



QUARTERLY REPORT BOTTLED WATER QUALITY

(April-June, 2011)



PAKISTAN COUNCIL OF RESEARCH IN WATER RESOURCES
Ministry of Science & Technology
Khyban-e-johar, H-8/1, Islamabad.
www.pcrwr.gov.pk

April-June, 2011



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	77	
No. of Cities Targeted	14 (Islamabad, Rawalpindi, Lahore, Bahawalpur, Faisalabad, D.G Khan, D.I.Khan, Sialkot, Sahiwal, Peshawar, Quetta, Karachi, Badin and Tando Jam.)	
Composition of Sampling Team	One Research Officer and Two Laboratory Assistants	
Sampling Procedure	Samples of seventy seven 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 April-June, 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

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PCRWR BOTTLED WATER CLASSIFICATION SYSTEM

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	Atlantis	BWP- 01	Rawalpindi	04-05-2011	03/2012	-	1.5 Liter	Plot # 615 P O Fazaia Rawalpindi	Plot # 615 P O Fazaia Rawalpindi
2	A- One	BWP-02	Islamabad	04-05-2011	-	-	1.5 Liter	52 B Industrial Triangle Area Hummak Kahuta Road Islamabad	52 B Industrial Triangle Area Hummak Kahuta Road Islamabad
3	Valley	BWP-03	Islamabad	04-05-2011	12/2012	-	1.5 Liter	Plot # 277 I-9/3 Islamabad	Plot # 277 I-9/3 Islamabad
4	Pak zam zam	BWP-04	Islamabad	04-05-2011	02/2013	-	0.6 Liter	Plot # 195 St # 2 I-9/3 Islamabad	Plot # 195 St # 2 I-9/3 Islamabad
5	Best water	BWP-05	Islamabad	04-05-2011	06/2012	-	0.6 Liter	Plot # 235 I-9/2 ISB	Plot # 235 I-9/2 ISB
6	Venora	BWP-06	Islamabad	04-05-2011	09/2012	-	0.6 Liter	Plot # 238 Block B St # 8 I-9/3 Islamabad	Plot # 238 Block B st # 8 I-9/3 Islamabad
7	Puurle	BWP-07	Islamabad	04-05-2011	-	-	1.5 Liter	Plot # 31 A I-9/2 Islamabad	Plot # 31 A I-9/2 Islamabad
8	Nadiq water	BWP-08	Sahiwal	13-04-11	-	-	0.6 Liter	Bashir Hussain Sherazi Roots Enterprises 10 KM Faisalabad Road Sahiwal	Roots Enterprises 10 KM Faisalabad Road Sahiwal
9	Pan Pura	BWP-09	Sahiwal	13-04-11	12/2011	-	0.6 Liter	Mr.Abdul Mujeeb Al Aziz Enterprises 253 F B Tufailabad Burewala-067-3008150	Al Aziz Enterprises 253 F B Tufailabad Burewala-067-3008150
10	Clear	BWP-10	Sahiwal	12-04-11	05/2012	-	0.6 Liter	M. Ashraf Tariq Hasan Agro Food Industries 173/A Small Industrial Estate Sahiwal	Hasan Agro Food Industries 173/A Small Industrial Estate Sahiwal
11	Vital Happy life	BWP-11	Sahiwal	12-04-11	04/2012	-	0.6 Liter	Masroor Hussain Al-Mansoor Consumer Products 7 km Multan Road Sahiwal	Al-Mansoor Consumer Products 7 km Multan Road Sahiwal
12	Legend	BWP-12	Badin	29-04-2011	12/2012	-	1.5 Liter	Bhatti Bakers General Store & Sweet House DCO Chowk Badin.	Multi Food Industries Plot # D92 Malir Industrial Area Malir Karachi-021-4324531
13	Jel	BWP-13	Badin	29-04-2011	12/2012	-	0.5 Liter	Bismillah Bakers &	Plot # A 92 Malir Industrial

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								Sweet House Golarhe Road Badin.	Area Karachi
14	Good Ly	BWP-14	Badin	28-04-2011	12/ 2012	-	1.5 Liter	Bhatti Bakers General Store & Sweet House DCO Chowk Badin.	Good Ly Karachi Pakistan
15	Vital Sip of Life	BWP-15	Tando jam	02-05-11	02/ 2012	-	0.5 Liter	Mr. Aziz, Al-Aziz Medical Store Tando Jam	Mehran Bottles C/5-A S.I.T.E Karachi
16	Via	BWP-16	Tando jam	02-05-11	12/2011	-	0.6 Liter	New Memon Medical & General Store Tando Jam	U.N Brothers S.I.T.E area Karachi
17	Aqua fina	BWP-17	Tando jam	02-05-11	04/2012	-	0.5 Liter	Murtaza Medical & General Store Goth Hassan Tando Jam	Filled by Pakistan Beverages Ltd, Survey # 212, Deh Konkas District Malir, Karachi
18	Kinley	BWP-18	Tando jam	02-05-11	04/2012	-	0.5 Liter	New Rehmat Sweets and Bakers & Nimko Nawa Hatt Bazaar Tando Jam	Coca Cola Beverages Pakistan Ltd. D-51 State Avenue S.I.T.E Karachi
19	Alfa	BWP-19	Tando jam	02-05-11	-	-	0.6 Liter	S.S.D Supper Store Shop # 4 Agriculture Complex Tando Jam	Biorem Laboratories Pakistan F/11 S.I.T.E Hyderabad
20	Hydropsy	BWP-20	Tando jam	02-05-11	06/2012	-	0.6 Liter	Mr. Aziz, Al-Aziz Medical Store Tando Jam	Karachi 021-6377654
21	Nestle	BWP-21	Tando jam	02-05-11	02/2012	-	0.5 Liter	New Rehmat Sweets and Bakers & Nimko Nawa Hatt Bazaar Tando Jam	Bottled by Nestle Pakistan Ltd. 308 Upper mall Lahore 5400
22	Sun lay	BWP-22	Karachi	29-04-2011	-		1.5 Liter	Mushtaq Bakery & General Store Gali # 021 Ishah walliullah Road Karachi.	R-82 Sec 35 uni Road Karachi
23	Zindagi	BWP-23	Karachi	29-04-2011	-	-	0.6 Liter	Bismillah SB Store Pehlwan Goth Shop # 06	Head office 802 Regal Trade Square Sadder Karachi
24	Miracle	BWP-24	Karachi	29-04-2011	02/2012	-	1.5 Liter	Miss Roshana saeed	Plot WSA 23 block 14 F. B area Karachi
25	Vey	BWP-25	Karachi	29-04-2011	02/2013	-	1.5 Liter	New Al madina medical and general store, shop # 001- A	424- Bhayani Center Block M North Nazimabad Karachi 74700

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								shakeel complex supako road karachi	
26	Max fresh	BWP-26	Karachi	29-04-2011	-	-	0.6 Liter	Masha Allah Krocuery and General Store Shop # 09 Block 12 Pehlwan Goth, Gulistan-e-Johar, Karachi	A 190-Panama Shopping Center Karachi
27	Spring fresh	BWP-27	Karachi	29-04-2011	12/2011	-	0.6 Liter	Bilal Juice Shop Seotte Colony Taiba heights Abu Isphania Road Karachi..	208-Billys Towers Rashid Minhas Road Karachi
28	Orion	BWP-28	Karachi	29-04-2011	02/2012	-	1.5 Liter	Bismillah SB Store Pehlwan Goth Shop # 06	Site E 1 suite # 2 defense view phase II Karachi
29	Marjan	BWP-29	Karachi	29-04-2011	12/2011	-	1.5 Liter	Bismillah Bakery and General Store	Plot # AK 6.8S.2 Lyari Town Karachi
30	De Aar	BWP-30	Karachi	29-04-2011	04/2012	-	1.5 Liter	Mr, Farhan.	Plot # B 32 SITEe Karachi
31	Shinawar	BWP-31	Karachi	29-04-2011	12/2011	-	1.5 Liter	Abdullah Shop, Sachal Goth Karachi.	F.B area Karachi
32	Iqra finu	BWP-32	Karachi	29-04-2011	05/2011	-	1.5 Liter		Iqra finu & co
33	Snow drop	BWP-33	Karachi	29-04-2011	10/2012	-	1.5 Liter	Bilal Juice Shop Seotte Colony Taiba heights Abu Isphania Road Karachi.	Bottle by R.A.O.S. Enterprises Karachi
34	Aktiv	BWP-34	Karachi	29-04-2011	12/2012	-	1.5 Liter	Bismillah Bakery and General Store Karachi	Plot # A 131 Block A Scheme 33 Super Highway Karachi
35	Aqua Nasa	BWP-35	Karachi	29-04-2011	-	-	0.6 Liter	Masha Allah Store Shop # 13 Pehlwan Goth, Karachi	Plot # C-11 Gulzar-e-Hijri Scheme 33 Gulshan Town Karachi
36	Kisan	BWP-36	Karachi	29-04-11	4/2012	-	0.6 Liter	Fahad Store Shop # 24 Block 12 Pehlwan Goth Karachi.	Faisalabad Oil Refinery
37	Liza	BWP-37	Karachi	29-04-11	03/2012	-	1.5 Liter	Sachal Verger Shop, Sachal Goth Karachi	Manufactured and Marketed by Arsh
38	Hydra	BWP-38	Islamabad	17-05-2011		-	6 Liter	Plot # 31-A I-9 Industrial Area Islamabad	Plot # 31-A I-9 Industrial Area Islamabad
39	Life	BWP-39	Islamabad	17-05-2011		-	0.6 Liter	Shah Faisal Plot 3 167, Street # 9 I-10/3 Islamabad	Shah Faisal Plot 3 167, Street # 9 I-10/3 Islamabad

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40	Nectar	BWP-40	Islamabad	17-05-2011		-	1.5 Liter	Plot # 14/10 G-7 Markaz Islamabad	Plot # 14/10 G-7 Markaz Islamabad
41	Splash Dew	BWP-41	Islamabad	17-05-2011		-	1.5 Liter	Plot # 277 I-9/3 Islamabad	Plot # 277 I-9/3 Islamabad
42	Berg	BWP-42	Rawalpindi	17-05-2011		-	1.5 Liter	Near General Hospital Rawalpindi	Near General Hospital Rawalpindi
43	Rise Water	BWP-43	Sialkot	12-05-11	06/2012	-	1.5 Liter	Bilal Ahmad Gleyx Food Pvt Ltd. 3 KM Kingra Road Sialkot	Gleyx Food Pvt Ltd. 3 KM Kingra Road Sialkot
44	Vina	BWP-44	Sialkot	13-05-11	06/2012	-	1.5 Liter	Nirala Sweets Allama Iqbal Chowk Sialkot	Al-Sultan Beverage Industries, Chapar Road Gul Bahar Colony Sialkot Phone # 052-4561764
45	Hunza Spring	BWP-45	Sialkot	13-05-2011	-	-	0.6 Liter	Nirala Sweets Allama Iqbal Chowk Sialkot	Tehsil and District Jehlum Phone # 0544-735000
46	Isberg	BWP-46	Sialkot	12-05-2011	04/2013	-	0.6 Liter	Zia-u-din Isberg Water Company Dhabola Roras Road, Sialkot	Isberg Water Company Dhabola Roras Road, Sialkot Phone 3 052-4009991
47	Bake Master	BWP-47	Sialkot	13-05-2011	03/2012	-	0.6 Liter	Bake Master Near Lari Adda Sialkot	Bake Master Near Lari Adda Sialkot Customer service, 0342-6661666,0333 8656666
48	Eco	BWP-48	Sialkot	12-05-2011	-	-	0.6 Liter	Shakil Ahmad L & L Foods Roras Road Naul Chowk, Sialkot Phone# 052-6915600	L & L Foods Roras Road Naul Chowk, Sialkot Phone# 052-6915600
49	Aqua Save	BWP-49	Sialkot	12-05-2011	05/2011	-	0.6 Liter	Tariq Anjam SFS Mineral Water Company Wazirabad Road Jaliawala Ugoki Sialkot,	SFS Mineral Water Company Wazirabad Road Jaliawala Ugoki Sialkot, 052-3570052
50	Al-Shalal	BWP-50	Sialkot	12-05-2011	04/2012	-	0.6 Liter	Omer Malik AZO Factory, 14 Km Aminaabdab Road Sialkot Phone# 0322-5742525	AZO Factory, 14 Km Aminaabdab Road Sialkot Phone# 0322-5742525
51	Aqua-One	BWP-51	Sialkot	12-05-2011	05/2012	-	0.35 Liter	Nasir Brayor Talon Sports C/o Aqua One Deska Road, Sialkot	Talon Sports C/o Aqua One Deska Road, Sialkot www.aquaone

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									.com.pk
52	Active	BWP-52	Faisalabad	04-05-2011	03/2012	-	0.6 Liter	Adnan General Store Akberabad Chowk Faisalabad	Ali Enterprises Lahore 160 E Plastic Dana Market Shah Alam Market Lahore 042-37495904
53	Well-O	BWP-53	Faisalabad	04-05-2011	12/2011	-	0.6 Liter	Adnan General Store Akberabad Chowk Faisalabad	P-4 Street # 2 Yousaf Town no-1 Satyana Road Faisalabad
54	Nation	BWP-54	Faisalabad	04-05-2011	06/2012	-	0.6 Liter	Naeem Pan Shop Adda Faisalabad	9 km G T Road Rachna Town Shahdara Lahore
55	Hamaliya	BWP-55	D.I Khan	04-05-2011	02/2012	-	1.5 Liter	Abdul Wahid The Product of H2O Solution (Pvt) Ltd	The Product of H2O Solution (Pvt) Ltd
56	Safi	BWP-56	D.I Khan	04-05-2011	09/2011	-	1.5 Liter	Saqi Jam Cheshma Mineral Water near Grid station D. I Khan	Cheshma Mineral Water near Grid Station D. I Khan
57	Springley	BWP-57	Lahore	03-05-11	04/2012	-	1.5 Liter	Al-Traders Faisal Chungi Amrat Sidhu Lahore	A brand of Qarshi Hattar
58	Gourmet	BWP-58	Lahore	03-05-11	08/2011	-	1.5 Liter	Kashmir Cold Corner Niazi Adda Band Road Lahore	Gourmet Foods 1-5 Sundar Industrial State Lahore-0321.8877002
59	Snow Valley	BWP-59	Lahore	03-05-11	10/2011	-	1.5 Liter	Yaseen Pan Shop, Babu Sabu Interchange Lahore	Produced & Bottled by Yaseen & Sons PCSIR Lahore
60	Aqua National	BWP-60	Lahore	03-05-11	06/2012	-	0.6 Liter	Mohsin Cold Corner Lari Adda Lahore	Milli Brothers 8-km G T Road Shahdara Lahore 0313-6756000
61	Premier	BWP-61	Lahore	03-05-11	05/2012	-	1.5 Liter	Ishaq Khan Corner Railway Station Lahore	19 km near High noon Laboratories Multan Road Lahore
62	Sufi	BWP-62	Lahore	03-05-11	02/2013	-	1.5 Liter	Lahore Pan Shop Chungi Amrat Siidhu Lahore	Sufi Consumer Service 1-B Garden Block Garden Town Lahore
63	Blue water	BWP-63	Lahore	03-05-11	04/2012	-	1.5 Liter	Mohsin Cold Corner Lari Adda Lahore	Al Hilal Industries(Pvt) Ltd Sultan Nagar Vehari Road Multan

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64	Pineo	BWP-64	Bahawalpur	28-04-2011	011/2011	-	0.6 Liter	Hamdard medical store opp BVH Bahawalpur	Under the License of Gysing Pak DDR-1, PSIE, Bahawalpur
65	Aspen aqua	BWP-65	Bahawalpur	28-04-2011	04/2012	-	1.5 Liter	New United Medical Store Opposite BVH Bahawalpur	Gysing Pak, DDR-PSIE, Bahawalpur
66	Khyber Aqua	BWP-66	Peshawar	27-04-2011	03/2012	-	0.6 Liter	Jan Akbar. Hayatabad Medical Complex Peshawar.	House # 47 St # 1 Eidgah Colony Charsada Road Peshawar
67	Aqua sure	BWP-67	Peshawar	27-04-2011		-	0.6 Liter	Shakur Ahmed. Lohare Adda Peshawar.	Shine Enterprises G T road Budhai Peshawar.
68	Natural aqwah	BWP-68	Peshawar	27-04-2011	01/2012	-	0.6 Liter	Muhammad Akhtar, University Town Peshawar	Nasir Bagh University Board Peshawar.
69	Aqua feen (Ab-e-sehat)	BWP-69	Peshawar	27-04-2011	02/2012	-	0.6 Liter	Muhammad Akhtar, University Town Peshawar	Basement Usman Trade Center near Daewoo bus Station G T Road Peshawar.
70	Moya minral water	BWP-70	Peshawar	27-04-2011	06/2012	-	0.6 Liter	Khuram Rashid	Khuram Rashid Processed by Al Saudia Enterprises.
71	Kashmir	BWP-71	Abbottabad	20-05-2011	12/2013	-	1.5 Liter	Evey Green General Store Fowara Chowk Abbottabad	Qazi Traders opp amis Hospital Ambore Muzaffarabad
72	Fine Life	BWP-72	Abbottabad	20-05-2011	05/2012	-	1.5 Liter	Evev Green General Store Fowara Chowk Abbottabad	Near Mughalabad Noor Colony Canal Road Post off T&T Colony teh & Distt Haripur .
73	Cool	BWP-73	D.G.Khan	20-05-2011	04/2012	-	1.5 Liter	-	Hamaliya Enterprises blakh sarwar City Jampur Road D G Khan.
74	IVA Pure	BWP-74	Rawalpindi	20-05-2011	12/2011	-	1.5 Liter	ME 234/68 Tipu Road Rawalpindi	ME 234/68 Tipu Road Rawalpindi
75	Ripple	BWP-75	Rawalpindi	20-05-2011	11/2012	-	1.5 Liter	Main Mirpur Road Al Noor Colony Sector 3 coner of st # 6 behind Fazaia Colony Rawalpindi.	Main Mirpur Road Al Noor Colony Sector 3 corner of St # 6 behind Fazaia Colony Rawalpindi.
76	Klinz	BWP-76	Lahore	16-06-2011	12/2011	-	1.5 Liter	Mr. Masood Tahir 60-L	60-L Model Town Ext

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								Model Town Ext Lahore.	Lahore.
77	Asal Pio Na	BWP-77	Quetta	28-04-11	09/2012	-	1.5 Liter	New Medical General Jinnah Quetta	Haq & Store Road Hyderabad

WATER QUALITY PARAMETERS AND METHODS USED FOR ANALYSIS

Sr. #	PARAMETERS	ANALYTICAL METHOD
1.	Alkalinity (m.mol/l as CaCO ₃)	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 Coliform (MPN/100ml)	9221-B, Multiple tube fermentation Technique, Standard Methods for the Examination of Water and Waste Water
24.	E. Coli (MPN/100ml)	9221-E, Multiple tube fermentation Technique, Standard Methods for the Examination of Water and Waste Water
25.	Total Plate Count (TPC) (CFU/ml)	9215-B, Heterotrophic Plate Count. Standard Methods for the Examination of Water and Waste Water

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

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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/100ml	0	0	0
24.	E-Coli	MPN/100ml	0	0	0
25.	Total Plate Count	CFU/ml	-	-	At 22°C= <100/ml At 35°C=< 20/ml

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.	Nadiq Water	BWP-08	Sahiwal	ppb	54
2.	Pan Pura	BWP-09	Burewala	ppb	15
3.	Aqua-One	BWP-51	Sialkot	ppb	14
4.	Nation	BWP-54	Lahore	ppb	40
5.	Hamaliya	BWP-55	D.I Khan	ppb	11
6.	Aqua National	BWP-60	Lahore	ppb	57
7.	Pineo	BWP-64	Bahawalpur	ppb	13

Sodium (Safe Limit : 50ppm)

Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	Max Fresh	BWP-26	Karachi	ppm	59
2.	Marjan	BWP-29	Karachi	ppm	53
3.	Vina	BWP-44	Sialkot	ppm	58
4.	Nation	BWP-54	Lahore	ppm	68
5.	Asal Pio Na	BWP-77	Hyderabad	ppm	120



TDS (Safe Limit : 500ppm)					
Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	Asal Pio Na	BWP-77	Hyderabad	ppm	606

Fluoride (Safe Limit : 0.7ppm)					
Sr. No	Brand Name	Code	City of Manufacturing	Unit	Results
1.	Active	BWP-52	Lahore	ppm	1.39

All the bottled/Mineral water brands were also tested for Total Plate Count. The criteria of PSQCA and most of the international bottled water standards is to collect and analyze the samples within 12- 24 hours of production and compare the results with the permissible limit for Total Plate Count recommended by PSQCA and other international standards. Out of total 77 brands, 36 brands found beyond the PSQCA limit of 20 CFU /ml for Total Plate Count at 37°C, are listed below:

BACTERIOLOGICAL: (Total Coliforms & Total Plate Count)				
Sr. No	Brand Name	Code	Results	
			Total Coliforms CFU/100ml	Total Plate Count CFU/ml
1.	Pak zam zam	BWP-04	Nil	23
2.	Best Water	BWP-05	Nil	58
3.	Venora	BWP-06	Nil	78
4.	Pan Pura	BWP-09	Nil	38
5.	Jel	BWP-13	Nil	28
6.	Alfa	BWP-19	Nil	22
7.	Hyderopsy	BWP-20	Nil	25
8.	Hydra	BWP-38	Nil	39
9.	Life	BWP-39	Nil	40
10.	Nector	BWP-40	Nil	37
11.	Rise Water	BWP-43	Nil	25
12.	Isberg	BWP-46	Nil	32
13.	Bake Master	BWP-47	Nil	72
14.	Eco	BWP-48	Nil	41
15.	Aqua Save	BWP-49	Nil	80
16.	Al-Shalal	BWP-50	Nil	65
17.	Aqua-One	BWP-51	Nil	72
18.	Active	BWP-52	Nil	60
19.	Well-O	BWP-53	Nil	58
20.	Nation	BWP-54	Nil	38
21.	Hamaliya	BWP-55	Nil	85
22.	Safi	BWP-56	Nil	39
23.	Gourmet	BWP-58	Nil	25
24.	Snow Valley	BWP-59	Nil	61
25.	Premier	BWP-61	Nil	32
26.	Pineo	BWP-64	Nil	22
27.	Aspen aqua	BWP-65	Nil	41
28.	Khyber Aqua	BWP-66	Nil	54
29.	Aqua sure	BWP-67	Nil	24

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30.	Natural aqwah	BWP-68	Nil	63
31.	Aqua fina	BWP-69	Nil	72
32.	Cool	BWP-73	Nil	42
33.	IVA Pure	BWP-74	Nil	178
34.	Ripple	BWP-75	Nil	51
35.	Klinz	BWP-76	Nil	48
36.	Asal Pio Na	BWP-77	Nil	26

The excessive level of Total Plate Count indicate the overall sanitation quality, water treatment plant efficiency, after growth in transmission lines and the general bacterial composition of source water.(Judith Whittier, 2008).

As most of the samples of bottled/mineral water brands were not collected within 12-24 hours of production. Therefore, we have not considered these brands in the category of unsafe bottled water brands. In the same context, the recommendations of Pakistan Standards Quality Control Authority (PSQCA), International Bottled Water Association (IBWA) and European Union are as following:

1. According to Pakistan Standards Quality Control Authority (PSQCA), Ministry of Science and Technology, the limit for Total Plate Count i.e. <100 CFU/ml at 20-22 °C and <20 CFU/ml at 37 °C is subjected to monitor within 12 hours of bottling (Pakistan Standards Specification for Bottled Drinking Water, 3rd Revision).
2. The International Bottled water Association (IBWA) recommends that plants meet a level of <30 CFU/ml at bottling, and <200 CFU/ml in 90% of samples tested 5 days after bottling (NRDC, 2000).
3. The European Union (EU) has adopted an enforceable bottled water standard of 100 colonies per 100 ml (at 22oC) at bottling (NRDC, 2000).

PCRWR TESTING: SAFE BRANDS

Sr. No	Brand Name	Code	Quality (Safe/Unsafe)	
			Chemical	Microbiological
1.	Atlantis	BWP-01	Safe	Safe
2.	A-One	BWP-02	Safe	Safe
3.	Valley	BWP-03	Safe	Safe
4.	Pak zam zam	BWP-04	Safe	Safe
5.	Best water	BWP-05	Safe	Safe
6.	Venora	BWP-06	Safe	Safe
7.	Puurle	BWP-07	Safe	Safe
8.	Clear	BWP-10	Safe	Safe
9.	Vital Happy life	BWP-11	Safe	Safe
10.	Legend	BWP-12	Safe	Safe
11.	Jel	BWP-13	Safe	Safe
12.	Good Ly	BWP-14	Safe	Safe
13.	Vital Sip of Life	BWP-15	Safe	Safe
14.	Via	BWP-16	Safe	Safe

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15.	Aqua fina	BWP-17	Safe	Safe
16.	Kinley	BWP-18	Safe	Safe
17.	Alfa	BWP-19	Safe	Safe
18.	Hydropsy	BWP-20	Safe	Safe
19.	Nestle	BWP-21	Safe	Safe
20.	Sun lay	BWP-22	Safe	Safe
21.	Zindagi	BWP-23	Safe	Safe
22.	Miracle	BWP-24	Safe	Safe
23.	Vey	BWP-25	Safe	Safe
24.	Spring fresh	BWP-27	Safe	Safe
25.	Orion	BWP-28	Safe	Safe
26.	De Aar	BWP-30	Safe	Safe
27.	Shinawar	BWP-31	Safe	Safe
28.	Iqra finu	BWP-32	Safe	Safe
29.	Snow drop	BWP-33	Safe	Safe
30.	Aktiv	BWP-34	Safe	Safe
31.	Aqua Nasa	BWP-35	Safe	Safe
32.	Kisan	BWP-36	Safe	Safe
33.	Liza	BWP-37	Safe	Safe
34.	Hydra	BWP-38	Safe	Safe
35.	Life	BWP-39	Safe	Safe
36.	Nectar	BWP-40	Safe	Safe
37.	Splash Dew	BWP-41	Safe	Safe
38.	Berg	BWP-42	Safe	Safe
39.	Rise Water	BWP-43	Safe	Safe
40.	Hunza Spring	BWP-45	Safe	Safe
41.	Isberg	BWP-46	Safe	Safe
42.	Bake Master	BWP-47	Safe	Safe
43.	Eco	BWP-48	Safe	Safe
44.	Aqua Save	BWP-49	Safe	Safe
45.	Al-Shalal	BWP-50	Safe	Safe
46.	Well-O	BWP-53	Safe	Safe
47.	Safi	BWP-56	Safe	Safe
48.	Springley	BWP-57	Safe	Safe
49.	Gourmet	BWP-58	Safe	Safe
50.	Snow Valley	BWP-59	Safe	Safe
51.	Premier	BWP-61	Safe	Safe
52.	Sufi	BWP-62	Safe	Safe
53.	Blue water	BWP-63	Safe	Safe
54.	Aspen aqua	BWP-65	Safe	Safe
55.	Khyber Aqua	BWP-66	Safe	Safe
56.	Aqua sure	BWP-67	Safe	Safe
57.	Natural aqwah	BWP-68	Safe	Safe
58.	Aqua feen	BWP-69	Safe	Safe
59.	Moya mineral water	BWP-70	Safe	Safe
60.	Kashmir	BWP-71	Safe	Safe
61.	Fine Life	BWP-72	Safe	Safe

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62.	Cool	BWP-73	Safe	Safe
63.	IVA Pure	BWP-74	Safe	Safe
64.	Ripple	BWP-75	Safe	Safe
65.	Klinz	BWP-76	Safe	Safe

PCRWR TESTING: UNSAFE BRANDS

Sr. No	Brand Name	Code	Quality (Safe/Unsafe)	
			Chemical	Microbiological
1.	Nadiq Water	BWP-08	Unsafe	Safe
2.	Pan Pure	BWP-09	Unsafe	Safe
3.	Max fresh	BWP-26	Unsafe	Safe
4.	Marjan	BWP-29	Unsafe	Safe
5.	Vina	BWP-44	Unsafe	Safe
6.	Aqua-One	BWP-51	Unsafe	Safe
7.	Active	BWP-52	Unsafe	Safe
8.	Nation	BWP-54	Unsafe	Safe
9.	Hamaliya	BWP-55	Unsafe	Safe
10.	Aqua National	BWP-60	Unsafe	Safe
11.	Pineo	BWP-64	Unsafe	Safe
12.	Asal Pio Na	BWP-77	Unsafe	Safe

MARKET CONSISTENCY IN TWO NEIGHBORING QUARTERS

Sr. No	Consistent Brands	New Brands	Unavailable Brands
1.	A-One	Atlantis	Aqua Life
2.	Pak zam zam	Valley	Minra
3.	Pan Pura	Best Water	Khaleej
4.	Clear	Venora	Aqua RO 7
5.	Vital Happy life	Puurle	Naimat
6.	Legend	Nadiq water	Aqua Safe
7.	Jel	Vital Sip of Water	Avisa
8.	Good Ly	Alfa	Lite Aqua
9.	Via	Zindagi	Aqua Habib
10.	Aqua fina	Miracle	Selina
11.	Kinley	Orion	Glow
12.	Hydropsy	DeAar	Aqua Vie
13.	Nestle	Shinawar	Zindagi Plus
14.	Sun lay	Iqra Fina	Tahoor
15.	Vey	Snow Drop	Aqua Hygienic
16.	Max fresh	Aktiv	First Water
17.	Spring fresh	Berg	Ab-e-Hayat
18.	Marjan	Rise Water	Kerry
19.	Aqua Nasa	Vina	Noble



20.	Kisan	Hunza Spring	Sparklet
21.	Liza	Bake Master	Khush Abb
22.	Hydra	Hamaliya	Morning Mist
23.	Life	Safi	Natural Excellent
24.	Nectar	Snow Valley	
25.	Splash Dew	Aspen Aqua	
26.	Isberg	Moya mineral water	
27.	Eco	Kashmir	
28.	Aqua Save	Fine Life	
29.	Al-Shalal	Cool	
30.	Aqua-One	IVA Pure	
31.	Active	Ripple	
32.	Well-O		
33.	Nation		
34.	Springley		
35.	Gourmet		
36.	Aqua National		
37.	Premier		
38.	Sufi		
39.	Blue water		
40.	Pineo		
41.	Khyber Aqua		
42.	Aqua Sure		
43.	Natural aqwah		
44.	Aqua Feen		
45.	Klinz		
46.	Asal Pio Na		

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.	TDS	Salty or bitter taste
5.	Fluoride	Skeletal Fluorosis and Mottling of teeth



CONCLUSIONS

Sr. No	Item	Conclusion	
		No.	% age
1.	Total No. Brands Collected	77	-
2.	Overall safe brands	65	84
3.	No. of overall unsafe brands	12	16
4.	No. of Chemically safe brands	65	84
5.	No. of Chemically unsafe brands	12	16
6.	No. of Microbiologically safe brands	77	100
7.	No. of Microbiologically unsafe brands	0	0
8.	No. of Consistent brands in Market	46	60
9.	No. of brands disappeared from market	23	30
10.	No. of new brands	31	40

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	Fecal Coliforms	Total Plate Count
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	0/100ml	<20 at 37°C
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	CFU /100ml	CFU /100ml	CFU /ml
Atlantis	BWP-01	BDL	7.48	318	175	36	12	140	55	60	3	0.14	0.03	BDL	0.3	0.4	10	0.1	Nil	Nil	8
A- One	BWP-02	BDL	7.03	314	173	32	9	115	40	53	11	0.14	BDL	BDL	0.2	0.2	38	BDL	Nil	Nil	18
Valley	BWP-03	BDL	7.29	400	220	48	10	160	165	13	17	0.23	0.05	BDL	0.8	2	16	0.2	Nil	Nil	0
Pak zam zam	BWP-04	BDL	7.46	645	355	68	19	250	270	22	27	0.31	0.10	BDL	9.9	4	29	0.2	Nil	Nil	23
Best water	BWP-05	BDL	7.59	425	234	56	12	190	180	13	15	0.17	0.07	BDL	1.4	2	15	BDL	Nil	Nil	58
Venora	BWP-06	BDL	7.70	560	308	74	13	240	240	14	21	0.26	BDL	BDL	1.0	3	16	0.15	Nil	Nil	78
Puurle	BWP-07	BDL	7.09	525	289	72	9	215	165	53	18	0.14	0.03	BDL	0.8	1	19	0.3	Nil	Nil	13
Nadiq water	BWP-08	BDL	7.76	392	216	48	9	155	165	4	14	0.32	BDL	BDL	2.2	0.1	29	54	Nil	Nil	18
Pan pura	BWP-09	BDL	7.53	410	226	36	12	140	80	53	21	0.18	BDL	BDL	1.4	BDL	41	15	Nil	Nil	38
Clear	BWP-10	BDL	7.35	391	215	42	11	150	25	88	7	0.11	BDL	BDL	0.2	BDL	20	0.4	Nil	Nil	15
Vital Happy life	BWP-11	BDL	7.31	484	266	36	11	135	60	59	31	0.49	0.07	BDL	2.9	0.6	40	0.4	Nil	Nil	20
Legend	BWP-12	BDL	7.22	296	163	32	7	110	25	84	14	0.09	0.06	BDL	3.1	2	6	BDL	Nil	Nil	12
Jel	BWP-13	BDL	7.36	266	146	20	15	110	40	52	15	0.09	0.03	BDL	3.2	2	14	BDL	Nil	Nil	28
Good Ly	BWP-14	BDL	7.08	392	216	40	2	110	30	86	22	0.11	BDL	BDL	1.5	BDL	15	BDL	Nil	Nil	18
Vital Sip of Life	BWP-15	BDL	7.11	353	194	40	16	165	90	65	10	BDL	BDL	BDL	3.5	1	21	BDL	Nil	Nil	16
Via	BWP-16	BDL	7.25	401	221	20	22	140	85	60	30	0.14	0.04	BDL	6.3	2	31	0.4	Nil	Nil	18
Aqua fina	BWP-17	BDL	7.60	220	121	0	28	115	35	25	13	0.38	0.03	BDL	1.0	BDL	62	BDL	Nil	Nil	0
Kinley	BWP-18	BDL	6.24	630	347	56	15	200	45	137	38	0.04	0.06	BDL	2.9	BDL	44	BDL	Nil	Nil	2
Alfa	BWP-19	BDL	7.13	238	131	24	13	115	40	45	4	0.06	BDL	BDL	8.8	0.2	17	BDL	Nil	Nil	22
Hydropsy	BWP-20	BDL	7.50	364	200	28	7	100	50	50	30	0.05	0.13	BDL	4.8	8	24	BDL	Nil	Nil	25
Nestle	BWP-21	BDL	7.79	384	211	40	15	160	45	76	9	0.23	0.05	BDL	0.3	BDL	15	2.5	Nil	Nil	0
Sun lay	BWP-22	BDL	6.85	240	132	4	7	40	25	32	31	0.10	BDL	BDL	0.3	2	32	BDL	Nil	Nil	4
Zindagi	BWP-23	BDL	6.74	352	194	14	30	160	60	24	12	0.04	BDL	BDL	3.5	2	92	BDL	Nil	Nil	18

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Miracle	BWP-24	BDL	7.55	428	235	26	13	120	70	60	39	0.16	BDL	BDL	7.3	1	33	BDL	Nil	Nil	0
Vey	BWP-25	BDL	7.08	370	204	38	9	130	22	72	7	0.11	0.04	BDL	7.9	0.3	35	BDL	Nil	Nil	2
Max fresh	BWP-26	BDL	7.31	625	344	36	11	135	95	94	59	0.05	BDL	BDL	2.0	2	51	BDL	Nil	Nil	2
Spring fresh	BWP-27	BDL	6.95	332	183	24	19	140	90	34	20	0.43	BDL	BDL	1.6	3	34	BDL	Nil	Nil	2
Orion	BWP-28	BDL	6.55	359	197	20	9	85	50	54	43	0.17	0.04	BDL	4.0	5	24	BDL	Nil	Nil	3
Marjan	BWP-29	BDL	6.15	450	248	32	5	100	35	96	53	0.11	0.05	BDL	4.9	3	20	BDL	Nil	Nil	5
De Aar	BWP-30	BDL	7.28	385	212	32	12	130	30	67	20	0.17	BDL	BDL	0.5	1	32	BDL	Nil	Nil	0
Shinawar	BWP-31	BDL	7.05	359	197	36	11	135	70	66	17	0.12	0.07	BDL	0.2	1	21	BDL	Nil	Nil	2
Iqra finu	BWP-32	BDL	6.85	300	165	23	4	100	30	64	12	0.10	0.06	BDL	1.4	1	14	BDL	Nil	Nil	2
Snow drop	BWP-33	BDL	7.12	501	276	40	7	130	100	52	47	0.37	BDL	BDL	3.7	4	56	BDL	Nil	Nil	2
Aktiv	BWP-34	BDL	7.30	118	65	4	4	25	20	20	13	BDL	BDL	BDL	1.0	BDL	9	BDL	Nil	Nil	8
Aqua Nasa	BWP-35	BDL	7.08	376	207	40	5	120	25	84	19	0.09	BDL	BDL	1.3	0.7	21	BDL	Nil	Nil	2
Kisan	BWP-36	BDL	7.06	390	215	48	7	150	20	88	4	0.11	0.04	BDL	0.3	0.1	22	BDL	Nil	Nil	5
Liza	BWP-37	BDL	6.71	315	173	12	27	140	20	72	6	0.09	0.10	BDL	0.2	0.3	17	BDL	Nil	Nil	15
Hydra	BWP-38	BDL	7.07	424	233	52	9	165	185	10	18	0.15	0.05	BDL	0.6	1.5	19	BDL	Nil	Nil	39
Life	BWP-39	BDL	6.51	55	30	4	2	20	25	1	3	0.10	0.03	BDL	0.2	0.7	3	BDL	Nil	Nil	40
Nectar	BWP-40	BDL	7.30	521	287	48	19	200	195	24	23	0.23	0.07	BDL	1.1	4	30	BDL	Nil	Nil	37
Splash Dew	BWP-41	BDL	7.24	455	250	46	13	170	180	12	24	0.25	0.13	BDL	0.9	3	29	0.2	Nil	Nil	19
Berg	BWP-42	BDL	6.72	447	246	40	16	165	70	51	15	0.09	0.09	BDL	0.5	3	60	BDL	Nil	Nil	8
Rise Water	BWP-43	BDL	7.21	259	142	4	13	65	80	1	27	0.11	0.04	BDL	0.2	0.1	51	BDL	Nil	Nil	25
Vina	BWP-44	BDL	7.28	414	228	8	17	90	125	1	58	0.05	0.05	BDL	0.3	BDL	73	BDL	Nil	Nil	18
Hunza Spring	BWP-45	BDL	7.20	312	172	20	12	100	60	36	22	0.35	0.07	BDL	0.5	BDL	39	BDL	Nil	Nil	15
Isberg	BWP-46	BDL	7.75	337	185	36	9	125	105	29	12	0.30	BDL	BDL	4.9	BDL	27	BDL	Nil	Nil	32
Bake Master	BWP-47	BDL	7.71	345	190	36	10	130	110	29	12	0.12	BDL	BDL	5	BDL	24	BDL	Nil	Nil	72
Eco	BWP-48	BDL	7.09	249	137	4	19	90	75	1	22	0.13	BDL	BDL	0.3	0.2	43	BDL	Nil	Nil	41
Aqua Save	BWP-49	BDL	6.78	365	20	48	6	145	25	73	4	0.11	0.11	BDL	2.7	0.1	18	BDL	Nil	Nil	80
Al-Shalal	BWP-50	BDL	7.46	379	208	48	15	180	190	2	16	0.23	0.09	BDL	3.5	0.9	4	6	Nil	Nil	65
Aqua-One	BWP-51	BDL	7.78	492	271	58	16	210	225	11	18	BDL	0.07	BDL	5.0	0.1	12	14	Nil	Nil	72
Active	BWP-52	BDL	7.20	301	166	36	2	100	15	60	9	1.39	0.06	BDL	0.4	1	24	BDL	Nil	Nil	60
Well-O	BWP-53	BDL	7.06	345	190	28	7	100	50	57	27	0.29	0.04	BDL	0.4	0.7	27	BDL	Nil	Nil	58
Nation	BWP-54	BDL	7.90	518	285	40	6	125	215	13	68	0.28	BDL	BDL	3.2	0.4	31	40	Nil	Nil	38
Hamaliya	BWP-55	BDL	7.06	492	271	60	10	190	140	27	25	0.28	BDL	BDL	5	0.2	62	11	Nil	Nil	85
Safi	BWP-56	BDL	6.91	332	183	28	17	140	90	25	20	0.06	BDL	BDL	1.6	0.3	40	BDL	Nil	Nil	39
Springley	BWP-57	BDL	7.678	552	304	60	22	240	245	8	23	0.25	0.04	BDL	1.3	3	15	BDL	Nil	Nil	5
Gourmet	BWP-58	BDL	6.97	380	209	40	10	140	45	64	22	0.07	0.11	BDL	BDL	BDL	35	BDL	Nil	Nil	25
Snow valley	BWP-59	BDL	7.05	374	206	40	12	150	20	76	5	0.04	0.09	BDL	0.2	BDL	41	BDL	Nil	Nil	61
Aqua National	BWP-60	BDL	7.80	293	161	38	11	140	120	6	8	0.26	0.05	BDL	2.0	0.4	17	57	Nil	Nil	20

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Premier	BWP-61	BDL	8.20	374	206	34	12	135	155	8	33	0.24	0.05	BDL	2.5	0.2	25	BDL	Nil	Nil	32
Sufi	BWP-62	BDL	7.42	376	207	42	7	135	30	79	13	BDL	BDL	BDL		BDL	16	BDL	Nil	Nil	0
Blue water	BWP-63	BDL	7.01	322	177	38	1	100	30	62	20	BDL	BDL	BDL	0.9	0.1	21	1	Nil	Nil	10
Pineo	BWP-64	BDL	7.34	456	251	56	4	155	150	34	19	0.11	BDL	BDL	5.6	BDL	29	13	Nil	Nil	22
Aspen aqua	BWP-65	BDL	7.34	438	241	40	7	130	40	83	24	0.10	0.010	BDL	0.6	BDL	37	1	Nil	Nil	41
Khyber Aqua	BWP-66	BDL	7.24	438	241	40	22	190	165	12	19	BDL	0.08	BDL	2.0	4	30	0.2	Nil	Nil	54
Aqua sure	BWP-67	BDL	7.31	494	272	40	21	185	140	69	19	0.08	0.03	BDL	1.4	0.1	6	BDL	Nil	Nil	24
Natural aqwah	BWP-68	BDL	7.48	287	158	40	10	140	120	6	11	0.03	0.06	BDL	1.3	2	15	BDL	Nil	Nil	63
Aqua feen	BWP-69	BDL	7.85	411	226	44	15	170	160	11	13	0.19	BDL	BDL	1.9	4	24	0.2	Nil	Nil	072
Moya mineral water	BWP-70	BDL	7.02	338	286	40	7	140	120	13	13	BDL	BDL	BDL	1.1	3	14	BDL	Nil	Nil	4
Kashmir	BWP-71	BDL	7.28	228	125	32	15	140	110	5	3	0.07	0.04	BDL	1.3	1.5	41	BDL	Nil	Nil	19
Fine Life	BWP-72	BDL	7.24	468	257	46	18	190	160	15	22	0.05	0.03	BDL	0.9	5	16	BDL	Nil	Nil	15
Cool	BWP-73	BDL	7.75	337	185	48	5	140	135	6	13	0.21	0.03	BDL	3.2	0.4	31	1.2	Nil	Nil	42
IVA Pure	BWP-74	BDL	7.68	530	292	58	16	210	180	27	26	0.31	BDL	BDL	1.2	4.7	32	BDL	Nil	Nil	178
Ripple	BWP-75	BDL	7.39	289	160	36	2	100	25	158	6	0.08	BDL	BDL	1.8	0.2	15	BDL	Nil	Nil	51
Klinz	BWP-76	BDL	6.82	220	121	0	9	35	100	7	40	0.24	BDL	BDL	1.3	BDL	4	BDL	Nil	Nil	48
Asal Pio Na	BWP-77	BDL	7.82	1102	606	72	22	270	150	134	120	0.40	0.14	BDL	9.6	BDL	159	2.5	Nil	Nil	26

NGVS =No Guideline Value Set
BDL = Below Detection Limits