

Operational Guideline
on
WATER QUALITY FIELD TESTING KIT
(for Water Quality Monitoring and Data Sharing)
under
Atal Bhujal Yojana

1. Water Quality Field Testing Kit:

Water Quality Field Testing Kits (WQFTK) is an assembly of simple portable equipments / accessories to measure various chemical constituents from the water sample in the field. Commonly, the samples are analyzed in the laboratories. The Field Testing Kits generally give a qualitative estimate with the help of standard chemical reagents. Various types of kits are available in the market with varying facilities. The kits available in the market are of various types and capabilities for measuring different chemical constituents. Accordingly, the chemical reagents and accessories are provided in the kit and specific training is also provided by the supplier for using the FTK.

Picture of a simple Water Quality Field Testing Kit



2. Water Quality Monitoring:

Ground water quality monitoring is an organized activity to record changes in ground water quality at regular intervals through a fixed network of observation wells / monitoring wells. Ground water samples are collected from the open wells/ Dug wells/ Tube wells/ Bore wells / Piezometers at times from Hand Pumps. Generally, the water samples collected are analyzed for various chemical constituents at laboratories depending upon the purpose of monitoring. Water sample collection and analysis is highly skilled job and undertaken by qualified chemist's / water scientists. In addition to regular mechanism of groundwater quality monitoring, an additional facility can also be created for random quality checks through portable Field Test Kit (FTK).

3. Purpose of water quality monitoring at Gram Panchayat level:

The basic purpose of water quality monitoring is to sensitize the villagers about the water quality concerns in their areas and to address the specific water quality issues. Acquisition of data, periodically, at the level of Gram Panchayat, will provide basic information about water quality issues, if any, for self-interpretation and decision making.

4. Parameters monitored:

Under Atal Bhujal Yojana every Gram panchayat has been provided with one portable **Water Quality Field Testing Kit** under the scheme and this kit shall be readily available for the use by the identified persons from DPMU/DIP/ Field Level Workers (FLWs). The common parameters measured are as below. However, the parameter to be tested would essentially depend upon the type / make of FTK procured by respective state.

Physicochemical: pH, EC, Alkalinity, Fluoride, Nitrate, Iron, Total Hardness, Chloride.

Biological Parameters: Bacteriological/Faecal Coliform.

5. Data collection:

The Water Quality Field Testing Kits is to be used by the District Implementation Partners (DIPs) /Gram Panchayat level functionaries/ Field Level Workers (FLWs), for measurement of parameters to ascertain water quality from identified ground water/surface water sources as and when required.

DPMU/SPMU with assistance from DIPs, should ensure that the participatory approach is being adopted for water quality monitoring by FTKs, which would involve following steps:

- Identification of two-three people (based on how capable someone is of doing WQ testing) in Gram Panchayat for assistance in WQ testing through Field Test Kit.
- Conduct an intensive training of selected people for undertaking water samples analysis as per the manual available in FTKs.
- Initially, DPMU/DIPs shall collect 2-3 samples and get it analyzed through trained local person, under their supervision, so as to develop confidence with the procedure, and then allow for further usage.

- Identified ground water wells in the Gram Panchayat and any surface water source which is being used for the groundwater recharge, are to be selected for collecting water samples and analysis through the FTKs.
- A separate register is to be maintained by the person responsible, for recording all the parameters measured through the FTK, as per the template attached. (*Annexure-I*)

The States adopting the existing kit of Jal Jeevan Mission (JJM), are advised to collect all required information about the kit; like physical status, the number of parameters and how many tests can be performed, custodian of the kits etc. The sampling and analysis methodology remains as above.

6. Water Quality Sampling for Environmental & Social Safeguard Tool

The water quality analysis using FTK should also be carried out for surface water sources in the Gram Panchayat, as per the requirement of the environmental & social safeguard tool. Samples to be collected from:

- Any water source used for recharging groundwater through injection wells should be sampled and analysed.
- Water samples “**before, during & after**” the construction/ rejuvenation of any structure being constructed under Atal Jal, should be analyzed at the downstream of the structure.
- Treated waste water sample, being used for ground water recharge/irrigation, should also be sampled and analyzed.

If any parameter, in the any of the above samples are found to be in excess to the BIS standard (IS 10500:2012), then suitable action shall be taken by SPMU.

7. Data Sharing with NPMU

- The water quality data in the prescribed format (*Annexure-I*) should be maintained by the DIPs/FLWs on quarterly basis. The data shall be shared with DPMU by 1st of every month.
- The data shall be collated for all the Gram Panchayats in the district by DPMU. Any absurd values and anomalies shall be rectified/removed at the DPMU level. Thoroughly verified data must be shared with SPMU for further compilation and authentication.
- SPMU shall share the data with NPMU by the 5th of every month, through email at ddir1-ataljal@gov.in with a copy to atal-jal@gov.in
- A facility to update the real time information has been created in Atal Jal mobile application, and is under finalization. A manual will be shared separately.

Dissemination of data at the level of Gram Panchayat, through notice boards/ social media/ pamphlets/ wall paintings/ etc., to be emphasized and ensured by DPMU & SPMU.

Template for measurement & record keeping of Water Quality Data (through Field Testing Kit)

S. No	State	Dist	Block	GP	Vill.age	Site Name	Location Detail	Lat	Long	Type of source (DW/ TW/ BW/ SW/ Other)	Date of Analysis	pH	EC (μ S/cm)	Total Hardness (mg/l)	Alkalinity (mg/l)	Nitrate (mg/l)	Fluoride (mg/l)	Iron (mg/l)	Chloride (mg/l)	Bacterial Test# (mg/l)	Other (Name)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

(units: “mg/l (ppm)” - Milligram per litre (parts per million))

(DW- Dug Well; TW-Tube Well; BW-Bore Well; SW-Surface Water)

(Latitude & Longitude to be mentioned in Degree Decimal)

**Column no. 1 to 11 are static/one-time information. This shall be fixed for any ground water/surface water source which has been selected for the purpose of regular monitoring.*

**Column No. 12 to 22 are dynamic information and must be updated as and when water samples are re-analyzed in cases where quality issues are reported.*

** Only the state-specific parameters analysed through FTKs must be mentioned. Remaining shall be indicated as “NA” (Not applicable).*

**The entire template can be copied and maintained in excel format for ease of compilation by DPMU/SPMU/NPMU.*

