

**Government of Rajasthan**  
**Local Self Government Department**  
**(Directorate of Local Bodies, Rajasthan, Jaipur)**

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**Advisory**

Apart from providing minimum required quantity of drinking water to the people, the operation and maintenance authorities should always bear in mind that its quality is maintained at all times to safeguard the health of the community. Manmade activities; rapid industrialization and agrochemical contamination increasingly affect the quality of water resources. Poor operation management and unsatisfactory sanitary practices are the major key areas responsible for water contamination.

Complains of contaminated water supply are oftenly received during rainy season. Contamination is the introduction into water of toxic materials, bacteria or other deleterious agents that make the water hazardous and therefore unfit for human use. These problems arise mainly due to leakage in water supply pipelines and water supply through uncleaned service reservoirs (OHSR and CWR/GLR). Subsequently, complains of water borne diseases, like Diarrhea, Cholera, Typhoid & Hepatitis (A&E) are also reported, which causes sometimes law and order problem. This advisory is hereby issued to avoid contamination of water and how to tackle situation when contaminated water supply is reported.

**1 Essential maintenance actions prior to start of rainy season to avoid contamination of water.**

**1.1 Leakage control**

Wastage/Contamination of water in the transmission system and distribution network occurs by the way of leakage from pipes, joints and fittings. Where water supply is, by and large, intermittent (i.e. supply is not 24X7), the external pollution may get sucked into the system through points of leak, during non-supply hours when the system is not under pressure, causing health hazards.

- 1.1.1 Leakage through house connections: - can be controlled by adopting correct plumbing practices and improving the methods used for tapping the main and giving house connection and strict quality control on the pipe material used for house connection.
- 1.1.2 Visible leaks: - It can be observed by maintenance staff while carrying out other works on the water supply system. Carry out inspection of all distribution network for leakage prior to rainy season to identify such visible leakages. Critical areas, where leaks often occur must be identified and appropriate corrective measures must be implemented.
- 1.1.3 Special attention should be paid during inspection/survey on vulnerable locations in the system where water pipeline are crossed through sewer/drains, water logged locations, septic tank or soak pit.

**1.2 Cleaning of Service Reservoirs**

Common cause of physical water quality problems includes collection of sediment, rust and chemical precipitates. Water quality in a service reservoir (SR) may also deteriorate due to excessively long periods of stagnant conditions. Hence, routine inspection is the best way to determine when a tank requires maintenance and cleaning. A visual inspection can be made from the roof manhole with water level lowered to about half full or less. Alternatively, a detailed inspection can be made after draining the tank and then cleaning or washing. Best time of the year to take up cleaning of SRs is during the period of lowest water consumption.

Water from all SRs should be regularly sampled especially once, before and after monsoon to determine the quality of water that enters and leaves the SR. Sampling data can help in



setting up periodic cleaning of SR. Indicators that help to decide when the tank is due for cleaning is turbidity, excessive colour, taste and odour.

Corrosion of roof slab of RCC reservoirs because of chlorine is also quite common. Internal corrosion is prevented by cleaning and painting at regular intervals. Toxic paints should not be used for painting interior surface of SRs. Anticorrosive painting(epoxy) is also done to the interiors when corrosion due to chlorine is expected. Painting of steel tanks once in a year and external painting with waterproof cement paint for exteriors of RCC Tanks once in 5 years is usually done. The inside of painted SR shall be disinfected before putting into use for a period enough to give chlorine residuals of at least 0.2 mg/l.

The following activities are normally involved in cleaning of a tank/SR:

- Make alternate arrangement for water supply to consumers served by the SR.
- Close the inlet line before commencing cleaning of SR.
- Draw the water from the SR till 200-300 mm water is left in the SR.
- Close the outlet valve so that no water will be used while the tank is being cleaned.
- Collect sample of water and silt/mud accumulated in the Tank and get the biological analysis and for presence of snails and worms. If snails and worms are found find the source and eliminate it.
- Drain and dispose off the remaining water and silt.
- Wash the interior of tank walls and floor with water hose and brushes.
- Inspect the interior of walls and ceiling of tank for signs of peeling off or deterioration.
- Apply disinfectant (Supernatant of Bleaching powder) to the walls and floor before start of filling the tank/SR.
- Frequency of cleaning of SR depends on the extent of silting, development of bio films and results from water quality monitoring.

## 2 Essential maintenance actions, when supply of contaminated water supply is reported.

City level consumer forums (group of senior citizens, vigilant volunteers, councillors, staff of local body, women group or common man) may be set up to keep a vigil on the water supply to prevent possible contamination and make periodical reporting to the operation and maintenance agencies for appropriate action well in advance. When contaminated water supply is reported, following action should be taken with time bound manner.

- Shut the water supply in that area **immediately** through sectionalising valves.
- Intimate to local administration and health department, **immediately**. Keep in touch with local administration. Publicise, not to use water stored in their domestic reservoirs (Underground and overhead) by proper manner. Ask them to empty out that water **immediately**.
- Start transporting potable (ensure quality of source) water through tankers or water cans, **immediately**.
- Detect the leakage or source of contamination, repair them **within 24 hrs**. Concerning commissioner/ Executive Officer should monitor whole process of leakage repair. Keep watch over points/locations, that have been repaired, for next few months. Remove or relocate the pipeline (distribution/ transmission mains) passing through sewer/drain to some hygienic level.
- During the execution of the repair work hygienic conditions must be made to prevail at various stages till the completion of work. Following precautions should be essentially kept in practice during leakage repair.



**(a) Site cleanliness**

During the repair work the area should be kept as clean as possible. All debris and contaminants should be removed from the site and the contamination of the trench from plant, equipment or any other potentially hazardous materials must be avoided.

**(b) Storage of tools and equipment**

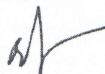
All pipes, fittings, tools, equipment and vehicles to be used on site should be regularly maintained and cleaned. Equipment used for disinfection and sampling should be kept for this purpose and regularly maintained.

**(c) Prevention of contamination during repair work**

Clean and spray with disinfectant, on all surfaces that come into contact with potable water including the broken main, repair fittings and replacement pipe. Ensure that the contaminants do not enter the main, where it is cut for repair.

After completing the repair, flush the main at the nearest hydrant to remove any dirt etc.

- When the leakage repair is ensured, **immediately** follow flushing of. However, in such case chlorinator is adjusted to apply chlorine or hypochlorite solution at the rate of 50 ppm. Heavily chlorinated water should be allowed to stand in the pipeline for at least 30 min. and preferably for 12 hours before being replaced with potable water.
- Publicise to consumers of area not to use chlorinated water, where problem was reported. Ask them to drain out this heavily chlorinated water, if they have stored in their domestic tanks (underground & overhead).
- Take sample after flushing and test for bacteriological examination. It must be free from e-coli.
- Distribute chlorine tablets to residents of that area to use them in their domestic reservoirs.
- Ensure residual chlorine level 0.2ppm at terminal points of water supply in that area. When water supply is restored after leakage correction.
- Keep vigil on that area for next few months.



(Pawan Arora)

Director cum Joint Secretary

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Copy to following for information and necessary action:

1. SA to Hon'ble Minister, LSGD, GoR
2. PS to Secretary, LSGD, GoR.
3. PS to Director cum Joint Secretary, DLB, GoR.
4. Executive Director, RUDSICO, Old Working Women Hostel, Behind Nehru Place, Lal Kothi, Tonk Road, Jaipur email: [ruifdco@gmail.com](mailto:ruifdco@gmail.com).
5. PD, RUIDP, AVS building, Jawahar Circle, JLN Marg, Jaipur email: [mailruidp@gmail.com](mailto:mailruidp@gmail.com) and [mail.ruidp@rajasthan.gov.in](mailto:mail.ruidp@rajasthan.gov.in)
6. District Collector, Sriganganagar, Nagaur, Bikaner, ~~Bundi~~, Jaipur, ~~Jaisalmer~~, ~~Karauli~~ and ~~Rajasthan~~.
7. Chief Engineer, DLB, Jaipur.
8. Deputy Director (Regional), Local Self Government Department, Ajmer, Jaipur, Kota, Jodhpur, Bikaner, Udaipur and Bharatpur.
9. Chief Accounts Officer, DLB, Jaipur.
10. Commissioner/Executive Officer, Municipal Council/Board, Sriganganagar, Nagaur, Jaisalmer, Bundi, Karauli, Nokha, Nathdwara, Chomu and Takhatgarh.
11. PRO, DLB, Jaipur
12. Programmer, IT cell, DLB Jaipur to upload this advisory on website.
13. Guard file.

Encl to all :- As Above



(Bhupendra Mathur)  
Chief Engineer