



QUARTERLY REPORT BOTTLED WATER QUALITY

(October-December, 2011)



PAKISTAN COUNCIL OF RESEARCH IN WATER RESOURCES

Ministry of Science & Technology

Khyban-e-johar, H-8/1, Islamabad.

www.pcrwr.gov.pk



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 at source of production, 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

No. of Brands Collected	74	
No. of Cities Targeted	14 (Islamabad, Rawalpindi, Lahore, Bahawalpur, Faisalabad, D.I.Khan, Sargodha, Sialkot, Sahiwal, Peshawar, Karachi, Hyderabad Multan and Quetta)	
Composition of Sampling Team	One Research Officer and Two Laboratory Assistants	
Sampling Procedure	Samples of seventy four commercially available brands of mineral/bottled water were collected from fourteen cities of four Provinces of Pakistan These samples were collected by the senior staff members of Head Office and Regional Offices of PCRWR from October-December, 2011. A set of four bottles of each brand was collected and sealed on site. Identification codes are allotted to all the brands according to PCRWR Bottled Water Classification System.	
Transparency	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. 4	Used for Physico-chemical Analysis

PCRWR BOTTLED WATER CLASSIFICATION SYSTEM

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Sr. No	Brand Name	PCRWR Code	City	Date of Collection	Date of Expiry	Claimed Bottled Water Type	Size	Name & Address of Seller/Shop Keeper	Manufacturer
1	Nectar	BWR-01	Islamabad	1- 11-11	10/2012	Pure Drinking Water	1.5 Liter	Main Service Road Kuri Road Islamabad	Plot#14/10 G-7 Markaz Islamabad
2	Hydr8	BWR-02	Islamabad	1- 11-11	07/2012	Pure Drinking Water	0.5 Liter	T-7, Sardar Arcade 2, G-11 Markaz Islamabad	T-7, Sardar Arcade 2, G-11 Markaz Islamabad
3	Atlantis	BWR-03	Rawalpindi	1- 11-11	09/2012	-	1.5 Liter	Plot#615-616 airport Service Road P.O.Fizaia Rawalpindi	Plot#57, St#17, Dastageer Colony, West Cannal Road Faisalabad
4	A-one	BWR-04	Islamabad	1- 11-11	11/2012	Natural Water	1.5 Liter	52-B Industrial Triangle Area Hummak Kahuta Road Islamabad	52-B Industrial Triangle Area Hummak Kahuta Road Islamabad
5	Fresh Life	BWR-05	Islamabad	1- 11-11	N.M	Premium Water	1.5 Liter	Street#2, Anwer Colony, Near Khanna Pull Service Road Islamabad	Street#2, Anwer Colony, Near Khanna Pull Service Road Islamabad
6	Ripple	BWR-06	Rawalpindi	1- 11-11	04/2012	Pure Drinking Water	1.5 Liter	Main Mirpur Road, Al-Noor Colony Plot#769 Sector#3 Corner Of St#6 Behind Fazaia Colony Rawalpindi	Main Mirpur Road, Al-Noor Colony Plot#769 Sector#3 Corner Of St#6 Behind Fazaia Colony Rawalpindi
7	Safi	BWR-07	D.I.Khan	05-10-11	09/2012	-	1.5 Liter	M.Nadeem Safi Water Plant Near Qurtaba University D.I.Khan	Chashma Mineral Water Near Grid Station D.I.Khan
8	Hamaliya	BWR-08	D.I.Khan	04-10-11	06/2012	Pure Drinking Water	1.5 Liter	Indus River Road Opposite Old Mela Ground D.I.Khan	Indus River Road Opposite Old Mela Ground D.I.Khan
9	Premier	BWR-09	Sargodha	18-10-11	08/2012	Pure Drinking Water	0.6 Liter	Ramzan Drink Corner Barak Tours Noori Adda	19-Km, Near High Noon Laboratories Multan Road Lahore
10	Springley	BWR-10	Sargodha	18-10-11	09/2012	Natural Mineral Water	0.5 Liter	Ajwa Bakery, Lak Adda Sillanwali Road	Springley A Brand Of Qarshi Industries(PVT) LTD Hattar(N.W.F.P) Pakistan
11	Sufi	BWR-11	Sargodha	18-10-11	09/2013	-	0.6 Liter	Barak Tours, Bakar Mandi Road Sargodha	Hadayat Foods Stuffs Industries(PVT) Ltd 1-B Garden Block Lahore
12	Snowcap	BWR-12	Sargodha	18-10-11	-	Pure Drinking Water	0.6 Liter	Al Madina Drink Corner Bakar Mandi Road Sargodha	Ghane Park Main Road Faisalabad Sargodha
13	Blu	BWR-13	Sargodha	18-10-11	09/2012	-	0.6 Liter	Abid General Store GBS Sargodha	Al-Hilal Industries(PVT) Ltd Sultan Nagar Vehari Rd Multan

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14	Kisan Better Life	BWR-14	Sargodha	18-10-11	08/2012	Premium Drinking Water	0.6 Liter	Pervas General Store Near DHQH Sargodha	Faisalabad Oil Refinery(Drinking Water Division)
15	Murree Sparkletts	BWR-15	Sargodha	18-10-11	06/2012	Premium Water	0.6 Liter	Saddam General Store, Sargodha	A Division Of Murree Brewery Company Limited Plot#10/2 ,Phase 111 Industrial Estate Hattar Dist Haripur
16	Vina	BWR-16	Sialkot	25-10-11	09/2012	Pure Drinking Water	1.5 Liter	Al-Sultan Bawerage Industries Chaprar Road Gul Bahar Kalan Sialot	Al-Sultan Bawerage Industries Chaprar Road Gul Bahar Kalan Sialot
17	Aqua Save	BWR-17	Sialkot	25-10-11	-	-	0.6 Liter	SFS Mineral Water Wazirabad Road Jalianwala Ugoki Sialkot	SFS Mineral Water Wazirabad Road Jalianwala Ugoki Sialkot
18	ECO	BWR-18	Sialkot	26-10-11	06/2012	Mineral Water	0.6 Liter	J&J Foods Roras Road Naul Chowk Sialkot	J&J Foods Roras Road Naul Chowk Sialkot
19	Isberg	BWR-19	Sialkot	25-10-11	10/2012	-	0.6 Liter	Premier Water Refining Company Dhabola Rovas Road Sialkot	Premier Water Refining Company Dhabola Rovas Road Sialkot
20	Rise	BWR-20	Sialkot	25-10-11	06/2012	Safe Drinking Water	0.6 Liter	Glory Foods(PVT)Ltd d 3-Km Kingra Road Sialkot	Glory Foods(PVT)Ltd 3-Km Kingra Road Sialkot
21	Hunza	BWR-21	Sialkot	26-10-11	-	-	0.5 Liter	Niaralla Sweets&Baker sialkot	Hunza Springs Tehsil&Distt:Jehl um
22	Bisleri	BWR-22	Faisalabad	18-10-11	-	Pure Drinking Water	1.5 Liter	AL-Madina General Store Sargodha Road Faisalabad	Office#67,1st Floor Kohinoor One Plaza Jaranwala Road Faisalabad
23	Nxt	BWR-23	Faisalabad	18-10-11	-	Pure Drinking Water	0.6 Liter	Mubashir Old Shop Sargodha Road Near Toll Plaza Faisalabad	P-4,Street#2 Yousuf Town #1 Satyana Road Faisalabad
24	Nation	BWR-24	Faisalabad	18-10-11	07/2012	Pure Drinking Water	0.6 Liter	Chand Pan Shop Lari Adda Faisalabad	9-Km,G.T Road Rachna Town Shahdara Lahore
25	Aqua(Mash moom)	BWR-25	Faisalabad	18-10-11	09/2012	-	0.6 Liter	Gojra Medical Store Akber Chowk Faisalabad	Plot#153/154 Phase V Hattar N.W.F.P
26	Pan Pura	BWR-26	Sahiwal	27-10-11	01/2013	Natural Mineral Water	0.6 Liter	Abdul Majeed Tufailabad 253-B,Burewala Al-Aziz Enterprises	Tufailabad 253-B,Burewala Al-Aziz Enterprises
27	Vital	BWR-27	Sahiwal	26-10-11	08/2012	Safe Drinking Water	0.6 Liter	Masood Hussain Al-Mansoor Consumer	7km,Multan Road Sahiwal Pakistan

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								Product Sahiwal	
28	Clear	BWR-28	Sahiwal	26-10-11	09/2012	Purified Water	0.6 Liter	M.Ashraf Tariq Hasan Agro Food Industries 173/A Sahiwal	Hasan Agro Food Industries 173/A Sahiwal
29	Vivian	BWR-29	Sahiwal	27-10-11	-	-	0.5 Liter	Malik Tuck Shop Near Daewoo Terminal Sahiwal	Ayesha Food Industries 4km Sialot Road Wazirabad
30	Rill	BWR-30	Sahiwal	26-10-11	-	Purified Drinking Water	0.6 Liter	Javed Medical Store Sadder Chowk High Street Sahiwal	E-Mail:ism@Beaconet.Net.Pk
31	Gourmet	BWR-31	Sahiwal	28-10-11	1/2011	Pure Drinking Water	0.5 Liter	Ideal Sweet & Bakers G.T Road Branch (Near Bus Stand)Sahiwal	Gourmet Foods 1-5 Sunder Industrial Estate Lahore
32	Freshley	BWR-32	Sahiwal	28-10-11	12/2010	Pure Drinking Water	0.6 Liter	M.Farhan Shan Shopping Corner Tufail Road Sahiwal	Factory Arifwala Road Bahawalnagar Office:Baldia Plaza Tehsil Road Bahawalnagar
33	Aqua Drops	BWR-33	Sahiwal	27-10-11	07/2012	Pure Drinking Water	0.5 Liter	Searose Tuck Shop Faisal Movers Terminals Sahiwal	E-32,Main Boulevard Main Market Gulberg-11 Lahore
34	Splash Dew	BWR-34	Islamabad	22-11-11	01/2012	Pure Drinking Water	1.5 Liter	Plot#139,St#9 Industrial Area 1-10/3 Islamabad	Plot#139,St#9 Industrial Area 1-10/3 Islamabad
35	Venora	BWR-35	Islamabad	22-11-11	06/2012	Pure Drinking Water	1.5 Liter	Plot#238,1-9/3 Islamabad	Plot#238,1-9/3 Islamabad
36	IVA Pure	BWR-36	Rawalpindi	22-11-11	12/2012	Purified water	1.5 Liter	ME-234/68,Tipu Road Rawalpindi	ME-234/68,Tipu Road Rawalpindi
37	Hydra	BWR-37	Islamabad	22-11-11	N.M	Pure Drinking Water	5.5 Liter	Arif Shafee Plot# 31-A, Sector 1-9 Islamabad	31-A, Sector 1-9 Islamabad
38	Via	BWR-38	Tando Jam	17-11-11	12/2011	Premium drinking water	0.6 Liter	Abdul Sattar Bakers And General Store Tando Jam	U.N Brothers S.I.T.E Area Karachi
39	Kinley	BWR-39	Tando Jam	17-11-11	09/2012	Pure Drinking Water	0.5 Liter	Maka Madina CNG Mart Near Usman Shah Tando Jam	Coca Cola Beverages Pakistan (LTD)D-51 Estate Avenue S.I.T.E Karachi
40	Jel	BWR-40	Tando Jam	18-11-11	12/2012	Pure Drinking Water	1.5 Liter	Anwar Talpur General Store Railway Phatak Tando Jam	Mega Fine Industries Plot#A-92 Malir Area Karachi
41	Al-Habib	BWR-41	Tando Jam	17-11-11	12/2012	Premium drinking water	0.6 Liter	New Rehmat Sweets Baker& Nimko Nawa Bazaar	F-10/A Al-Azam Square FR Area Block-1 Karachi

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42	Ab-e-Hayat	BWR-42	Tando Jam	17-11-11	-	Natural mineral water	0.5 Liter	Tando Jam Man Pasand Nimko&Bakers Malakand Chowk Tando Jam	Pakistan Mineral Water Bottling Plant(Pvt)Ltd,185 /B,L-9 Gadon Industrial Estate Gadon Disst Swabi,Nwfp
43	Hydropsy	BWR-43	Tando Jam	17-11-11	06/2012	Premium drinking water	0.6 Liter	New Rehmat Sweets Baker& Nimko Nawa Bazaar Tando Jam	Hydropsy Premium Drinking Water Head Office: U.S.A E-Mail: Hydropsy Premium Drinking water@yahoo.com
44	Aqua Fina	BWR-44	Bahawalpur	17-11-11	10/2012	Pure Drinking Water	0.5 Liter	Life Medicine Company Opp. B.V. Hospital Bahawalpur	Riaz Brothers(PVT)Ltd,32-N Gulberg 11,Lahore From Pepsico
45	Nestle	BWR-45	Bahawalpur	17-11-11	01/2013	Premium drinking water	0.5 Liter	Super Store Commercial Area Satellite Town Bahawalpur	Nestle Pakistan Ltd.308-Upper Mall Lahore 54,000 Pakistan
46	New Everest	BWR-46	Bahawalpur	17-11-11	N.M	Pure Drinking Water	1.5 Liter	Life Medicine Company Opp.B.V.Hospital Bahawalpur	Faisal Beverages(PVT) Ltd Off: Marghazar Colony Lahore
47	Pineo	BWR-47	Bahawalpur	17-11-11	10/2012	-	0.6 Liter	Al-Khair Phatoragel Medical Store	Gysing Pak DDR-1PSIE Bahawalpur
48	Aqua Safe	BWR-48	Lahore	16-10-11	05/2012	Pure Drinking Water	0.6 Liter	Zamindar Pan Shop Opp.Railway Station	96-Mclead Road Lahore
49	Naimat	BWR-49	Lahore	13-10-11	-	Pure Drinking Water	1.5 Liter	M.Bilal Operation Officer Bobi Plaza Opp.Munshi Hospital Band Road Lahore	L.G Boby Plaza Munshi Hospital Bund Road Lahore
50	Lock	BWR-50	Lahore	13-10-11	-	Pure Drinking Water	1.5 Liter	Hameed Cold Drink Corner Lari Adda Lahore	Aqua Safe Pakistan (PVT) Ltd 96-Mclead Road Lahore
51	Aqua National	BWR-51	Lahore	13-10-11	06/2012	Premier quality water	1.5 Liter	Waseem Cold Drink Corner Near Baloch Bus Stand Lari Adda Lahore	Milli Brothers 8-Km G.T Road Shahdara Lahore
52	Aqua RO7	BWR-52	Lahore	20-10-11	06/2012	Pure Drinking Water	0.6 Liter	:Hasan Kot 7.5raiwind Road Lahore	Factory:Hasan Kot 7.5raiwind Road Lahore
53	IWT Water	BWR-53	Lahore	16-10-11	08/2012	Pure Drinking Water	0.6 Liter	Shaheen Medical Store Opp.Service Hospital Lahore	Main Bilal Road Al-Hamad Colony Lahore
54	Active	BWR-54	Lahore	13-10-11	07/2012	Pure Drinking Water	1.5 Liter	Mohsin Cold Corner Lari Adda	Ali Enterprises,14 Main Road Sanda Lahore
55	Natur Aqua	BWR-55	Lahore	13-10-11	09/2012	Pure Drinking Water	1.5 Liter	Mohsin Cold Corner Lari Adda Lahore	Bhatti Industries G.T Road Shahdara Lahore
56	Qaswa	BWR-56	Lahore	16-10-11	04/2012	Pure	0.6 Liter	Mani Pan	320-A Huma

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						Drinking Water		Shop Township Muhammad Ali Chowk Lahore	Block Main Boulevard Allama Iqbal Town Lahore
57	Aab-e-Rahat	BWR-57	Lahore	16-10-11	-	Pure Drinking Water	1.5 Liter	Rehmat Ali Crown Foods(PVT) Lahore	220-Feroz Pur Road Lahore Pakistan
58	Aqua Pure	BWR-58	Lahore	16-10-11	08/2012	Pure Drinking Water	1.5 Liter	Usman& Brothers Opp.Service Hospital Lahore	Office#211st Floor Leads Centre 11-E/2 Main Boulevard Gulberg 111 Lahore
59	Himalaya	BWR-59	Lahore	16-10-11	05/2012	Pure Drinking Water	1.5 Liter	Rehman Pharmacy Opp.Service Hospital Lahore	Himalaya Pure Life 246-GT Road Lahore
60	Khyber Aqua	BWR-60	Peshawar	01-12-11	10/2012	Pure Drinking Water	0.6 Liter	Samana G/Store Hayatabad Complex Peshawar	Bio Kon Moya Services House#47,St#01 Eidgah Colony Charsada Road Peshawar
61	Natural	BWR-61	Peshawar	01-12-11	12/2014	Mineral drinking water	0.6 Liter	Yasin G/Store Phase 3 Chowk Peshawar	Frontier Corps Welfare Foundation Peshawar
62	Natural Aqua	BWR-62	Peshawar	01-12-11	01/2013	Pure Drinking Water	0.6 Liter	Water Factory Canal Town Nasir Bagh Peshawar	RG Enterprises Nasir Bagh Road University Board Peshawar KPK Pakistan
63	Aqua Sure	BWR-63	Peshawar	01-12-11	/2013	Pure Drinking Water	0.6 Liter	Shakeel G/Store Haji Camp Adda Peshawar	Shine Industries G.T Road Nasir Pura Peshawar
64	Oslo Plus	BWR-64	Karachi	29-11-11	05/2012	Drinking Water	0.6 Liter	Golden Corner, C-25, SII, Area Opposite Govt. College for Women Saudabad, Karachi	Oslo International 14, Ramazan Chamber Dr. Bilmoria street off 1.1, Chandigarh Road Karachi
65	Vey	BWR-65	Karachi	29-11-11	11/2013	Pure Drinking Water	0.6 Liter	Faizan Shop, Indus Mehran, Saudabad, Malir Karachi	Fluid Technology (Pvt)Ltd. 424,Bhayani Center, Block-M North Nazimabad Karachi-74700
66	Orion	BWR-66	Karachi	29-11-11	08/2012	Pure Drinking Water	1.5 Liter	Lal Store, Near Landhi Hospital Karachi, 0341-2022801	Orion Foods, E-1,Suit # 2, Defense View Phase-II Karachi
67	Al-Massafi	BWR-67	Karachi	29-11-11	02/2012	-	1.5 Liter	Khalid Store Near, Landhi Hospital, Karachi	Al-Massafi Foods Site: S-3,S-4,Malir City Karachi
68	Legend	BWR-68	Karachi	29-11-11	12/2012	Pure Drinking Water	1.5 Liter	Lal Store, Near Landhi Hospital Karachi	Mega fine Industries, Plot # A-92,Malir Industrial Area

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									Malir Karachi
69	Liza	BWR-69	Karachi	29-11-11	11/2012	Pure Drinking Water	1.5 Liter	Khalid Store, C-24,S II, Area Saudabad, Malir, Karachi	ARSH Marketing www.arshmarketi ng.com
70	Zindagi	BWR-70	Karachi	29-11-11	-	Pure Drinking Water	1.5 Liter	Ali Super Store & traders, Mujahid Chowk, Gulistan-e-Johar, Karachi	Zindagi International 021-35432033
71	Valley	BWR-71	Islamabad	13-12-11	12/2012	-	1.5 Liter	Plot # 277, Street# 1, I-9/3 Industrial Area, Islamabad	Plot # 277, Street# 1, I-9/3 Industrial Area, Islamabad
72	Lite Aqua	BWR-72	Multan	-	-	-	1.5 Liter	-	Lite Aqua Minerals Phone # 061-4231445
73	Aktive	BWR-73	Quetta	21-11-11	12/2012	-	1.5 Liter	Super Delux Medical Store, Jinnah Road Quetta	P.K Water and Beverages, Plot # A-131, Block A, Scheme 33, New S.I.T.E Area, and Super Highway. Karachi
74	Aqua Hygienic	BWR-74	Quetta	16-11-11	-	-	1.5 Liter	Syed Massod Medical Store Mini Market, Satellite Town Quetta.	Zauhras (Pvt) Ltd. A-One City Street #7, Brewery Road Quetta.

WATER QUALITY PARAMETERS AND METHODS USED FOR ANALYSIS

Sr. #	PARAMETERS	ANALYTICAL METHOD
1.	Alkalinity (m.mol/l as CaCO3)	2320, Standard method (1992)
2.	Arsenic (ppb)	AAS Vario 6, Analytik Jena AG
3.	Bicarbonate	2320, Standard method (1992)
4.	Calcium (mg/l)	3500-Ca-D, Standard Method (1992)
5.	Carbonate (mg/l)	2320, Standard method (1992)
6.	Chloride (mg/l)	Titration (Silver Nitrate), Standard Method (1992)
7.	Color (TCU)	Sensory Test
8.	Conductivity (µS/cm)	E.C meter, Hach-44600-00, USA
9.	Hardness (mg/l)	EDTA Titration, Standard Method (1992)
10.	Magnesium (mg/l)	2340-C, Standard Method (1992)
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 (1992)
20.	Turbidity (NTU)	Turbidity Meter, Lamotte, Model 2008, USA
21.	Fluoride (mg/l)	4500-F C. ion-Selective Electrode Method Standard method (1992)
22.	Iron (mg/l)	FerroVer method (HACH Cat. 21057-69)
23.	Total Coliforms (MPN/100Liter)	IDEXX Quanti-Tray/2000 USA
24.	E. Coli (MPN/100Liter)	IDEXX Quanti-Tray/2000 USA



WATER QUALITY PERMISSIBLE LIMITS FOR BOTTLED WATER

Sr. #	Parameter	Units	Permissible Limits		
			WHO	IBWA	PSQCA
1.	Alkalinity	(m.mol/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
5.	Chloride	(mg/l)	250	250	250
6.	Co lour	(TCU)	15	NGVS	5
7.	Conductivity	(µS/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 Coliform	MPN/100Liter	0	0	0
24.	E-Coli	MPN/100Liter	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

Arsenic (Safe Limit : 10ppb)					
Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	Premier	BWR-09	Lahore	ppb	27
2.	Nation	BWR-24	Lahore	ppb	41
3.	Rill	BWR-30	Sahiwal	ppb	25
4.	Naimat	BWR-49	Lahore	ppb	25
5.	Lock	BWR-50	Lahore	ppb	25
6.	Aqua National	BWR-51	Lahore	ppb	56
7.	Active	BWR-54	Lahore	ppb	52
8.	Natur Aqua	BWR-55	Lahore	ppb	50

Sodium (Safe Limit : 50ppm)					
Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	Premier	BWR-09	Lahore	ppm	80

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2.	Nation	BWR-24	Lahore	ppm	54
3.	Natur Aqua	BWR-55	Lahore	ppm	64
4.	Oslo Plus	BWR-64	Karachi	ppm	56

Potassium (Safe Limit : 10ppm)					
Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	Eco	BWR-18	Sialkot	ppm	17.5
2.	Bisleri	BWR-22	Faisalabad	ppm	12

BACTERIOLOGICAL: (Total Coliforms & E Coli) (Safe Limit: 0/100ml)				
Sr. No	Brand Name	Code	Results	
			Total Coliforms (MPN/100ml)	E Coli (MPN/100ml)
1.	Ripple	BWR-06	09	Nil
2.	Vina	BWR-16	04	Nil
3.	ECO	BWR-18	07	Nil
4.	Rise	BWR-20	11	Nil
5.	IVA Pure	BWR-36	13	Nil
6.	Jel	BWR-40	08	Nil
7.	New Everest	BWR-46	02	Nil
8.	Qaswa	BWR-56	17	Nil
9.	Aqua Sure	BWR-63	13	Nil
10.	Lite Aqua	BWR-72	11	Nil

PCRWR TESTING: SAFE BRANDS

Sr. No	Brand Name	Code	Quality (Safe/Unsafe)	
			Chemical	Microbiological
1.	Nectar	BWR-01	Safe	Safe
2.	Hydr8	BWR-02	Safe	Safe
3.	Atlantis	BWR-03	Safe	Safe
4.	A-one	BWR-04	Safe	Safe
5.	Fresh Life	BWR-05	Safe	Safe
6.	Safi	BWR-07	Safe	Safe
7.	Hamaliya	BWR-08	Safe	Safe
8.	Springley	BWR-10	Safe	Safe
9.	Sufi	BWR-11	Safe	Safe
10.	Snowcap	BWR-12	Safe	Safe
11.	Blu	BWR-13	Safe	Safe
12.	Kisan Better Life	BWR-14	Safe	Safe
13.	Murree Sparkletts	BWR-15	Safe	Safe
14.	Aqua Save	BWR-17	Safe	Safe
15.	Isberg	BWR-19	Safe	Safe
16.	Hunza	BWR-21	Safe	Safe
17.	Nxt	BWR-23	Safe	Safe
18.	Aqua(Mashmoom)	BWR-25	Safe	Safe
19.	Pan Pura	BWR-26	Safe	Safe
20.	Vital	BWR-27	Safe	Safe
21.	Clear	BWR-28	Safe	Safe
22.	Vivian	BWR-29	Safe	Safe
23.	Gourmet	BWR-31	Safe	Safe

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24.	Freshley	BWR-32	Safe	Safe
25.	Aqua Drops	BWR-33	Safe	Safe
26.	Splash Dew	BWR-34	Safe	Safe
27.	Venora	BWR-35	Safe	Safe
28.	Hydra	BWR-37	Safe	Safe
29.	Via	BWR-38	Safe	Safe
30.	Kinley	BWR-39	Safe	Safe
31.	Al-Habib	BWR-41	Safe	Safe
32.	Ab-e-Hayat	BWR-42	Safe	Safe
33.	Hydropsy	BWR-43	Safe	Safe
34.	Aqua Fina	BWR-44	Safe	Safe
35.	Nestle	BWR-45	Safe	Safe
36.	Pineo	BWR-47	Safe	Safe
37.	Aqua Safe	BWR-48	Safe	Safe
38.	Aqua RO7	BWR-52	Safe	Safe
39.	IWT Water	BWR-53	Safe	Safe
40.	Aab-e-Rahat	BWR-57	Safe	Safe
41.	Aqua Pure	BWR-58	Safe	Safe
42.	Himalaya	BWR-59	Safe	Safe
43.	Khyber Aqua	BWR-60	Safe	Safe
44.	Natural	BWR-61	Safe	Safe
45.	Natural Aqua	BWR-62	Safe	Safe
46.	Vey	BWR-65	Safe	Safe
47.	Orion	BWR-66	Safe	Safe
48.	Al-Massafi	BWR-67	Safe	Safe
49.	Legend	BWR-68	Safe	Safe
50.	Liza	BWR-69	Safe	Safe
51.	Zindagi	BWR-70	Safe	Safe
52.	Valley	BWR-71	Safe	Safe
53.	Aktive	BWR-73	Safe	Safe
54.	Aqua Hygienic	BWR-74	Safe	Safe

PCRWR TESTING: UNSAFE BRANDS

Sr. No	Brand Name	Code	Quality (Safe/Unsafe)	
			Chemical	Microbiological
1.	Ripple	BWR-06	Safe	Unsafe
2.	Premier	BWR-09	Unsafe	Safe
3.	Vina	BWR-16	Safe	Unsafe
4.	ECO	BWR-18	Unsafe	Unsafe
5.	Rise	BWR-20	Safe	Unsafe
6.	Bisler	BWR-22	Unsafe	Safe
7.	Nation	BWR-24	Unsafe	Safe
8.	Rill	BWR-30	Unsafe	Safe
9.	IVA Pure	BWR-36	Safe	Unsafe
10.	Jel	BWR-40	Safe	Unsafe
11.	New Everest	BWR-46	Safe	Unsafe
12.	Naimat	BWR-49	Unsafe	Safe
13.	Lock	BWR-50	Unsafe	Safe
14.	Aqua National	BWR-51	Unsafe	Safe
15.	Active	BWR-54	Unsafe	Safe



16.	Natur Aqua	BWR-55	Unsafe	Safe
17.	Qaswa	BWR-56	Safe	Unsafe
18.	Aqua Sure	BWR-63	Safe	Unsafe
19.	Oslo Plus	BWR-64	Unsafe	Safe
20.	Lite Aqua	BWR-72	Safe	Unsafe

MARKET CONSISTENCY IN TWO NEIGHBORING QUARTERS

Sr. No	Consistent Brands	New Brands	Unavailable Brands
1.	Nectar	Hydr8	Noble
2.	Atlantis	Fresh Life	Sprinkel
3.	A-One	Snow Cap	Berg
4.	Ripple	Kisan Better Life	Aqua Feen
5.	Safi	Muree Sparkletts	Uni Pak
6.	Hamaliya	Vina	Klinz
7.	Springley	Aqua Pure	Margalla
8.	Sufi	Bisleri	Cool
9.	Blu Water	Nxt	Tahoor
10.	Aqua Save	Aqua Mashmoom	Al-Shalal
11.	Eco	Vivian	Eman
12.	Isberg	Rill	Selina
13.	Hunza Spring	VIA	Miracle
14.	Nation	Hydropsy	Aqua Nasa
15.	Vital Happy Life	Qaswa	Hydro Clear
16.	Freshlay	Lock	Water Plus
17.	Aqua Drop	Natural	Zindagi Plus
18.	Clear	Oslo Plus	Blue Gold
19.	Pan Pura	Active	Moya
20.	Splash Dew	IWT Water	Al-Saudia
21.	Venora	Natur Aqua	Ndiq Water
22.	Hydra	Ab-e-Rahat	Taskeen
23.	IVA Pure	Himalaya	Oclear
24.	Jel	Liza	Marjan
25.	Al-Habib	Zindagi	ORO
26.	Ab-e-Hayat	Lite Aqua	Aspen Aqua
27.	Kinley		Life
28.	Aquafina		
29.	Nestle		
30.	Aqua Safe		
31.	Aqua RO7		
32.	Khyber Aqua		
33.	Natural Aqwah		
34.	Vey		
35.	Naimat		
36.	Al- Masafi		
37.	Legend		



38.	Premier		
39.	Rise Water		
40.	New Everest		
41.	Pineo		
42.	Aqua National		
43.	Gourmet		
44.	Aqua Sure		
45.	Orion		
46.	Valley		
47.	Aktive		
48.	Aqua Hygienic		

DISEASE POTENTIAL FROM CONTAMINATED BOTTLED WATER

Sr. No	Contaminant	Diseases Impacts
1.	Bacteriological Contamination	Cholera, Diarrhea, Dysentery, Hepatitis, Typhoid
2.	Arsenic	Cancer (lungs, bladder, skin, prostate, kidney, nose and liver), diabetes kidney diseases, hypertension, heart diseases, birth defects, black foot diseases.
3.	Sodium	Hypertension
4.	Potassium	Hypercalimia

CONCLUSIONS

Sr. No	Item	Conclusion	
		No.	% age
1.	Total No. of Brands Collected	74	-
2.	Overall safe brands	54	73
3.	No. of overall unsafe brands	20	27
4.	No. of Chemically safe brands	63	83
5.	No. of Chemically unsafe brands	11	16
6.	No. of Microbiologically safe brands	61	87
7.	No. of Microbiologically unsafe brands	10	13
8.	No. of Consistent brands in Market	48	65
9.	No. of brands disappeared from market	27	36
10.	No. of new brands	26	35

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

Annexure-1

Chemical and Microbiological Quality of Bottled/Mineral Water Brands

Brand Name	Brand Code	Turbidity	pH	EC	TDS	Ca	Mg	Hard	HCO ₃	Cl	Na	F	PO ₄	Fe	K	NO ₃	SO ₄	As	Total Coliforms	E-Coli
PSQCA Bottled Water Standards	-	0.5	6.5 - 8.5	NGVS	500	100	50	NGVS	NGVS	250	50	0.7	NGVS	0.3	10	10	250	10	0/100 ml	0/100 ml
Detection Limits	-	0.2	0.02	0.287	-	2	1	5	5	2	1	0.03	0.03	0.03	0.2	0.06	0.4	0.1	-	-
Units	-	NTU		µS/cm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb	MPN /100ml	MPN /100ml
Nectar	BWR-01	BDL	7.12	654	360	100	12	310	265	33	25	0.31	0.03	BDL	1.5	7	28	0.3	Nil	Nil
Hydr8	BWR-02	BDL	7.45	291	160	40	10	140	120	11	9	0.07	BDL	BDL	0.6	1	20	BDL	Nil	Nil
Atlantis	BWR-03	BDL	6.71	295	162	52	5	150	55	64	2	0.26	0.05	BDL	0.3	0.2	9	BDL	Nil	Nil
A-one	BWR-04	BDL	7.71	3.27	180	40	12	150	40	74	9	0.08	0.10	BDL	0.6	0.2	9	BDL	Nil	Nil
Fresh Life	BWR-05	BDL	6.62	324	178	40	12	150	35	72	8	0.04	0.07	BDL	0.6	0.2	15	BDL	Nil	Nil
Ripple	BWR-06	BDL	7.05	265	146	40	10	140	30	64	3	BDL	BDL	BDL	1.2	0.2	14	BDL	09	Nil
Safi	BWR-07	BDL	7.50	348	191	12	28	145	125	15	27	0.09	0.03	BDL	2.2	1	36	0.3	Nil	Nil
Hamaliya	BWR-08	BDL	7.68	351	193	40	16	165	130	15	14	0.31	BDL	BDL	3.5	0.2	44	10	Nil	Nil
Premier	BWR-09	BDL	7.65	509	280	20	22	140	185	38	80	0.26	BDL	BDL	1.6	BDL	49	27	Nil	Nil
Springley	BWR-10	BDL	7.99	504	277	80	2	210	230	11	20	0.31	BDL	BDL	1.2	3	14	0.2	Nil	Nil
Sufi	BWR-11	BDL	6.60	371	204	52	5	150	30	79	8	0.09	0.07	BDL	0.2	0.3	15	0.1	Nil	Nil
Snowcap	BWR-12	BDL	7.53	437	240	44	17	180	190	21	21	0.31	0.06	BDL	2.1	BDL	14	0.4	Nil	Nil
Blu	BWR-13	BDL	6.52	276	152	32	7	110	25	60	12	BDL	0.03	BDL	0.7	BDL	18	0.5	Nil	Nil
Kisan Better Life	BWR-14	BDL	6.74	409	225	44	19	190	20	98	5	0.19	BDL	BDL	0.3	BDL	17	BDL	Nil	Nil
Murree Sparkletts	BWR-15	BDL	7.45	318	175	40	12	150	145	7	15	0.04	BDL	BDL	0.8	2	8	0.2	Nil	Nil
Vina	BWR-16	BDL	7.50	353	194	BDL	36	150	60	1	3	0.11	0.04	BDL	22	0.2	103	BDL	04	Nil
Aqua Save	BWR-17	BDL	6.85	303	167	32	12	130	30	66	5	BDL	0.03	BDL	0.4	BDL	8	0.2	Nil	Nil
ECO	BWR-18	BDL	6.75	365	201	32	10	120	45	71	13	0.03	0.06	BDL	17.5	BDL	17	0.6	07	Nil
Isberg	BWR-19	BDL	7.63	347	191	40	12	150	135	25	13	0.40	BDL	BDL	3.7	BDL	12	10	Nil	Nil
Rise	BWR-20	BDL	7.60	459	252	32	22	170	230	5	37	0.11	0.13	BDL	1.9	BDL	28	0.8	11	Nil
Hunza	BWR-21	BDL	6.63	348	191	24	16	125	55	44	17	0.06	0.05	BDL	0.4	BDL	57	BDL	Nil	Nil
Bisleri	BWR-22	BDL	7.56	320	176	24	5	80	90	10	31	0.05	BDL	BDL	12	1	54	BDL	Nil	Nil
Nxt	BWR-23	BDL	7.28	314	173	36	5	110	65	59	21	0.01	BDL	BDL	0.3	1	11	BDL	Nil	Nil

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Nation	BWR-24	BDL	7.11	478	263	40	12	150	205	13	54	BDL	BDL	BDL	2.7	BDL	29	41	Nil	Nil
Aqua(Mashmoom)	BWR-25	BDL	7.45	417	229	58	11	190	210	10	13	0.24	0.04	BDL	1.3	3	BDL	0.2	Nil	Nil
Pan Pura	BWR-26	BDL	6.30	487	268	48	7	150	50	81	29	BDL	BDL	BDL	2.1	BDL	30	4	Nil	Nil
Vital	BWR-27	BDL	6.82	445	246	44	10	150	30	95	15	BDL	BDL	BDL	4.1	BDL	28	2	Nil	Nil
Clear	BWR-28	BDL	7.01	350	193	58	6	170	20	80	5	0.2	0.04	BDL	0.2	0.2	5	0.5	Nil	Nil
Vivian	BWR-29	BDL	7.05	329	181	32	15	140	145	31	14	BDL	0.05	BDL	2.4	BDL	2	6	Nil	Nil
Rill	BWR-30	BDL	7.54	388	213	20	17	120	160	7	43	0.22	BDL	BDL	1.3	BDL	25	25	Nil	Nil
Gourmet	BWR-31	BDL	7.02	363	200	28	16	135	65	55	24	0.19	0.07	BDL	0.2	BDL	30	0.2	Nil	Nil
Freshley	BWR-32	BDL	7.02	301	166	40	9	135	35	62	13	0.15	0.06	BDL	0.3	BDL	18	BDL	Nil	Nil
Aqua Drops	BWR-33	BDL	7.30	306	168	16	15	100	110	26	32	0.08	BDL	BDL	1	BDL	10	6	Nil	Nil
Splash Dew	BWR-34	BDL	7.08	415	228	70	4	190	170	12	20	0.17	BDL	BDL	1	3	16	0.2	Nil	Nil
Venora	BWR-35	BDL	7.46	533	293	64	24	260	245	24	22	0.26	BDL	BDL	0.9	3	18	BDL	Nil	Nil
IVA Pure	BWR-36	BDL	6.82	525	289	96	7	270	200	28	19	0.08	0.04	BDL	1	6	18	0.2	13	Nil
Hydra	BWR-37	BDL	6.85	338	186	48	7	150	150	10	16	0.21	0.10	BDL	0.5	1.5	16	BDL	Nil	Nil
Via	BWR-38	BDL	6.79	307	169	12	23	125	35	64	17	0.18	0.05	BDL	3.1	1	21	BDL	Nil	Nil
Kinley	BWR-39	BDL	6.51	515	283	68	10	210	25	130	26	BDL	0.03	BDL	2.1	BDL	36	BDL	Nil	Nil
Jel	BWR-40	BDL	6.92	321	177	36	7	120	30	75	18	0.09	0.07	BDL	2.4	2	9	BDL	08	Nil
Al-Habib	BWR-41	BDL	7.35	438	241	40	7	130	90	52	41	0.35	0.13	BDL	2.7	1	34	BDL	Nil	Nil
Ab-e-Hayat	BWR-42	BDL	7.10	405	223	20	18	125	70	72	42	0.32	0.09	BDL	1.1	0.5	23	BDL	Nil	Nil
Hydropsy	BWR-43	BDL	7.07	287	155	BDL	17	70	35	48	26	BDL	0.04	BDL	4.2	7.5	3	BDL	Nil	Nil
Aqua Fina	BWR-44	BDL	7.11	207	114	28	4	85	20	24	11	0.28	0.05	BDL	1	0.2	45	0.2	Nil	Nil
Nestle	BWR-45	BDL	7.17	367	202	44	12	160	35	81	11	0.41	0.07	BDL	0.4	BDL	20	1	Nil	Nil
New Everest	BWR-46	BDL	6.99	417	229	32	15	140	90	34	40	0.13	BDL	BDL	2.1	BDL	79	BDL	02	Nil
Pineo	BWR-47	BDL	7.08	410	226	64	10	200	115	54	10	0.08	BDL	BDL	6.3	BDL	19	10	Nil	Nil
Aqua Safe	BWR-48	BDL	7.23	484	266	36	19	170	100	60	39	0.15	BDL	BDL	2.1	BDL	58	8	Nil	Nil
Naimat	BWR-49	BDL	7.54	336	185	44	12	160	145	14	17	0.20	0.11	BDL	1.6	BDL	16	25	Nil	Nil
Lock	BWR-50	BDL	7.02	296	163	36	11	135	130	8	12	0.34	0.09	BDL	1.8	BDL	8	25	Nil	Nil
Aqua National	BWR-51	BDL	7.37	273	150	40	10	140	130	4	7	0.30	0.07	BDL	1.8	0.2	12	56	Nil	Nil
Aqua RO7	BWR-52	BDL	6.79	390	215	40	12	150	45	71	13	BDL	0.06	BDL	BDL	BDL	41	6	Nil	Nil
IWT Water	BWR-53	BDL	7.10	324	178	32	12	130	70	38	21	0.10	0.04	BDL	0.4	BDL	34	1	Nil	Nil
Active	BWR-54	BDL	7.11	282	155	36	11	135	135	4	12	0.23	BDL	BDL	1.9	0.2	9	52	Nil	Nil
Natur Aqua	BWR-55	BDL	7.60	660	363	60	22	240	220	38	64	0.17	BDL	BDL	3.4	BDL	84	50	Nil	Nil
Qaswa	BWR-56	BDL	6.58	288	158	40	5	120	35	50	9	0.21	BDL	BDL	BDL	BDL	30	3	17	Nil
Aab-e-Rahat	BWR-57	BDL	6.52	198	109	24	2	70	60	26	18	0.14	0.04	BDL	0.2	BDL	7	1	Nil	Nil
Aqua Pure	BWR-58	BDL	6.62	440	242	42	18	180	95	63	34	0.23	0.11	BDL	1.8	BDL	48	BDL	Nil	Nil
Himalaya	BWR-59	BDL	7.19	128	70	16	5	60	60	10	11	0.27	0.09	BDL	0.4	BDL	10	2	Nil	Nil

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Khyber Aqua	BWR-60	BDL	7.75	429	236	44	24	210	180	11	15	0.24	0.05	BDL	1.8	4	16	BDL	Nil	Nil
Natural	BWR-61	BDL	7.38	558	307	76	19	270	220	17	13	0.12	0.05	BDL	1.3	7	29	0.2	Nil	Nil
Natural Aqwah	BWR-62	BDL	7.35	285	157	24	10	100	125	10	27	BDL	BDL	BDL	0.8	2	7	0.2	Nil	Nil
Aqua Sure	BWR-63	BDL	7.30	585	322	40	4	270	165	103	30	BDL	BDL	BDL	1.7	BDL	BDL	0.2	13	Nil
Oslo Plus	BWR-64	BDL	7.54	628	345	48	19	200	155	72	56	0.20	BDL	BDL	2.7	6	16	BDL	Nil	Nil
Vey	BWR-65	BDL	7.25	294	162	40	11	145	65	34	BDL	BDL	0.010	BDL	4.4	BDL	50	BDL	Nil	Nil
Orion	BWR-66	BDL	7.06	290	160	44	2	120	35	64	12	BDL	0.08	BDL	1.2	0.4	6	BDL	Nil	Nil
Al-massafi	BWR-67	BDL	7.38	308	169	40	2	120	35	60	10	0.12	0.03	BDL	9.5	4	7	BDL	Nil	Nil
Legend	BWR-68	BDL	7.17	326	179	40	10	140	45	75	16	0.14	0.06	BDL	2.5	2	5	BDL	Nil	Nil
Liza	BWR-69	BDL	7.29	290	160	40	10	140	25	76	4	0.21	BDL	BDL	0.3	BDL	9	BDL	Nil	Nil
Zindagi	BWR-70	BDL	7.06	358	197	28	1	75	70	50	36	0.22	BDL	BDL	5.5	4	17	0.3	Nil	Nil
Valley	BWR-71	BDL	6.98	324	178	42	9	140	140	7	11	0.18	BDL	BDL	0.3	2.5	15	BDL	Nil	Nil
Lite Aqua	BWR-72	BDL	7.42	517	284	44	16	175	90	45	40	0.28	BDL	BDL	3	BDL	86	3	11	
Aktive	BWR-73	BDL	7.48	288	158	28	11	115	30	60	17	0.08	BDL	BDL	1.4	BDL	25	BDL	Nil	Nil
Aqua Hygienic	BWR-74	BDL	7.78	415	228	44	18	185	105	55	16	0.12	BDL	BDL	0.4	0.3	35	BDL	Nil	Nil

NGVS =No Guideline Value Set
BDL = Below Detection Limits

