenda Item No. 2.7: GUJARAT AMBUJA EXPORT LIMITED, MHOW NEEMUCH ROAD, VILLAGE SONDHANI, MADHYAPRADESH, MANDSAUR, MADHYA PRADESH, MANDSAUR, MANDSAUR, Saudhani, Application No. — 21-4/641/MP/IND/2018.**

The industry has applied for fresh NOC for ground water abstraction of 430 KLD of ground water. This is an existing industry located in Over-exploited block. The area is characterized by rocks of different ages, ranging from Neo Proterozoic to Recent. The northwest of Mandsaur town has exposure of the oldest rock unit of Neo Proterozoic Age. The basement rock Granite has been encountered in CGWB exploration at depth of 98 to 100 m in southeastern part of Mandsaur District. In the 5 km radius of the industry, the Deccan Traps (Upper Cretaceous to Lower Eocene) form the main geological formation. The Deccan Trap have a capping of the Laterite and Alluvium (Pleistocene to Holocene). The laterite occurs as a cover of basaltic lava flow and alluvium deposit occurs as narrow linear belt along the rivers and streams of the area. The layered aquifer system of Deccan Traps has both unconfined as well as semiconfined aquifers at depth of up to 80 m bgl. The deeper aquifer is characterized by vesicular basaltic flow, which forms the main aquifer around Saudhani. Any direct interaction with surface water – River System is ruled out. Unconfined aquifer system that is the weathered zone has low potential. This aquifer cannot sustain prolonged pumping for irrigation. It acts as a point source for domestic usage. It has direct interaction with Shivani River and has good potential along riverbank plain.

GAEL Mandsaur area is surrounded by rural – agrarian economy-based area. Groundwater is the main source for the irrigation. Industrial development is moderate. Basalt has limited potential to sustain increasing development activity. Construction of check dam / recharge structure in southwest - beyond 5 km radius zone, along River Sivan has beneficial effect. The overall stress on semi confined aquifer system is increasing with increased development along this part of area. In future, additional development/ industrial or Irrigation may create additional stress on semi confined aquifer system. Surface water based piped water supply for domestic use has now been made available to small pockets/ clusters resulting in decline in dependency on groundwater (Shallow Depth TW / Handpump) for domestic use. Electrical Conductivity of ground water ranges 700 to 2250  $\mu\text{S} / \text{cm}$  at 25°. The firm will implement rain water harvesting to the tune of 21000 m<sup>3</sup> within the premises.

Total water requirement of the industry is 545KLD, against which fresh ground water use is 430 KLD and recycled water use if 115 KLD for green belt.

**The application for NOC was recommended for approval by the committee members**

**Agenda Item No. 2.8: STOVEC INDUSTRIES LTD, NIDC, NEAR LAMBHA VILLAGE, NAROL, AHMEDABAD 382405, GUJARAT, AHMADABAD, AHMADABAD CITY, Ahmadabad (M Corp.) Application No. — 21-4/3293/GJ/IND/2017.**

The industry has applied for fresh NOC for ground water abstraction of 180 KLD of ground water. This is an existing industry located in Semi-Critical block. It manufactures Textiles Printing Screens, Anilox Rollers and Textile Machineries etc. It is part of multilayer Alluvial Aquifer System of Cambay Basin of Western India. Within alluvial plains of Ahmedabad – Gandhinagar - region, two major aquifers have been identified up to the explored depth of about 300 m below surface. The upper unit is mainly phreatic, but at places becomes semi-confined to confined while the lower unit comprises a few hundred meters of alternating arenaceous (sandy) and argillaceous beds and forms the confined aquifer system. Quality of ground water in the upper aquifer is brackish to saline. The industry is drawing ground water from the deeper aquifer, which is generally fresh. Cement sealing of the borewells has been done to avoid any contamination of fresh water bearing aquifer. Piezometric surface varies from 80 to 130m.

At local levels, like in 5 – 10 km radius area of Stovec Industry, Ahmedabad city, piezometric surface of the confined aquifer ranges from 55 m to more than 85 m bgl, with flow direction from southeast to northwest with gradient of 1:333. In parts of Ahmedabad City-Dascroi, in general, regional groundwater flow direction is from recharge zone of Northeast / East to southwest / west discharge area. These aberrations may be attributed to high development in some local pocket – In this case north central part of Ahmedabad City, where local trough is developed by relatively high groundwater development than other part of the city. Any direct interaction with surface water source to deep confined aquifer system in this part is ruled out due to presence of thick confining clay horizons. Unconfined aquifer system has low potential and poor quality. Sabarmati River Front inflow interacts with shallow groundwater zone. There is rising trend of groundwater levels in phreatic aquifer of Ahmedabad City and surrounding Dascroi Taluka area.

Stovec Industries Ltd. is located in notified industrial zone, which is surrounded by dense residential clusters of Ahmedabad City. The domestic water requirement of entire Ahmedabad City and Dascroi Taluka – both urban & rural clusters is surface water-based source. Sabarmati River front has become main recharge source to unconfined aquifer system underlying Ahmedabad City area. Agriculture draft has reduced drastically over the period as more area are getting converted into non-agriculture land. Industries are dependent on groundwater sources; but there is no possibility of more new industries coming in city area. Industries are now opting for conserving water resources to conform permissible norm of GPCB for effluent quantity/ quality disposal. Total water requirement of the industry is 240 KLD, out of which 35 KLD fresh water is used for drinking/ domestic purpose and 145 KLD fresh water for industry process and the effluent of 60 KLD after primary treatment is used for gardening. Hence fresh ground water requirement of the industry is 180 KLD.

The units have two trade effluent streams, one containing traces of Nickel & Copper and the other containing traces of Chromium. The Nickel/ Copper trace bearing stream is collected separately and treated with NaOH and pyroelectrolytes its PH is raised to 10 or above so that Nickel/ Copper salt gets precipitated. The effluent is pumped to plate and frame type filter press to remove settled sludge. The Chromium trace bearing stream is collected separately and treated with reducing agent (sodium meta bisulphate / ferrous sulphate) in acidic form and then pH is raised to 10 so as to precipitate Cr<sup>+3</sup> salt and treated with polyelectrolytes and then pumped to plate and frame type filter press to remove settled sludge. The sludges are dried, packed and to send to authorized secured landfill sites. The filtrate is treated with mineral acid to restore pH and after confirming GPCB norm used for the gardening.

**The application for NOC was recommended for approval by the committee.**

## **LIST OF PARTICIPANTS**

### **Members of the Committee :**

1. Shri P. Nandakumaran, Chairman, CGWB
2. Shri Sundeep, Scientist 'F' and director, CP division, MoEF&CC.
3. Shri A. Sudhakar, Divisional Head, WQM I Division, CPCB.
4. Shri KD Bhardwaj, Regional Director, NPC.
5. Shri Motipalli Ramesh, Scientist "E", wetland Division, MoEF&CC.
6. Dr. Shashank Shekhar, Geology Deptt, Delhi University.

### **Other Officers**

1. Shri Sunil Kumar, Member, CGWA.
2. Dr. Uma Kapoor, Consultant, CGWA
3. Shri P. K. Naik, Scientist 'D', CGWA
4. Dr. Rajesh Chandra, Scientist 'D', CGWA
5. Dr. Rakesh Kushwaha, Scientist 'D', CGWA
6. Shri Ashok Patre, Scientist 'D', CGWA
7. Shri Anmol Sharma, Scientist 'C', CGWA
8. Shri Vikas Ranjan, Scientist 'C', CGWA
9. Ms. Aditi Bhatt, Scientist 'B', CGWA.
10. Shri M. Goutham, Scientist 'B', CGWA.
11. Ms. Anita Bisht, Young professional (GW), CGWA.
12. Shri Abhishek Upadhyay, Young professional (GW), CGWA
13. Shri Anand Bhatt, Young professional (GW), CGWA.
14. Shri Ankush Sarange, Young professional (GW), CGWA.