

## ANNEX - F

### GUIDELINES FOR ASSESSMENT OF HYGIENIC CONDITIONS WITH EXPLANATORY NOTE

REQUIREMENT OF INDIAN STANDARD	EXPLANATORY NOTES FOR GUIDANCE
<p><b>B-1 FIELD OF APPLICATION</b></p> <p>The hygienic practices cover the appropriate general techniques for collecting drinking water, its treatment, bottling, packaging, storage, transport, distribution and sale for direct consumption, so as to guarantee a safe healthy and whole some product.</p>	
<p><b>B-2 HYGIENE PRESCRIPTIONS FOR COLLECTION OF DRINKING WATER</b></p>	
<p><b>B-2.1 Extraction or Collection</b></p> <p>In the case of extraction or collection of water intended for packaging from ground water sources, it should be ensured that it is safe from pollution, whether caused by natural occurrence or actions or neglect or ill-will.</p>	<p>It may be ensured that the ground water source is reasonably away from any polluting source like drain/ sewer/ septic tank.</p> <p>Ground water source (whether owned/ shared) shall be under the direct control and supervision of the manufacturer. Firm shall ensure that the ground water source is safe from pollution either by natural occurrence or because of action/ neglect/ ill-will shall be taken.</p>
<p><b>B-2.2</b> If water to be processed for packing is obtained from any other potable source it should be protected from its being contaminated.</p>	<p>The Firm shall ensure that the source should be protected and free from any contamination.</p>
<p><b>B-2.3</b> The firms using waters from drinking water systems intended for packaging should ensure that it meets the requirements of the standard.</p>	<p>The Firm shall ensure that the water used for packaging conforms to IS 10500</p>
<p><b>B-2.4 Materials</b></p> <p>The pipes, pumps or other possible devices coming into contact with water and used for its collection should be made of such material that they do not change the quality of water.</p>	<p>The material used in pipes, pumps or other devices come into contact with water shall be such which does not change the quality of the product water.</p>
<p><b>B-3 PROTECTIVE MEASURES</b></p>	
<p><b>B-3.1</b> All possible precautions should be taken within the protected perimeter to avoid any pollution of, or external influence on, the quality of the ground or surface water. Preventive measures should be taken for disposal of liquid, solid or gaseous waste that could pollute the ground or surface water. Drinking water resources should not be in the path of potential source of underground contamination.</p>	<p>The surrounding of the source water outlet should be completely covered with pucca construction to avoid contamination due to ingress of external causes. If it is at ground level then it should be covered with at least 30 cm high boundary wall.</p>
<p><b>B-3.2 Protection of the Area of Origin</b></p> <p>The immediate surroundings of the extraction or collection area should be protected by limiting access to authorized persons only. Wellheads and spring outflows should be</p>	<p>Outlets of bore well/ well heads should be tightly covered and locked.</p> <p>Units should prevent entries of individuals,</p>

protected by a suitable structure to prevent entry by unauthorized individuals, pests and other sources of extraneous matter.	pests and other sources of extraneous matter to the immediate surroundings of source of water.
<b>B-4 TRANSPORT OF DRINKING WATER</b>	
<b>B-4.1 Means of Transport, Piping and Reservoirs</b>  Any vehicle, piping or reservoir used in the processing of water from its source to the bottling facilities, should be made of inert material such as ceramic and stainless steel which prevent any deterioration, be it by water, handling, servicing or by disinfection; it should allow easy cleaning.	i) The pipes used in processing of water shall be either of stainless steel or of any inert material. The reservoir may be either of stainless steel, ceramic or other inert material or with inert lining.  ii) For the inert material other than stainless steel and ceramic, the firm shall submit the certificate of inertness of the material.
<b>B-4.2 Maintenance of Vehicles and Reservoirs</b>  Any vehicle or reservoir should be properly cleaned and, if necessary, disinfected and kept in good repair so as not to present any danger of contamination to drinking water and of deterioration of its quality.	The design of reservoir should be such as to enable easy cleaning or disinfection and it should be properly maintained
<b>B-5 ESTABLISHMENT FOR PROCESSING OF DRINKING WATER – DESIGN AND FACILITIES</b>	
<b>B-5.1 Location</b> Establishments should be located in areas which are free from objectionable odours, smoke, dust or other contaminants and are not subject to flooding.	The unit should not be in low lying area The firm should ensure the location is free from odour, smoke, dust and other contamination. The air curtain and Exhaust fans may be provided at appropriate locations.
<b>B-5.2 Roadways and Areas Used by Wheeled Traffic</b>  Such roadways and areas serving the establishment which are within its boundaries or in its immediate vicinity should have a hard paved surface suitable for wheeled traffic. There should be adequate drainage and provision should be made for protection of the extraction area.	Areas in front of main entry to the unit and immediate surroundings should be paved (pucca) or properly grassed to prevent dust contamination due to vehicular traffic.
<b>B-5.3 Buildings and Facilities</b>	
<b>B-5.3.1 Type of construction</b>  Buildings and facilities should be of sound construction and maintained in good repair.	Buildings should be sound construction, plastered and painted/ white washed.
<b>B-5.3.2 Disposition of Holding Facilities</b>  Rooms for recreation, for storing or packaging of water and areas for cleaning of containers to be reused should be apart from the bottling areas to prevent the end products from being contaminated. Raw materials and packaging materials and any other materials which come into contact with drinking water should be stored apart from other material.	Area for cleaning of reusable containers, packaging material and storage of finished water should be separate from processing/ filling area. All types of packaging materials should be stored in a separate room/ area. The recreation room should also be away from processing area.

<p>B-5.3.3 Adequate working space should be provided to allow for satisfactory performance of all operations.</p>	<p>Space should be available so as to ensure easy movement in different operations of manufacturing.</p>
<p>B-5.3.4 The design should be such as to permit easy and adequate cleaning and to facilitate proper supervision of hygiene for drinking water.</p>	
<p>B-5.3.5 The buildings and facilities should be designed to provide separation by partition, location or other effective means between those operations which may cause cross-contamination.</p>	<p>There should not be any other activity except processing and packaging of water. In case similar products like cold drink/ beverages/ soda are also being manufactured in the same premises, these activities should be clearly and entirely separated from water processing and packing facilities. However, for manufacturing such food items, use of processed water through a separate pipe line and separate plant and machinery may be permitted.</p> <p>There should be proper separation between different processing activities like blowing of bottles/ storage of containers: cleaning of reusable containers: raw water storage tank: filtration (ROs/Micron) disinfection and filling.</p> <p>Exhaust of laboratory should not open in processing/ filling area.</p>
<p>B-5.3.6 Buildings and facilities should be designed to facilitate hygienic operations by means of a regulated flow in the process from the arrival of the drinking water at the premises to the finished product, and should provide for appropriate conditions for the process and the product.</p>	<p>The flow of air should be from filling room to the outer area and not the other way round.</p>
<p>B-5.3.7 Drinking Water Handling, Storing and Bottling Areas</p>	
<p>B-5.3.7.1 Floors</p> <p>Where appropriate, should be of water-proof, non-absorbent, washable, non-slip and non-toxic materials, without crevices, and should be easy to clean and disinfect. Where appropriate, floors should have sufficient slope for liquids to drain to trapped outlet.</p>	<p>The flooring should be smooth, without any cracks/ broken surfaces. Joints shall be properly filled and smooth. The slope of the flooring in processing and filling area should be such as to avoid any stagnation of water. The inside drains, if kept open, should be properly tiled for easy and effective cleaning. Drains should always be in clean condition and provided with traps to prevent the entries of rats/ pests. The material used for flooring should be water proof and non-absorbent type</p>
<p>B-5.3.7.2 Walls</p> <p>Where appropriate, should be of water proof, non-absorbent, washable and non-toxic materials and should be light</p>	<p>In case of cemented walls, tiles upto height of about 5 to 8 feet from floor level may be</p>

<p>coloured. Up to a height appropriate for the operation they should be smooth and without crevices, and should be easy to clean and disinfect.</p> <p>Where appropriate, angles between walls, between walls and floors and between walls and ceilings should be sealed and smoothen to facilitate cleaning.</p>	<p>provided. Wall made of smooth plastic material may be accepted.</p>
<p><b>B-5.3.7.3 Ceilings</b></p> <p>Should be so designed, constructed and finished as to prevent the accumulation of dirt and minimize, condensation, mould growth and flaking, and should be easy to clean.</p>	<p>Ceiling should preferably be cemented and smooth. However, factories with tin/ aluminum/ asbestos shed should have proper smooth false ceiling made of non absorbent material. Wood or similar material should not be used as it may attract fungal/ mould growth.</p>
<p><b>B-5.3.7.4 Windows</b></p> <p>Windows and other openings should be so constructed as to avoid accumulation of dirt and those which open should be fitted with screens. Screens should be easily movable and cleaning and kept in good repair. Internal window sills should be sloped to prevent use as shelves.</p>	<p>Windows should be provided with net screens which are easily cleanable and moveable. Fittings shall be so intact as to prevent entry of mosquitoes/ flies. Window sills should be sloped to prevent its use as shelves.</p>
<p><b>B-5.3.7.5 Doors</b></p> <p>Should have smooth, non-absorbent surfaces and, where appropriate, be self-closing and close fitting type.</p>	<p>Each door of filling section should have door closure. Air curtains should be provided at different entries including all inlets and outlets of filling room. The surface of doors should be smooth and of non absorbent material.</p>
<p><b>B-5.3.7.6 Stairs, lift cages and auxiliary structures</b></p> <p>Platforms, ladders, chutes, should be so situated and constructed as not to cause contamination to drinking water. Chutes should be constructed with provision of inspection and cleaning hatches.</p>	<p>All stairs, lifts, chutes and ladders should be of sound construction and properly painted.</p>
<p><b>B-5.3.7.7 Piping</b></p> <p>Piping for drinking water lines should be independent of non-potable water.</p>	<p>The pipeline for drinking water shall be separate from that of non-potable water.</p>
<p><b>B-5.3.8</b> In drinking water handling areas all overhead structures and fittings should be installed in such a manner as to avoid contamination directly or indirectly of drinking water and raw materials by condensation and drip and should not hamper cleaning operations. They should be insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and to minimize condensation, mould growth and flaking. They should be</p>	<p>In case false ceiling is provided, care should be taken to periodically clean the same and it should be ensured that ceiling is perfect (without any breakage/ seepage) at all times.</p>

easy to clean.	
B-5.3.9 Living quarters, toilets and areas where animals are kept should be completely separated and should not open directly on to drinking water handling areas.	
5.3.10 Where appropriate, establishments should be so designed that access can be controlled.	Entry to different water processing area should be controlled in such a way that only the assigned persons have the access.
5.3.11 The use of material which cannot be adequately cleaned and disinfected, such as, wood, should be avoided unless its use would not be a source of contamination.	Wood in any form should be avoided in processing and filling area. In case wood is used, it should be protected by painting.
5.3.12 Canalization, Drainage Lines  Canalization and drainage and used water lines should be built and maintained in such a manner as not to present any risk whatsoever of polluting the underground water source. .	The drainage line of plant should have proper slope and should be made of material which facilitate easy cleaning. There should not be any stagnation of water/ effluent.  The main drainage line of the plant should be of sound structure, fully covered and should open outside the plant only, away from underground water source.
5.3.13 Fuel Storage Area  Any storage area for the storing of fuels, such as, coal or hydrocarbons should be designed, protected, controlled and maintained in such a manner as not to present a risk of pollution during the storage and manipulation of these fuels.	
B-5.4 Hygienic Facilities	
B-5.4.1 Water Supply	
B-5.4.1.1 Ample supply of potable water under adequate pressure and of suitable temperature should be available with adequate facilities for its storage, where necessary, and distribution with adequate protection against contamination. The potable water should conform to IS 10500.	It should be ensured that the source of raw water (potable) remains uniform. The use of raw water from different sources shall not be done unless permitted (see Section 5 of the manual). However in case of change of source, provisions of STI shall be followed.  In order to monitor the uniform supply of raw water, testing of the same should be carried out as per the frequency prescribed in STI and records be maintained.
B-5.4.1.2 Potable water, non-potable water for steam production or for refrigeration or for any other use should be carried in separate lines with no cross connection between them and without any chance of back siphonage. It would be desirable that these lines be identified by different colours.	Different colour coding should be provided so as to easily distinguish between different pipe lines.
B-5.4.2 Effluent and Waste Disposal  Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in	

<p>good order and repair. All effluent lines (including sewer system) should be large enough to carry the full loads and should be so constructed as to avoid contamination of potable water supplies.</p>	
<p><b>B-5.4.3 Changing Facilities and Toilets</b></p> <p>Adequate, suitable and conveniently located changing facilities and toilets should be provided in all establishments. Toilets should be so designed as to ensure hygienic removal of waste matter. These areas should be well lighted, ventilated and should not open directly on to drinking water handling areas. Hand washing facilities with warm or hot and cold water, a suitable hand-cleaning preparation, and with suitable hygienic means of drying hands, should be provided adjacent to toilets and in such a position that the employee will have to use them when returning to the processing area. Where hot and cold water are available mixing taps should be provided. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near each washing facility. Care should be taken that these receptacles for used paper towels are regularly emptied. Taps of a non-hand operatable type are desirable. Notices should be posted directing personnel to wash their hands after using the toilets.</p>	<p>Entrance to the production unit should be through change room.</p> <p>Change room should have hand washing facilities (with hot and cold water) wash basin, foot cleaning and drying facilities. Protective clothing, footwear and head gear should be changed inside the change room only. The protective clothing should be taken out as and when workers go out of the production hall, so as to prevent any contamination of the same.</p> <p>Toilets should be provided for workers and should always be kept clean. These should be separated from water handling areas. Toilets should be made of pucca structured tiled and provided with proper doors having door closers and water facilities. Hand and foot washing facilities should be provided adjacent to toilets.</p> <p>Notices giving instructions for hand and foot washing after using toilets (in local languages) should be pasted at proper places.</p>
<p><b>B-5.4.4 Hand Washing Facilities in Processing Area</b></p> <p>Adequate and conveniently located facilities for hand washing and drying should; be provided wherever the process demands. Where appropriate facilities for hand disinfection should also be provided. Warm or hot and cold water should be available and taps for mixing the two should be provided. There should be suitable hygienic means of drying hands. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility. Taps of a non-hand operatable type are desirable. The facilities should be furnished with properly trapped waste pipes leading to drains.</p>	<p><b>See</b> explanatory notes against Cl. No. B-5.4.3</p>
<p><b>B-5.4.5 Disinfection Facilities</b></p> <p>Where appropriate, adequate facilities for cleaning and disinfection of equipment should be provided. These facilities should be constructed of corrosion resistant</p>	<p>Disinfection of pipe lines and process equipments should be done before commencement of production and cessation</p>

materials, capable of being easily cleaned, and should be fitted with suitable means of supplying hot and cold water in sufficient quantities.	of work.
<p><b>B-5.4.6 Lighting</b></p> <p>Adequate lighting should be provided throughout the establishment. Where appropriate, the lighting should not alter colours and the intensity should not be less than:</p> <ol style="list-style-type: none"> <li>540 lux (50 foot candles) at all inspection points,</li> <li>220 lux (20 foot candles) in work rooms, and</li> <li>110 lux (10 foot candles) in other areas.</li> </ol> <p>Suspended light bulbs and fixtures in any stage of production should be of a safer type and protected to prevent contamination of drinking water in case of breakage.</p>	<p>Intensity of light is given only for guidance.</p> <p>Suspended light bulbs and fixtures should be protected by providing suitable covers.</p>
<p><b>B-5.4.7 Ventilation</b></p> <p>Adequate ventilation should be provided to prevent excessive heat, steam condensation and dust and to remove contaminated air. The direction of the air flow should never be from a dirty area to a clean area. Ventilation openings should be provided with a screen or other protecting enclosure of non-corrodible material. Screens should be easily removable for cleaning.</p>	<p>Exhaust openings should be covered with wiremesh or with suitable flaps.</p>
<p><b>B-5.4.8 Facilities for Storage of Waste and Inedible Material</b></p> <p>Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment. These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination of drinking water; equipment, buildings or roadways on the premises.</p>	<p>Facilities for storage of waste and inedible material should be outside the processing plant and finished product storage area.</p>
<b>B-5.5 Equipments and Utensils</b>	
<p><b>B-5.5.1 Materials</b></p> <p>All equipment and utensils used in drinking water handling areas and which may contact the drinking water should be made of material which does not transmit toxic substances, odour or taste, is non-absorbent, is resistant to corrosion and is capable of withstanding repeated cleaning and disinfection. Surfaces should be smooth and free from pits and crevices. The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their use would not be a source of contamination.</p>	
<b>B-5.5.2. Hygienic Design, Construction and Installation</b>	
<b>B-5.5.2.1</b> All equipment and utensils should be so designed and constructed as to prevent hazards and permit easy and thorough cleaning and disinfection.	

B-6 ESTABLISHMENT	
<p>B-6.1 Maintenance</p> <p>The buildings, equipments, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition.</p>	
B-6.2 Cleaning and Disinfection	
B-6.2.1 To prevent contamination of drinking water, all equipment and utensils should be cleaned as frequently as necessary and disinfected whenever circumstances demand.	
B-6.2.2 Adequate precautions should be taken to prevent drinking water from being contaminated during cleaning or disinfection of rooms, equipment or utensils, by wash water and detergents or by disinfectants and their solutions. Detergents and disinfectants should be suitable for the purpose intended. Any residues of these agents on a surface which with may come in contact with drinking water should be removed by thorough rinsing with water, before the area or equipment is again used for handling drinking water.	See explanatory note as given in B-5.4.5
B-6.2.3 Either immediately after cessation of work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of water handling areas should be thoroughly cleaned.	
B-6.2.4 Changing facilities and toilets should be kept clean at all times	Changing facilities like aprons, headgears, mask etc. should be available in sufficient numbers to meet daily and contingency requirement.
B-6.2.5 Roadways and yards in the immediate vicinity of and serving the premises should be kept clean.	The area surrounding the unit may be grassed to prevent entry of dirt and dust in the plant. Construction of wall of 8 feet is required when the immediate surrounding is not in the control of the unit.
B-6.3 Hygiene Control Programme	
<p>A permanent cleaning and disinfection should be drawn up for establishment to ensure that all areas are appropriately cleaned and that critical areas, equipment and material are designated for special attention. An individual, who should preferably be a permanent member of the staff of the establishment and whose duties should be independent of production, should be appointed to be responsible for the cleanliness of the establishment. He should have a thorough understanding of the significance of contamination and the hazards involved. All cleaning personnel should be well-trained in cleaning techniques.</p>	<p>An elaborate hygiene control plan should be drawn for monitoring the hygienic conditions of the plant and personnel. The plan should invariably include the following:</p> <ol style="list-style-type: none"> <li>1) Hygiene requirement</li> <li>2) Frequency</li> <li>3) Name of the person directly responsible for supervision</li> </ol> <p>The above plan should be monitored by a designated person who has thorough understanding of significance of contaminants and hazards.</p> <p>The hygiene control schedule should be properly displayed at different points like processing/ filling/ storage.</p>

<b>B-6.4 Storage and Disposal of Waste</b>	
Waste material should be handled in such a manner as to avoid contamination of drinking water. Care should be taken to prevent access to waste by pests. Waste should be removed from the water handling and other working areas as often as necessary and at least daily. Immediately after disposal of the waste, receptacles used for storage and any equipment which has come into contact with the waste should be cleaned and disinfected. The waste storage area should also be cleaned and disinfected.	
<b>B-6.5 Exclusion of Animals</b>	
Animals that are uncontrolled or that could be a hazard to health should be excluded from establishments.	No animal should be allowed inside the plant area. If any stray intrusion of pest like lizard, flies are found, immediate action shall be taken to remove them and further necessary preventive measures shall be taken.
<b>B-6.6 Pest Control</b>	
<b>B-6.6.1</b> There should be an effective and continuous programme for the control of pests. Establishments and surrounding area should be regularly examined for evidence of infestation.	Fly catchers should be provided in processing/ filling area.
<b>B-6.6.2</b> If pests gain entrance to the establishment, eradication measures should be instituted. Control measures involving treatment with chemical, physical or biological agents should only be undertaken by or under direct supervision of personnel who have a thorough understanding of the potential hazards to health resulting from the use of these agents, including those hazards which may arise from residues retained in the drinking water.	Pesticides designated safe for use in food industry should only be used under direct supervision of trained personnel.
<b>B-6.6.3</b> Pesticides should only be used if other precautionary measures cannot be used effectively. Before pesticides are applied, care should be taken to safeguard drinking water, equipment and utensils from contamination. After application, contaminated equipment and utensils should be thoroughly cleaned to remove residues prior to be used again.	<b>See</b> explanatory note as given in Cl. B-6.6.2
<b>B-6.7 Storage of Hazardous Substances</b>	
<b>B-6.7.1</b> Pesticides or other substances which may present a hazard to health should be suitably labeled with a warning about their toxicity and use. They should be stored in locked rooms or cabinets, and dispersed and handled only by authorized and properly trained personnel or by persons under strict supervision of trained personnel. Extreme care should be taken to avoid contamination.	
<b>B-6.7.2</b> Except when necessary for hygienic or processing purposes, no substance which could contaminate drinking water should be used or stored in drinking water handling areas.	

B-6.8 Personal Effects and Clothing	
Personal effects and clothing should not be deposited in drinking water handling areas.	Protective clothing should not be permitted to be taken out beyond change room. Separate cabinets for storage of personal belongings should be provided.
B-7 Personnel; Hygiene and Health Requirements.	
B-7.1 Hygiene Training	
Managers of establishments should arrange for adequate and continuing training of all water handlers in hygienic handling of water and in personal hygiene so that they understand the precautions necessary to prevent contamination of drinking water.	
B-7.2 Medical Examination	
Persons who come into contact with drinking water in the course of their work should have a medical examination prior to employment, if the official agency having jurisdiction acting on medical advice, considers that this is necessary, whether because of epidemiological considerations or the medical history of the prospective water handler. Medical examination of water handlers should be periodically carried out and when clinically or epidemiologically indicated.	Medical examination of all workers, testing personnel and supervisors should be got done twice in a year or as and when required. In case of any new worker joins, his fitness with respect to freedom from skin or communicable diseases should be first medically examined before permitting work in water processing area.
B-7.3 Communicable Diseases	
The management should take care to ensure that no person, whether known or suspected to be suffering from, or to be a carrier of a disease likely to be transmitted or afflicted with infected wounds, skin infections, sores or diarrhea, is permitted to work in any drinking water handling area in any capacity in which there is any likelihood of such a person directly or indirectly contaminating drinking water with pathogenic micro-organisms. Any person so affected should immediately report to the management.	Medical examination report should clearly indicate that the workers are free from skin or any communicable diseases.
B-7.4 Injuries	
Any person who has a cut or wound should not continue to handle drinking water or contact surfaces until the injury is completely protected with a waterproof covering which is firmly secured and which is conspicuous in colour. Adequate first-aid facilities should be provided for this purpose.	Availability of first aid box should be ensured.
B-7.5 Washing of Hands	
Every person, while on duty in a drinking water handling area, should wash the hands frequently and thoroughly with a suitable hand cleaning preparation under running warm water. Hands should always be washed before commencing work, immediately after using the toilet, after handling contaminated material and whenever else necessary. After handling any material which might be capable of transmitting disease, hands should be washed and disinfected immediately. Notices requiring hand-washing should be displayed. There should be adequate supervision	Foot operated or photo sensitive taps may preferably be used.

to ensure compliance with this requirement.	
<b>B-7.6 Personal Cleanliness</b>	
Every person engaged in a drinking water handling area should maintain a high degree of personal cleanliness while on duty and should, at all times while so engaged, wear suitable protective clothing including head covering and footwear, all of which should be cleanable, unless designed to be disposed off and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged. Aprons and similar items should not be washed on the floor. When drinking water is manipulated by hand, any jewellery that cannot be adequately disinfected should be removed from the hands. Personnel should not wear any insecure jewellery when engaged in handling drinking water.	Wearing of protective clothing should be ensured when the plant is in operation.
<b>B-7.7 Personal Behaviour</b>	
Any behaviour which could result in contamination of drinking water, such as eating, use of tobacco, chewing (for example, gum, sticks, betel nuts, etc.) or unhygienic practices, such as, spitting, should be prohibited in drinking water handling areas.	Proper notices in this regard should be displayed in local languages at appropriate places.
<b>B-7.8 Visitors</b>	
Precautions should be taken to prevent visitors as far as possible from visiting the drinking water handling areas. If unavoidable, the visitors should observe the provisions of B-6.8 and B-7.3	General visitors should be prohibited for entering into processing area.
<b>B-7.9 Supervision</b>	
Responsible for ensuring compliance by all personnel with the requirements of B-6.1 to B-6.8 and the responsibility should be specifically allocated to competent supervisory personnel.	Hygiene supervisor should be other than the one responsible for production. However, the overall supervision for requirements of B-6.1 to B-6.8 may be done by a senior person irrespective of actual work area.
<b>B-8 ESTABLISHMENT: HYGIENIC PROCESSING REQUIREMENTS</b>	
<b>B-8.1 Raw material Requirements</b>	
To guarantee a good and stable quality of drinking water, the quality criteria should be monitored regularly.	<b>See explanatory note given in Cl. B-5.4.1.1</b>
<b>B-8.2</b> Should there be a perceptible lacking in meeting the requirements, necessary corrective measures are immediately to be taken.	
<b>B-8.3 Treatment</b>	
The treatment may include decantation, filtration, combination filtration (for example, membrane filters, depth filters, cartridge filters, activated carbon), demineralization, reverse osmosis, aeration, and disinfection.	IO should specifically report the type of processes adopted by the firm for production and disinfection.  Any subsequent change in the process should be positively informed to BIS for action (see Section 5 of Manual)
<b>B-8.3.1</b> Processing should be supervised by technically competent personnel.	

B-8.3.2 All steps in the production process, including packaging, should be performed without unnecessary delay and under conditions which will prevent the possibility of contamination, deterioration, or the growth of pathogenic and spoilage micro-organisms.	The water processed in a day should be filled/ packed on the same day.
B-8.3.3 Rough treatment of containers should be avoided to prevent the possibility of contamination of the processed product.	Reusable containers where transparency or shape is impaired because of repeated use, should be rejected.
B-8.3.4 Treatment are necessary controls and should be such as to protect against contamination or development of a public health hazard and against deterioration within the limits of good commercial practice.	
<b>H-8.4 Packaging Material and Containers</b>	
B-8.4.1 All packaging materials should be stored in a clean and hygienic manner. The material should be appropriate for the product to be packed and for the expected conditions of storage and should not transmit to the product objectionable substances beyond the limits specified. The packaging material should be sound and should provide appropriate protection from contamination. Only packaging material required for immediate use should be kept in the packing or filling area.	Separate stores should be available for packaging material, finished products and other items. Containers/ bottles received or blown by the firm should preferably be stored in a closed mouth polybag/ caps to avoid any contamination.
B-8.4.2 Product containers should not have been used for any purpose that may lead to contamination of the product. In case of new containers if there is a possibility that they have been contaminated, should be cleaned and disinfected. When chemicals are used for these purposes, the container should be rinsed. Containers should be well drained after rinsing. Used and, when necessary; unused containers should be inspected immediately before filling.	The reusable containers and caps should be cleaned, disinfected, washed and jet rinsed (with processed water) before filling.  Various options are available for disinfection Due care should be taken that no residue of disinfectant is left in the pipeline/ container.
<b>B-8.5 Filling and Sealing of Containers</b>	
B-8.5.1 Packaging should be done under conditions that preclude the introduction of contaminants in the product.	Filling room should be regularly disinfected.
B-8.5.2 The methods, equipment and material used for sealing should guarantee a tight and impervious sealing and should not damage the containers nor deteriorate the physical, chemical, microbiological and organoleptic qualities of drinking water.	To ensure tight and impervious sealing, the shrinkable sleeve may be used on caps and the container may be held upside down to check for any leakage. The container should be visually inspected for any suspended particle etc. against an illuminated screen.
<b>B-8.6 Packaging of Containers</b>	
The packaging of containers should protect the latter from contamination and damage and allow appropriate handling and storing.	The reusable containers may be wrapped in a plastic (polyethylene) film/ bag to avoid any damage/ transparency to the container. Every time new polyethylene cover should be used.
<b>B-8.7 Lot Identification</b>	
Each container shall be permanently marked with code to identify the producing factory and the lot. A lot is quantity of drinking water produced under identical conditions, all	The date of manufacturing should be clearly indicated on the container

<p>packages of which should bear a lot number that identifies the production during a particular time, interval and usually from a particular 'processing line' or other processing unit.</p>	<p>Writing of batch No. in place of manufacturing date should not be practiced unless it is declared that batch number and manufacturing date are the same.</p>
<p><b>B-8.8 Processing and Production Records</b></p>	
<p>Permanent, legible and dated records of pertinent processing and production details should be kept concerning each lot. These records should be retained for a period that exceeds the shelf life of the product or longer if required. Records should also be kept of the initial distribution by lot.</p>	<p>Batch wise records of production and dispatch for each type of container should be maintained separately.</p>
<p><b>B-8.9 Product Durability</b></p>	
<p>Product durability shall be declared on the container as per 7.1 (g). It shall be based on in-house self life study and proper checks and records be maintained for the conformity of the declared product durability.</p>	<p>Each type of container should be subjected for durability assessment and based on the study conducted by the manufacturer, the shelf life should be declared. Records of the same should be maintained and shall be verified by IO.</p>
<p><b>B-8.10 Storage and Transport of the End-Product</b></p>	
<p>The end-product should be stored and transported under such conditions as will preclude contamination with and/or proliferation of micro-organisms and protect against deterioration of the product or damage to the container. During storage, periodic inspection of the end-product should take place to ensure that only drinking water which is fit for human consumption is dispatched and that the end-product specifications are complied with.</p>	