



# **QUARTERLY REPORT BOTTLED WATER QUALITY**

**(January-March, 2020)**



**Pakistan Council of Research in Water Resources**

Ministry of Science & Technology  
Khyban-e-Johar, H-8/1, Islamabad.

[www.pcrwr.gov.pk](http://www.pcrwr.gov.pk)

## SUMMARY

The poor quality of drinking water has forced a large cross-section of citizens to buy bottled water. However, many of the mineral water companies were found selling contaminated water. To monitor and improve the quality of bottled water, the government of Pakistan through Ministry of Science and Technology has designated the task for quarterly monitoring of bottled/mineral water brands to PCRWR. According to the monitoring report for the quarter January-March, 2020 following is the brief overview of the findings.

### Quarterly Monitoring of Bottled/Mineral Water (January-March, 2020)

Item	No.	% age
Total No. of Brands Collected	61	-
Overall Safe Brands	54	88
Overall Unsafe Brands	07	12
Chemically Safe Brands	56	92
Chemically Unsafe Brands	05	08
Microbiologically Safe Brands	59	97
Microbiologically Unsafe Brands	02	03

Name of Targeted Cities (7)	(Tando Jam, Faisalabad, Sialkot, Islamabad, Muzaffarabad, Multan, Karachi)	
Unsafe Brands	<b>NFS</b>	Madina Town, Bukhar Road, Jhang.
	<b>Super Natural</b>	Well-O (Pvt) Ltd. P-958, St No.12, M. Abbas Satiana Road, Faisalabad.
	<b>Aqua Royals</b>	0321-6668883 <a href="mailto:aquaroyals@gmail.com">aquaroyals@gmail.com</a>
	<b>Aqua Natural</b>	Aqua Natural: Khan Baba Petroleum, Gujranwala Road, Daska. PS:4639-2004
	<b>Hibba</b>	HIBBA Water: S.I.T.E Area Karachi
	<b>Dropice</b>	Manufacturer's Cell Nos. 0306-2009099 and 0314-7739595. TM-428572 Collected from: Gilgit Baltistan General Store, Mughal Hazara Goth, Near Kamran Chowrangi, Gulistan-e-Johar, Karachi
	<b>AQUALUS</b>	Manufacturer's Cell Nos. 0332-2508263; 0315-2290294 Collected from: Ahmed Milk Shop, Qalandar Abad, Gulistan-e-Johar, Block-3, Karachi

## INTRODUCTION

Drinking water quality is deteriorating continually due to biological contamination from human waste, chemical pollutants from industries and agricultural inputs. Piped water also gets contaminated because pipes are laid very close to sewerage lines or open drains and cause many serious water borne diseases. It was found that 45% of infant deaths have been attributed to diarrhea and about 60% to overall infectious waterborne diseases in Pakistan. According to the World Health Organization (WHO) 25-30% of the diseases are gastro-intestinal in nature. The poor quality of drinking water has forced a large cross-section of citizens to buy bottled water. As a consequence of this expanding market a mushroom growth of bottled water industry in the country is witnessed during the last few years. However, many of the mineral water companies were found selling contaminated water. To monitor and improve the quality of bottled water, the government of Pakistan has designated the PCRWR as focal point agency.

1. Ministry of Science & Technology informed PCRWR Vide U.O. No. 5(21)/2004-ATA-II dated 17.10.2005 that the Cabinet in its meeting under the chairmanship of Prime Minister directed Ministry of Science & Technology to undertake regular survey/samples of bottled/mineral water and publicize the results on a quarterly basis and follow up with punitive/legal action.
2. Ministry of Science & Technology has assigned the task of quality monitoring of bottled water and publicize the results to PCRWR Vide U.O. No.1(1)/2005-Secy (MoST) dated 8.12.2005.

## PCRWR SAMPLING METHODOLOGY

<b>No. of Brands Collected</b>	61	
<b>No. of Cities Targeted</b>	(Tando Jam, Faisalabad, Sialkot, Islamabad, Muzaffarabad, Multan, Karachi )	
<b>Composition of Sampling Team as per MoU Signed between PCRWR &amp; PSQCA</b>	One Research Officer and one Laboratory Assistants from PCRWR and Senior staff member and field officer from PSQCA.	
<b>Sampling Procedure</b>	Samples of commercially available brands of mineral/bottled water were collected from local market of seven cities of Pakistan. These samples were collected by the senior staff members of National Water Quality Laboratory (NWQL) of PCRWR Head Office and Regional/district Water Quality Laboratories of PCRWR during January-March, 2020. A set of four bottles of each brand was collected and sealed on site. Identification codes were allotted to all the brands according to PCRWR Bottled Water Classification System.	
<b>Transparency</b>	Sample No. 1	Handed over to shopkeeper at the time of sample collection;
	Sample No. 2	Preserved in the National Water Quality Laboratory of PCRWR, Islamabad for future record.
	Sample No. 3	Used for Microbiological Analysis
	Sample No.	Used for Physico-chemical Analysis

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**PCRWR BOTTLED WATER CLASSIFICATION SYSTEM**

Brand Name	PCRWR Code	City	Date of Collection	Date of Expiry	Size	Name & Address of Seller/Shop Keeper	Manufacturer's Address
Al-Kausar	BWY-01	Muzaffarabad	12/02/2020	09/2020	1.5 Liter	Al-Madina Mart Bala Peer Muzaffarabad	Manufactured and marketed by Alkausar Enterprises Nasir Bagh, Kaghan Road, Muzaffarabad. alkausar442@gmail.com
Best Kashmir	BWY-02	Muzaffarabad	12/02/2020	08/2020	0.5 Liter	Al-Mughal General Store Wapda Colony Muzaffarabad.	GPO Langarpura Sirinagar Road Tandali Jhelum Vally, AJK Muzaffarabad
Deewan Water	BWY-03	Muzaffarabad	12/02/2020	08/2020	0.5 Liter	Al-Madina Mart Bala Peer Muzaffarabad.	Baffa Khawajgan Road, Ghaziabad Mansehra. 0300-9761100
Corny	BWY-04	Tando Jam	10/02/2020	12/2020	0.6 Liter	SSD Traders Jamshoro.	Royal Pak food industries, Karachi. 0307-3338728
SHUKRAN	BWY-05	Tando Jam	10/02/2020	01/2021	0.5 Liter	Two Hearts Bakers & Nimco Gharibabad Hyderabad.	Factory: Fareed Plaza Tahirabad Hyderabad. 0344-3876689 Trade Mark:530667
OSLO	BWY-06	Tando Jam	10/02/2020	12/2020	0.6 Liter	Aarbish Medical and Super Store, Qasimabad.	Oslo International, Karachi.
MADIKH	BWY-07	Tando Jam	10/02/2020	02/2021	0.6 Liter	National Bakery, Latifabad No.08, Hyderabad.	Syed Beverages, Hyderabad/ Karachi.
Vey	BWY-08	Tando Jam	10/02/2020	12/2020	0.6 Liter	Two Hearts Bakers & Nimco Gharibabad Hyderabad.	Fluid Technology International (Pvt) Ltd, Karachi.
Dasani	BWY-09	Tando Jam	10/02/2020	02/2021	0.5 Liter	SSD Traders Jamshoro.	The Coca Cola Company by Coca Cola Beverages Pakistan Ltd. (CCBPL 26 FCC, Syed Maratab Ali Road, Gulberg IV, Lahore.
Clover Smart Water	BWY-10	Tando Jam	10/02/2020	12/2020	0.5 Liter	National Bakery, Latifabad No.08, Hyderabad.	Clover Pakistan.
Nestle	BWY-11	Tando Jam	10/02/2020	-	0.5 Liter	National Bakery, Latifabad No.08, Hyderabad.	Bottled by Nestle Pakistan Ltd.308-upper Mall, Lahore. <a href="http://www.nestlepurelife.com/pk">www.nestlepurelife.com/pk</a>
NFS	BWY-12	Faisalabad	10/02/2020	01/2021	0.5 Liter	Farooq Hotel G.T.S Faisalabad.	I.M Enterprises, P-53, Sukhar Road, Sukhar.
Nature Aqua	BWY-13	Faisalabad	10/02/2020	11/2020	0.6 Liter	Waseem Pan Shop G.T.S Faisalabad.	Madina Town, Bukhar Road, Jhang.
Blu Water	BWY-14	Faisalabad	10/02/2020	11/2020	0.6 Liter	Wajid Pan Shop Makuana Jaranwala Road, Faisalabad.	Al-Hilal Industries (Pvt)Ltd .Sultan Nagar,vehari Road, Multan
Murree Sparkletts	BWY-15	Faisalabad	10/02/2020		0.5 Liter	Haji Pan Shop Makuana Faisalabad.	Murree Sparkletts: Plot no.102, Phase III, Industrial Estate, Hattar.
Springley	BWY-16	Faisalabad	10/02/2020	01/2021	0.5 Liter	Sheikh Pan Shop Makuana Faisalabad	Qarshi Research International (Pvt.) Ltd. Plot No.561-4, Phase I&II, Hattar.

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Brand Name	PCRWR Code	City	Date of Collection	Date of Expiry	Size	Name & Address of Seller/Shop Keeper	Manufacturer's Address
<b>Nation</b>	BWY-17	Faisalabad	10/02/2020	03/2020	0.6 Liter	-	Rameez Enterprises: 9 Km, G.T.Road, Rachna Town, Ferozwala.
<b>Super Natural</b>	BWY-18	Faisalabad	10/02/2020	10/2020	0.5 Liter	Ali Pan Shop Makuana Faisalabad.	Well-O (Pvt) Ltd. P-958, St No.12, M.Abbas Satiana Road, Faisalabad.
<b>Maple Plus</b>	BWY-19	Islamabad	09/03/2020	12/2020	1.5 Liter	Collected from manufacturing point	Maple Plus Purification Plant Plot No.2, Near Khalid Bin Waleed Masjid Federal Area, Sohan Islamabad
<b>Calci Dew</b>	BWY-20	Islamabad	09/03/2020	01/2021	1.5 Liter	Collected from manufacturing point	Plot No.3, Khasra No.659 Sohan, Near Khalid Bin Waleed Masjid Federal Area, Sohan Islamabad
<b>Springley</b>	BWY-21	Islamabad	09/03/2020	-	19 Liter	Plot No.1, Muhammadi Town Sohan, Islamabad	Qarshi Industries(Pvt.)Ltd Jame-Shirin Boulevard, 15-G Gulberg III Lahore
<b>Nectar</b>	BWY-22	Islamabad	09/03/2020	12/2020	0.5 Liter	Collected from manufacturing point	Islamabad Expressway Near Paradise Complex Kuri road Islamabad.
<b>Fresh Life</b>	BWY-23	Islamabad	09/03/2020	12/2020	0.5 Liter	Collected from manufacturing point	Main Hall, Khana Dak, Park Area Pindorian, Islamabad.
<b>Nestol</b>	BWY-24	Islamabad	09/03/2020	12/2020	0.5 Liter	Collected from manufacturing point	Khana Dak, Park Area Pindorian, Islamabad
<b>Aqua Green</b>	BWY-25	Islamabad	10/03/2020	01/2021	1.5 Liter	Collected from manufacturing point	Aqua Green Plot No.372 Japan Road, Naval Encourage Gate No.2, Islamabad.
<b>Deosai</b>	BWY-26	Islamabad	10/03/2020	-	0.6 Liter	Collected from manufacturing point	3km Japan Road, Sihala Khurd Sihala, Islamabad.
<b>Water Empire</b>	BWY-27	Islamabad	10/03/2020	02/2021	0.5 Liter	Collected from manufacturing point	Plot No.156, Japan Road, Islamabad.
<b>City Spring Water</b>	BWY-28	Multan	24/02/2020	11/2020	0.6 Liter	Collected from manufacturing point	City Industries: Danewal Town Lahore Road, Vehari.
<b>Alpine Pure</b>	BWY-29	Multan	24/02/2020	05/2020	0.5 Liter	Collected from manufacturing point	Address: 7-Sanpal Market, Shalimar Colony, Multan 0315-6056111 03330671347
<b>Alfalah Mineral Water</b>	BWY-30	Multan	24/02/2020	11/2020	0.6 Liter	Collected from manufacturing point	Western fort Commercial Area Qasim Bela, Multan Cantt. <a href="mailto:Wateralfalah@gmail.com">Wateralfalah@gmail.com</a>
<b>Fresco Healthy Water</b>	BWY-31	Multan	24/02/2020	01/2021	0.6 Liter	Collected from manufacturing point	Makdoom Pur Chungi Kabirwala. PS:221-2010(R)
<b>ECO</b>	BWY-32	Sialkot	10/02/2020	02/2021	0.5 Liter	Collected from manufacturing point	J&J foods & Beverages: Ittefaq Manzil near Jinnah Islamia College road Sialkot. <a href="http://www.jjfoods-bev.com">www.jjfoods-bev.com</a>
<b>Aqua Royals</b>	BWY-33	Sialkot	10/02/2020	-	0.6 Liter	Awan Marriage Hall, Pasroor Road, Sialkot.	0321-6668883 <a href="mailto:aquaroyals@gmail.com">aquaroyals@gmail.com</a>
<b>Sialko Pure Drinking Water</b>	BWY-34	Sialkot	10/02/2020	-	0.6 Liter	Naseer Awan Super Store, Chak Putlian Said Pur Road, Sialkot.	Said Pur Road Chak Putlian Sialkot. <a href="mailto:Ntfawoodworks2016@gmail.com">Ntfawoodworks2016@gmail.com</a> 0322-6763946

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Brand Name	PCRWR Code	City	Date of Collection	Date of Expiry	Size	Name & Address of Seller/Shop Keeper	Manufacturer's Address
<b>Isberg</b>	BWY-35	Sialkot	10/02/2020	04/2020	0.6 Liter	Collected from manufacturing point	Premier Water Refining Company: Wazirabad Road, Noul Morr 2 km Roras Road West, Dhabba Sialkot.
<b>Aqua Natural</b>	BWY-36	Sialkot	11/02/2020	04/2020	0.6 Liter	Lucky Pan Shop Shahab Pura Sialkot.	Aqua Natural: Khan Baba Petroleum, Gujranwala Road, Daska. PS:4639-2004
<b>Bake Master</b>	BWY-37	Sialkot	11/02/2020	04/2020	0.6 Liter	Bake Master Bakery Shahab Pura Road Sialkot	Processed and Bottled by: Bake Master Food & Beverages Marala Road New Abadi Muradpur Sialkot.
<b>ICE WELL</b>	BWY-38	Sialkot	11/02/2020	12/2020	0.6 Liter	Baghwal Awan, Wazirabad Road, Sialkot.	Bottled by: Quaint Beverages Industries Near G.T Road Mor Sambrial Sialkot
<b>Himalaya Spring</b>	BWY-39	Sialkot	11/02/2020	12/2020	1.5 Liter	Aqeel Sadiq, Sialkot Cantt.	<a href="mailto:Himalayas.spring@gmail.com">Himalayas.spring@gmail.com</a> Trade Mark(REGD)
<b>Elim</b>	BWY-40	Islamabad	16/03/2020	02/2021	1.5 Liter	Collected from manufacturing point	Plot No.195, St no.2, Sector I-9/3 Islamabad.
<b>Water Plus</b>	BWY-41	Islamabad	16/03/2020	01/2021	0.5 Liter	Collected from manufacturing point	Plot No.235, St.6, 1-9/2, Industrial Area, Islamabad.
<b>Venora</b>	BWY-42	Islamabad	16/03/2020	12/2020	1.5 Liter	Collected from manufacturing point	Plot No.238, Street No.8, I-9/3, Islamabad.
<b>Hydra</b>	BWY-43	Islamabad	16/03/2020	01/2021	1.5 Liter	Collected from manufacturing point	Bottled by: Pakistan PVC Limited(Food Division) 31-A, Sector Islamabad.
<b>Sunley Pure</b>	BWY-44	Islamabad	16/03/2020	01/2021	1.5 Liter	Collected from manufacturing point	Bottled by: Pakistan PVC Limited(Food Division) 31-A, Sector Islamabad.
<b>Aqua Stream</b>	BWY-45	Islamabad	16/03/2020	12/2020	1.5 Liter	Collected from manufacturing point	Plot#368, St 5, Sector, I-9/3, Islamabad.
<b>AQUA STAR</b>	BWY-46	Karachi	07/04/2020	-	0.5 Liter	Yaseen Super Store, Near Yasin Masjid, Behar colony, Lyari, Karachi AQUA STAR S.I.T.E. Karachi	AQUA STAR S.I.T.E. Karachi
<b>Blue Plus</b>	BWY-47	Karachi	07/04/2020	-	0.6 Liter	Anus & Arhum Bakery, B-Road, Behar colony, Lyari, Karachi	KISWA Trader, Gadap Town, Karachi
<b>WATER FALL</b>	BWY-48	Karachi	07/04/2020	-	0.6 Liter	Shah Ji General Store, Near Yasin Masjid, B-Road, Behar colony, Lyari, Karachi	MEGA FOOD Enterprises, S.I.T.E Karachi
<b>Aab-E-Sehat</b>	BWY-49	Karachi	07/04/2020	-	0.6 Liter	MashAllah Pashin super store, Masjid Road, Behar, Colony, Lyari, Karachi	Asghar & Sons 0313-3798495, 0315-2164060
<b>The Legend</b>	BWY-50	Karachi	07/04/2020	12/2021	0.6 Liter	New Quetta Chamman General Store, Gali No.14, Masjid Road, Behar colony, Lyari Karachi	MEGA FINE INDUSTRIES Plot No. A-79 Malir Industrial Area, Karachi
<b>Water Plus Premium</b>	BWY-51	Karachi	07/04/2020	-	0.6 Liter	Ameen Qaleem General Store, Gali No.12, Masjid Road, Behar colony, Lyari Karachi	MEGA FINE INDUSTRIES Plot No. A-79 Malir Industrial Area, Karachi

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Brand Name	PCRWR Code	City	Date of Collection	Date of Expiry	Size	Name & Address of Seller/Shop Keeper	Manufacturer's Address
<b>Aqua King</b>	BWY-52	Karachi	07/04/2020	06/2020	0.6 Liter	Dua General Store & Cold Drink, Near Lyari General Hospital, Lyari, Karachi	HP Plot No. 60, Sec-50, Super Highway Karachi
<b>Hibba</b>	BWY-53	Karachi	07/04/2020	-	0.6 Liter	Aishar Medical & General store, Shah Abdul Latif Bhitai Road, Aga Taj Colony, Lyari, Karachi	HIBBA Water: S.I.T.E Area Karachi
<b>D.Y Fresh &amp; Pure Water</b>	BWY-54	Karachi	08/04/2020	-	0.6 Liter	Hazara Milk shop, Near Bilal Masjid, Bilal colony, Landhi No.22, Karachi	Not mentioned
<b>NEO</b>	BWY-55	Karachi	08/04/2020	-	0.6 Liter	Hazara Milk shop, Near Bilal Masjid, Bilal colony, Landhi No.22, Karachi	Nea Vatten, Malir Industrial Area, Malir-15, Karachi
<b>ALPHA</b>	BWY-56	Karachi	08/04/2020	-	0.6 Liter	Imtiaz Kiryana store, F/2, Labor colony Near Sidique Akbar Masjid, Landhi Karachi	Qaiser Industries, N Block North Nazimabad, Karachi
<b>Water Right</b>	BWY-57	Karachi	09/04/2020	-	0.6 Liter	Asim Store, OPP: Shaikh Zyed Islamic Centre, Gulistan—e Johar, Block-2, Karachi	Aga & Sons Way Traders Digri
<b>Crystal Maya</b>	BWY-58	Karachi	09/04/2020	-	0.5 Liter	MashAllah Milk Shop Gulistan—e Johar, Block-2 Karachi	Asghar & Sons
<b>DOURO</b>	BWY-59	Karachi	09/04/2020	-	0.6 Liter	Bismillah General Store, Qalandar Abad, Gulistan-e-Johar, Block-3, Karachi	Douro Enterprises Block-16, F.B. Area Karachi
<b>Dropice</b>	BWY-60	Karachi	09/04/2020	-	0.6 Liter	Gilgit Baltistan General Store, Mughal Hazara Goth, Near Kamran Chowrangi, Gulistan-e-Johar, Karachi	TM 428572 0306-2009099 0314-7739595
<b>AQUALUS</b>	BWY-61	Karachi	09/04/2020	-	0.5 Liter	Ahmed Milk Shop, Qalandar Abad, Gulistan-e-Johar, Block-3, Karachi	0332-2508263 0315-2290294

**WATER QUALITY PARAMETERS AND METHODS USED FOR ANALYSIS**

Sr. #	PARAMETERS	ANALYTICAL METHOD
1.	Alkalinity (mg/l as CaCO <sub>3</sub> )	2320, Standard method (2012) APHA
2.	Arsenic (ppb)	AAS Vario 6, Analytik Jena AG
3.	Bicarbonate	2320, Standard method (2012) APHA
4.	Calcium (mg/l)	3500-Ca-D, Standard Method (2012) APHA
5.	Carbonate (mg/l)	2320, Standard method (2012)

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Sr. #	PARAMETERS	ANALYTICAL METHOD
6.	Chloride (mg/l)	Titration (Silver Nitrate), Standard Method (2012) APHA
7.	Color (TCU)	Sensory Test
8.	Conductivity ( $\mu$ S/cm)	E.C meter, Hach-44600-00, USA
9.	Hardness (mg/l)	EDTA Titration, Standard Method (2012) APHA
10.	Magnesium (mg/l)	2340-C, Standard Method (2012) APHA
11.	Nitrate Nitrogen (mg/l)	Cd. Reduction (Hach-8171) by Spectrophotometer
12.	Odor	Sensory Test
13.	pH	pH Meter, Hanna Instrument, Model 8519, Italy
14.	Potassium (mg/l)	Flame photometer PFP7, UK
15.	Sodium (mg/l)	Flame photometer PFP7, UK
16.	Sulfate (mg/l)	SulfaVer4 (Hach-8051) by Spectrophotometer
17.	Phosphate (mg/l)	8190 and 8048 (Hach)
18.	Taste	Sensory Test
19.	TDS (mg/l)	2540C, Standard method (2012) APHA
20.	Turbidity (NTU)	Turbidity Meter, Lamotte, Model 2008, USA
21.	Fluoride (mg/l)	4500-F C. ion-Selective Electrode Method Standard method (2005) APHA
22.	Iron (mg/l)	FerroVer method (HACH Cat. 21057-69)
23.	Total Coliforms(MPN/100ml)	9221-B,C&D, Standard Methods (2012) APHA
24.	E. coli (MPN/100ml)	9221-B,C&D, Standard Methods (2012) APHA

**WATER QUALITY PERMISSIBLE LIMITS FOR BOTTLED WATER**

Sr. #	Parameter	Units	Permissible Limits		
			WHO	IBWA	PSQCA
1.	Alkalinity	(mg/l)	NGVS	NGVS	NGVS
2.	Bicarbonate	(mg/l)	NGVS	NGVS	NGVS
3.	Calcium	(mg/l)	NGVS	NGVS	100
4.	Carbonate	(mg/l)	NGVS	NGVS	NGVS



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Sr. #	Parameter	Units	Permissible Limits		
			WHO	IBWA	PSQCA
5.	Chloride	(mg/l)	250	250	250
6.	Color	(TCU)	15	NGVS	5
7.	Conductivity	( $\mu$ S/cm)	NGVS	NGVS	NGVS
8.	Fluoride	(mg/l)	1.5	3	0.7
9.	Hardness	(mg/l)	NGVS	NGVS	NGVS
10.	Iron	(mg/l)	0.3	0.3	0.3
11.	Magnesium	(mg/l)	NGVS	NGVS	50
12.	Odor	-	Odorless	NGVS	Unobjectionable
13.	Nitrate-N	(mg/l)	10	10	10
14.	pH	-	6.5-8.5	NGVS	6.5-8.5
15.	Potassium	(mg/l)	NGVS	NGVS	10
16.	Sodium	(mg/l)	200	NGVS	50
17.	Sulfate	(mg/l)	250	250	250
18.	Taste	-	Unobject.	NGVS	Unobjectionable
19.	TDS	(mg/l)	1000	500	500
20.	Turbidity	(NTU)	5	NGVS	0.5
21.	Phosphate	(mg/l)	NGVS	NGVS	NGVS
22.	Arsenic	ppb	10	10	10
23.	Total Coliforms	MPN/100ml	0	0	0
24.	E-Coli	MPN/100ml	0	0	0

**WHO** World Health Organization  
**IBWA** International Bottled Water Association  
**PSQCA** Pakistan Standards and Quality Control Authority

## SUMMARY OF RESULTS OF PCRWR MONITORING

### Contaminants of Potential Concerns Found in Bottled Water Brands

#### Sodium: Safe Limit : 50 parts per million (ppm)

Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	NFS	BWY-12	Jhang	ppm	86
2.	Super Natural	BWY-18	Faisalabad	ppm	76
3.	Hibba	BWY-66	Karachi	ppm	66

#### pH : Safe Limit : 6.5-8.5

Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	Dropice	BWY-60	Karachi	-	6.09
2.	AQUALUS	BWY-61	Karachi	-	6.16

#### Bacteriological: (Total Coliforms , Fecal Coliforms & E Coli) (Safe Limit: 0/100ml)

Sr. No	Brand Name	Code	City of Manufacturing	Results	
				Total Coliforms (MPN/100ml)	E. Coli (MPN/100ml)
1.	Aqua Royals	BWY-33	Sialkot	06	Nil
2.	Aqua Natural	BWY-36	Sialkot	04	Nil

### PCRWR TESTING: SAFE BRANDS

Sr. No	Brand Name	Code	Quality (Safe/Unsafe)	
			Chemical	Microbiological
1.	Al-Kausar	BWY-01	Safe	Safe
2.	Best Kashmir	BWY-02	Safe	Safe
3.	Deewan Water	BWY-03	Safe	Safe
4.	Corny	BWY-04	Safe	Safe
5.	SHUKRAN	BWY-05	Safe	Safe
6.	OSLO	BWY-06	Safe	Safe
7.	MADIKH	BWY-07	Safe	Safe
8.	Vey	BWY-08	Safe	Safe
9.	Dasani	BWY-09	Safe	Safe
10.	Clover Smart Water	BWY-10	Safe	Safe
11.	Nestle	BWY-11	Safe	Safe
12.	Nature Aqua	BWY-13	Safe	Safe
13.	Blu Water	BWY-14	Safe	Safe
14.	Murree Sparkletts	BWY-15	Safe	Safe
15.	Springley	BWY-16	Safe	Safe
16.	Nation	BWY-17	Safe	Safe
17.	Maple Plus	BWY-19	Safe	Safe
18.	Calci Dew	BWY-20	Safe	Safe
19.	Springley	BWY-21	Safe	Safe
20.	Nectar	BWY-22	Safe	Safe
21.	Fresh Life	BWY-23	Safe	Safe
22.	Nestol	BWY-24	Safe	Safe
23.	Aqua Green	BWY-25	Safe	Safe

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Sr. No	Brand Name	Code	Quality (Safe/Unsafe)	
			Chemical	Microbiological
24.	Deosai	BWY-26	Safe	Safe
25.	Water Empire	BWY-27	Safe	Safe
26.	City Spring Water	BWY-28	Safe	Safe
27.	Alpine Pure	BWY-29	Safe	Safe
28.	Alfalah Mineral Water	BWY-30	Safe	Safe
29.	Fresco Healthy Water	BWY-31	Safe	Safe
30.	ECO	BWY-32	Safe	Safe
31.	Sialko Pure Drinking Water	BWY-34	Safe	Safe
32.	Isberg	BWY-35	Safe	Safe
33.	Bake Master	BWY-37	Safe	Safe
34.	ICE WELL	BWY-38	Safe	Safe
35.	Himalaya Spring	BWY-39	Safe	Safe
36.	Elim	BWY-40	Safe	Safe
37.	Water Plus	BWY-41	Safe	Safe
38.	Venora	BWY-42	Safe	Safe
39.	Hydra	BWY-43	Safe	Safe
40.	Sunley Pure	BWY-44	Safe	Safe
41.	Aqua Stream	BWY-45	Safe	Safe
42.	AQUA STAR	BWY-46	Safe	Safe
43.	Blue Plus	BWY-47	Safe	Safe
44.	WATER FALL	BWY-48	Safe	Safe
45.	Aab-E-Sehat	BWY-49	Safe	Safe
46.	The Legend	BWY-50	Safe	Safe
47.	Water Plus Premium	BWY-51	Safe	Safe
48.	Aqua King	BWY-52	Safe	Safe
49.	D.Y Fresh & Pure Water	BWY-54	Safe	Safe
50.	NEO	BWY-55	Safe	Safe
51.	ALPHA	BWY-56	Safe	Safe
52.	Water Right	BWY-57	Safe	Safe
53.	Crystal Maya	BWY-58	Safe	Safe
54.	DOURO	BWY-59	Safe	Safe

**PCRWR TESTING: UNSAFE BRANDS**

Sr. No	Brand Name	Code	Address/Manufacturer	Quality (Safe/Unsafe)	
				Chemical	Microbiological
1.	NFS	BWY-12	Madina Town, Bukhar Road, Jhang.	Unsafe	Safe
2.	Super Natural	BWY-18	Well-O (Pvt) Ltd. P-958, St No.12, M.Abbas Satiana Road, Faisalabad.	Unsafe	Safe
3.	Aqua Royals	BWY-33	0321-6668883 <a href="mailto:aquaroyals@gmail.com">aquaroyals@gmail.com</a>	Safe	Unsafe
4.	Aqua Natural	BWY-36	Aqua Natural: Khan Baba Petroleum, Gujranwala Road, Daska. PS:4639-2004	Safe	Unsafe
5.	Hibba	BWY-53	HIBBA Water: S.I.T.E Area Karachi	Unsafe	Safe
6.	Dropice	BWY-60	Manufactured Cell Nos. 0306-2009099; 0314-7739595 Collected from: Gilgit Baltistan General Store, Mughal Hazara Goth, Near Kamran Chowrangi,	Unsafe	Safe

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Sr. No	Brand Name	Code	Address/Manufacturer	Quality (Safe/Unsafe)	
				Chemical	Microbiological
			Gulistan-e-Johar, Karachi		
7.	AQUALUS	BWY-61	Manufactured Cell Nos. 0332-2508263; 0315-2290294 Collected from: Ahmed Milk Shop, Qalandar Abad, Gulistan-e-Johar, Block-3, Karachi	Unsafe	Safe

**MARKET CONSISTENCY IN TWO NEIGHBORING QUARTERS**

Sr. No	Consistent Brands	New Brands	Unavailable Brands
1.	SHUKRAN	Al-Kausar	AQUAFINA
2.	Dasani	Best Kashmir	Pearl
3.	Nestle	Deewan Water	POPULAR H <sub>2</sub> OPE
4.	Blu Water	Corny	Noble
5.	Nation	OSLO	MAA JEE
6.	Super Natural	MADIKH	Droplet
7.	Maple Plus	Vey	KARAKORUM Flow
8.	Calci Dew	Clover Smart Water	Fresh Natural
9.	Springley	NFS	AQUWA Plus
10.	Nectar	Nature Aqua	Rose
11.	Aqua Green	Murree Sparkletts	Rescue
12.	Deosai	Springley	DAZZLING Water
13.	Water Empire	Aqua Natural	Masafi
14.	City Spring Water	Fresh Life	Nestor
15.	Alpine Pure	Nestol	OASIS Plus
16.	Alfalah Mineral Water	Fresco Healthy Water	EART H <sub>2</sub> O
17.	ECO	Aqua Royals	JEL
18.	Isberg	Sialko Pure Drinking Water	UF PURE EDGE
19.	Bake Master	Elim	Water Plus
20.	ICE WELL	Water Plus	NEO MAX
21.	Himalaya Spring	Venora	Kpl
22.	Blue Plus	Hydra	YES
23.	NEO	Sunley Pure	Culligan
24.	ALPHA	Aqua Stream	Defence
25.	Crystal Maya	AQUA STAR	Paani
26.	DOURO	WATER FALL	Aqua Drop
27.		Aab-E-Sehat	Vinh
28.		The Legend	AQUA AYOLAM
29.		Water Plus Premium	Hill drops
30.		Aqua King	Livon
31.		Hibba	Blue Spring Water
32.		D.Y Fresh & Pure Water	Aquantis
33.		Water Right	Soft Water
34.		Dropice	IMMA
35.		AQUALUS	Pak Nest Pure Natural Water
36.			SMAK Mineral Water
37.			NEBRASKA
38.			Marina
39.			Aqua Dore
40.			Aquatic Fresh
41.			Natural Aqwah
42.			Aqua Splash
43.			BREATHE

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Sr. No	Consistent Brands	New Brands	Unavailable Brands
44.			Aqua Pura Smart
45.			Aquamin Plus
46.			Moya Mineral Water
47.			Top Up
48.			Stream
49.			Wah Water
50.			Victoria Pure Water
51.			Aqua Shifa
52.			Al-Barka
53.			Barclay
54.			Pine'o
55.			National
56.			Gourmet
57.			Pani by PFB
58.			Nurturmil Water
59.			Caffena Water
60.			Fresh Water
61.			Ayoon
62.			Aqua Hygienic
63.			Felize
64.			Sufi
65.			Rahat
66.			PUREFLO
67.			Drinklay
68.			GLACIAL
69.			DOCE
70.			Cristalene
71.			Erir
72.			Aqua One
73.			AMFAHH
74.			KLINZ
75.			Jami Water

**DISEASE POTENTIAL FROM CONTAMINATED BOTTLED WATER**

Sr. No	Contaminant	Diseases Impacts
1.	Bacteriological Contamination	Cholera, Diarrhea, Dysentery, Hepatitis, Typhoid
2.	Sodium	Hypertension
3.	pH	Acidity due to low pH

**CONCLUSIONS**

Sr. No	Item	Conclusion	
		No.	% age
1.	Total No. of Brands Collected	61	-
2.	Overall Safe Brands	54	88
3.	No. of Overall Unsafe Brands	07	12
4.	No. of Chemically Safe Brands	56	92
5.	No. of Chemically Unsafe Brands	05	08
6.	No. of Microbiologically Safe Brands	59	97

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7.	No. of Microbiologically Unsafe Brands	02	03
8.	No. of Consistent Brands in Market	26	43
9.	No. of Brands Disappeared/Unavailable	75	74
10.	No. of New Brands	35	57

Detailed water quality status of each bottled water brand is available at *Annexure-1*

**Annexure-I**

**Chemical and Microbiological Quality of Bottled/Mineral Water Brands**

Brand Name	Brand Code	Turbidity	pH	EC	TDS	Ca	Mg	Hard	HCO <sub>3</sub>	Cl	Na	F	Fe	K	NO <sub>3</sub>	SO <sub>4</sub>	As	Microbiological Contaminants	
<b>PSQCA Bottled Water Standards</b>	-	0.5	6.5 - 8.5	NGVS	500	100	50	NGVS	NGVS	250	50	0.7	0.3	10	10	250	10	Total Coliforms 0/100ml	E-Coli 0/100ml
<b>Detection Limits</b>	-	0.2	0.02	0.287	-	2	1	5	5	2	1	0.03	0.03	0.2	0.06	0.4	0.1	-	-
<b>Units</b>	-	NTU		µS/cm	Ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	Ppm	ppm	ppm	ppb	MPN /100ml	MPN /100ml
Al-Kausar	BWY-01	BDL	6.70	343	188	40	10	140	40	72	13	BDL	BDL	0.7	0.4	27	BDL	Negative	Negative
Best Kashmir	BWY-02	BDL	7.60	331	222	52	19	210	200	12	7	BDL	BDL	2.2	0.7	7	BDL	Negative	Negative
Deewan Water	BWY-03	BDL	7.45	621	342	68	17	240	250	24	25	0.07	BDL	4.0	BDL	26	BDL	Negative	Negative
Corny	BWY-04	BDL	6.58	462	254	32	12	130	130	55	44	BDL	BDL	8.4	BDL	32	0.3	Negative	Negative
SHUKRAN	BWY-05	BDL	6.52	303	167	24	10	100	30	72	21	BDL	BDL	0.9	BDL	32	0.2	Negative	Negative
OSLO	BWY-06	BDL	6.70	296	163	16	15	100	50	45	18	0.10	BDL	3.9	0.8	32	BDL	Negative	Negative
MADIKH	BWY-07	BDL	6.51	273	150	16	12	90	30	55	19	BDL	BDL	0.9	0.3	30	0.2	Negative	Negative
Vey	BWY-08	BDL	6.51	299	164	20	17	120	30	60	10	BDL	BDL	9.0	BDL	34	BDL	Negative	Negative
Dasani	BWY-09	BDL	6.64	245	135	BDL	24	100	80	12	9	0.08	BDL	0.8	BDL	21	BDL	Negative	Negative
Clover Smart Water	BWY-10	BDL	6.89	357	196	16	7	70	50	65	43	0.06	BDL	1.2	BDL	28	0.3	Negative	Negative
Nestle	BWY-11	BDL	7.30	405	223	40	10	140	50	96	25	BDL	BDL	BDL	0.5	23	BDL	Negative	Negative
NFS	BWY-12	BDL	6.89	573	315	12	15	90	150	72	86	BDL	BDL	5.3	0.2	21	0.4	Negative	Negative
Nature Aqua	BWY-13	BDL	7.06	312	172	12	12	80	100	19	35	0.09	BDL	3.8	0.3	26	2	Negative	Negative
Blu Water	BWY-14	BDL	6.62	300	165	20	15	110	30	72	17	BDL	BDL	0.5	BDL	29	BDL	Negative	Negative
Murree Sparkletts	BWY-15	BDL	7.66	369	203	40	10	140	130	19	19	0.10	BDL	1.0	BDL	18	BDL	Negative	Negative
Springley	BWY-16	BDL	7.68	495	272	52	19	210	130	72	22	BDL	BDL	1.3	BDL	14	BDL	Negative	Negative
Nation	BWY-17	BDL	7.41	303	167	12	12	80	100	24	36	BDL	BDL	0.5	BDL	25	3	Negative	Negative

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Brand Name	Brand Code	Turbidity	pH	EC	TDS	Ca	Mg	Hard	HCO <sub>3</sub>	Cl	Na	F	Fe	K	NO <sub>3</sub>	SO <sub>4</sub>	As	Microbiological Contaminants	
<b>PSQCA Bottled Water Standards</b>	-	0.5	6.5 - 8.5	NGVS	500	100	50	NGVS	NGVS	250	50	0.7	0.3	10	10	250	10	Total Coliforms 0/100ml	E-Coli 0/100ml
<b>Detection Limits</b>	-	0.2	0.02	0.287	-	2	1	5	5	2	1	0.03	0.03	0.2	0.06	0.4	0.1	-	-
<b>Super Natural</b>	BWY-18	BDL	6.90	453	249	8	12	70	90	72	76	BDL	BDL	3.2	0.3	44	4.2	Negative	Negative
<b>Maple Plus</b>	BWY-19	BDL	7.29	300	165	12	12	80	70	31	33	BDL	BDL	0.5	1.8	36	BDL	Negative	Negative
<b>Calci Dew</b>	BWY-20	BDL	7.70	326	179	28	15	130	120	24	17	0.11	BDL	1.0	1.5	18	BDL	Negative	Negative
<b>Springley</b>	BWY-21	BDL	7.75	490	270	72	5	200	200	12	21	0.27	BDL	1.2	3.2	16	BDL	Negative	Negative
<b>Nectar</b>	BWY-22	BDL	7.70	380	209	36	12	140	60	55	19	0.08	BDL	0.8	1.7	29	BDL	Negative	Negative
<b>Fresh Life</b>	BWY-23	BDL	7.46	492	260	52	17	80	180	22	17	0.24	BDL	2.1	1.99	25	BDL	Negative	Negative
<b>Nestol</b>	BWY-24	BDL	7.24	212	117	16	10	100	70	14	9	0.08	BDL	1.2	0.9	10	BDL	Negative	Negative
<b>Aqua Green</b>	BWY-25	BDL	7.56	280	154	12	12	80	70	31	33	0.06	BDL	0.5	2.0	24	BDL	Negative	Negative
<b>Deosai</b>	BWY-26	BDL	6.92	446	245	28	15	130	80	72	35	0.06	BDL	0.9	3.4	26	BDL	Negative	Negative
<b>Water Empire</b>	BWY-27	BDL	7.78	231	127	20	5	70	60	26	20	0.05	BDL	0.8	0.9	20	<b>BDL</b>	Negative	Negative
<b>City Spring Water</b>	BWY-28	BDL	7.23	425	234	36	12	140	60	79	30	0.10	BDL	0.2	BDL	33	BDL	Negative	Negative
<b>Alpine Pure</b>	BWY-29	BDL	7.28	346	190	28	12	120	50	65	22	0.08	BDL	0.2	BDL	27	BDL	Negative	Negative
<b>Alfalah Mineral Water</b>	BWY-30	BDL	7.41	364	200	28	12	120	50	72	25	0.07	BDL	0.5	BDL	27	BDL	Negative	Negative
<b>Fresco Healthy Water</b>	BWY-31	BDL	7.20	288	158	24	15	120	30	62	14	0.10	BDL	0.2	BDL	29	BDL	Negative	Negative
<b>ECO</b>	BWY-32	BDL	7.50	454	250	30	11	120	90	55	45	0.14	BDL	1.1	0.3	42	0.2	Negative	Negative
<b>Aqua Royals</b>	BWY-33	BDL	7.05	320	176	36	5	110	30	84	18	0.04	BDL	0.2	BDL	7	0.6	06	Negative
<b>Sialko Pure Drinking Water</b>	BWY-34	BDL	7.85	188	103	20	7	80	80	10	6	0.16	BDL	1.5	BDL	BDL	0.2	Negative	Negative



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Brand Name	Brand Code	Turbidity	pH	EC	TDS	Ca	Mg	Hard	HCO <sub>3</sub>	Cl	Na	F	Fe	K	NO <sub>3</sub>	SO <sub>4</sub>	As	Microbiological Contaminants	
<b>PSQCA Bottled Water Standards</b>	-	0.5	6.5 - 8.5	NGVS	500	100	50	NGVS	NGVS	250	50	0.7	0.3	10	10	250	10	Total Coliforms 0/100ml	E-Coli 0/100ml
<b>Detection Limits</b>	-	0.2	0.02	0.287	-	2	1	5	5	2	1	0.03	0.03	0.2	0.06	0.4	0.1	-	-
Isberg	BWY-35	BDL	7.50	382	210	36	10	130	120	53	28	0.23	BDL	1.3	BDL	BDL	0.2	Negative	Negative
Aqua Natural	BWY-36	BDL	7.60	390	215	32	19	160	180	12	15	0.24	BDL	4.0	BDL	BDL	0.5	04	Negative
Bake Master	BWY-37	BDL	7.00	323	178	24	17	130	60	50	15	0.20	BDL	0.8	BDL	26	BDL	Negative	Negative
ICE WELL	BWY-38	BDL	7.52	627	345	44	24	210	180	79	44	0.19	BDL	0.5	BDL	21	0.3	Negative	Negative
Himalaya Spring	BWY-39	BDL	7.35	296	163	20	15	110	50	53	17	0.08	BDL	0.2	BDL	25	0.4	Negative	Negative
Elim	BWY-40	BDL	7.18	340	187	20	15	110	70	43	28	0.04	BDL	1.1	4.3	25	BDL	Negative	Negative
Water Plus	BWY-41	BDL	7.56	485	267	32	29	200	170	29	18	0.12	BDL	0.8	3.4	25	BDL	Negative	Negative
Venora	BWY-42	BDL	7.56	350	193	48	7	150	130	10	7	0.52	BDL	1.0	1.22	29	BDL	Negative	Negative
Hydra	BWY-43	BDL	7.41	453	249	48	15	180	190	12	21	0.35	BDL	0.8	1.77	15	BDL	Negative	Negative
Sunley Pure	BWY-44	BDL	7.40	458	252	48	15	180	180	17	20	0.19	BDL	0.8	1.78	15	BDL	Negative	Negative
Aqua Stream	BWY-45	BDL	6.94	347	191	40	15	160	70	52	8	BDL	BDL	0.4	0.8	30	BDL	Negative	Negative
AQUA STAR	BWY-46	BDL	6.85	301	157	36	6.1	115	40	75	13	0.06	BDL	1.0	0.3	BDL	BDL	Negative	Negative
Blue Plus	BWY-47	BDL	6.50	529	273	28	14.6	130	55	123	50	0.05	BDL	2.7	0.9	13	BDL	Negative	Negative
WATER FALL	BWY-48	BDL	6.62	279	148	28	11	115	30	61	8	0.08	BDL	BDL	0.3	21	BDL	Negative	Negative
Aab-E-Sehat	BWY-49	BDL	6.50	382	212	20	2.4	40	50	94	50	0.03	BDL	3.1	0.5	2	BDL	Negative	Negative
The Legend	BWY-50	BDL	6.52	280	154	22	8.5	90	30	58	23	0.04	BDL	BDL	1.5	18	BDL	Negative	Negative
Water Plus Premium	BWY-51	BDL	6.55	273	150	18	7.3	75	40	51	27	0.08	BDL	BDL	1.5	16	BDL	Negative	Negative
Aqua King	BWY-52	BDL	6.64	414	234	22	4.9	75	80	64	50	0.23	BDL	2.2	0.5	33	BDL	Negative	Negative
Hibba	BWY-53	BDL	6.57	582	320	28	14.6	130	110	90	66	0.20	BDL	7.2	1.6	41	BDL	Negative	Negative

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Brand Name	Brand Code	Turbidity	pH	EC	TDS	Ca	Mg	Hard	HCO <sub>3</sub>	Cl	Na	F	Fe	K	NO <sub>3</sub>	SO <sub>4</sub>	As	Microbiological Contaminants	
<b>PSQCA Bottled Water Standards</b>	-	0.5	6.5 - 8.5	NGVS	500	100	50	NGVS	NGVS	250	50	0.7	0.3	10	10	250	10	Total Coliforms 0/100ml	E-Coli 0/100ml
<b>Detection Limits</b>	-	0.2	0.02	0.287	-	2	1	5	5	2	1	0.03	0.03	0.2	0.06	0.4	0.1	-	-
<b>D.Y Fresh &amp; Pure Water</b>	BWY-54	BDL	6.53	475	269	32	11	125	45	89	48	0.18	BDL	1.8	1.1	55	BDL	Negative	Negative
<b>NEO</b>	BWY-55	BDL	6.59	264	147	18	6.1	70	40	45	27	0.11	BDL	BDL	1.1	22	BDL	Negative	Negative
<b>ALPHA</b>	BWY-56	BDL	6.59	214	114	20	8.5	85	40	31	10	0.06	BDL	BDL	0.3	19	BDL	Negative	Negative
<b>Water Right</b>	BWY-57	BDL	6.55	315	174	24	8.5	95	55	49	27	0.31	BDL	1.2	1.7	24	BDL	Negative	Negative
<b>Crystal Maya</b>	BWY-58	BDL	6.50	383	219	12	7.3	60	40	86	50	0.17	BDL	0.7	2.3	21	BDL	Negative	Negative
<b>DOURO</b>	BWY-59	BDL	6.50	158	87	8	3.6	35	30	24	19	0.09	BDL	BDL	1.2	9	BDL	Negative	Negative
<b>Dropice</b>	BWY-60	BDL	6.09	413	232	24	18.2	135	40	65	31	0.18	BDL	BDL	0.2	69	BDL	Negative	Negative
<b>AQUALUS</b>	BWY-61	BDL	6.16	347	186	24	9.7	100	30	93	29	0.19	BDL	1.9	1.7	3	BDL	Negative	Negative