

ASR Permit No. 001




APPLICATION FOR MODIFICATION OF
AQUIFER STORAGE AND RECOVERY (ASR) PERMIT

Applicant: City of Baker City c/o Michelle Owen
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Per OAR 690-350-020(5)(f), an ASR LL may be modified upon written request from the licensee. Please consult the current ASR LL and provide as attachments the following:

- Request for minor adjustments to the ASR LL authorization
- ASR LL Modification Fee. Consult current fee schedule at:
<http://www.oregon.gov/owrd/pages/pubs/forms.aspx#fees>
- Submit one hard copy in person or by mail to: Oregon Water Resources Department, 725 Summer St NE, Suite A, Salem, OR 97301
- Submit a digital copy to: Jennifer.L.Woody@oregon.gov
- Questions? Contact Jen Woody, OWRD Hydrogeologist, at 503-986-0855

Signature of Applicant  Date 4/26/2019
Title Public Works Director



Request for Modifications to ASR Permit #001

PREPARED FOR: Jennifer Woody, RG – Oregon Water Resources Department
Seth Sadofsky – Oregon Department of Environmental Quality
Tom Pattee, RG – Oregon Health Authority

PREPARED BY: Robyn Cook, RG – GSI Water Solutions, Inc.
Jason Melady, RG, CWRE – GSI Water Solutions, Inc.

CC Michelle Owen – City of Baker City

DATE: April 29, 2019

Summary

On behalf of the City of Baker City (City), this document requests modifications to ASR Permit #001. After operating under ASR Permit #001 for ten years, the City would like to modify portions of the Permit to allow the City increased operational flexibility. There are aspects of the Permit that are somewhat burdensome for the way the City operates their ASR system. As the City grows, an expansion of their ASR system is also being considered. In summary, the following modifications are being requested in this memorandum:

- Request to increase the recharge volume by 20 % to 240 MG.
- Request to modify the water quality sampling frequency and analyte list to better fit the City's normal operations.
- Request to extend the recharge season.
- Request to add an additional ASR well.

Currently, the City's ASR well (Reservoir well; BAKE 1148/51221/51307) is authorized by ASR Permit #001. The rate for injection is limited to 1,300 gallons per minute (gpm) from November 1 to July 15 and recovery rate is not to exceed 2,000 gpm of stored water. The City may store up to 200 million gallons (MG), and recover up to 95 percent of the stored water during the water year that the water was injected. The City is limited to recovering only 80 percent of water injected during a previous water year (15 percent of the volume is forfeited upon carryover). Descriptions and reasoning of the proposed modifications are provided in the following sections.

Request to Modify Maximum Storage Volume

The current storage volume identified in ASR Permit #001 is 200 MG. This includes the volume of water carried over from any previous water years.

The volume of water that the City needs to pump from their ASR well varies from year to year. Some years the City can meet their water demand without using their ASR well, and other years they pump it until the indicators of natural groundwater are detected (elevated levels of iron and manganese).

During the years when the City does not need to use the ASR well in the summer, they find that they are approaching their 200 MG limit before the recharge season begins. The City is requesting that the storage volume be increased 20 percent to 240 MG.

Request to Change Language of Conditions 5(A) and 5(B)

Due to the nature of the City's water supply sources (springs and streams in a mountainous watershed), the City typically injects water intermittently, when excess water is available. The diversion points are not easy to reach quickly, so typically diversions are either open or closed. Depending on demand, the City may have excess water available that could be injected. One typical situation that creates "excess" recharge water is when there is lightning in the area and water users turn off their water but the City still has surface water coming into town. The City would like to be able to inject this water instead of losing it. The water quality sampling requirements have discouraged the City from injecting water on an "as-available" basis. GSI spoke with Tom Pattee of the Department of Environmental Quality (DEQ) and Bill Goss and Amy Word of the Oregon Health Authority (OHA) regarding modifications to the sampling plan on October 15, 2018. The proposed modifications included below resulted from this conversation.

Pre-Injection Source Water Sampling 5(A)

Condition 5(A) of the City's ASR Permit #001 requires water quality sampling for injected water. Water quality analytes from the Permit application (Table 8, included in Appendix A) include a comprehensive suite to be analyzed for pre-injection source water. The City is already sampling their source water for drinking water compliance, thus additional injection water sampling is redundant. In addition, the City cycles on and off when they are injecting, sometimes as many as 10-12 times during a typical "injection season." As currently stated, Condition 5(A) and Table 8 requires the City to collect a "pre-injection" source water sample. Collecting a pre-injection sample for each of these cycles creates a burden for the City, both in the number of samples and the associated laboratory costs. The City proposes to complete one "pre-injection" source water sample as required by ASR Permit #001 for only the first period of injection. The attached Table 8 (Appendix A) clarifies this sampling schedule.

Bacteriological Sampling

The City routinely collects coliform samples from their distribution system for compliance with OHA. Water in the distribution system serves as source water for the ASR well. Rather than collecting a coliform sample of source water prior to each injection period, the City proposes to collect a "representative" sample from the distribution system, at a point close to the ASR well, no more than two weeks before injecting source water. The City proposes to collect additional coliform samples

from the distribution system near the ASR well on a weekly basis during the injection period. A revised Table 8 (Appendix A) includes modified language for bacteriological sampling.

Therefore, the following language is proposed for Condition 5(A):

Injection water. The permittee shall follow the water quality testing plan on Table 8 of the ASR permit application at the initiation of seasonal ASR injection and, otherwise, sample and analyze injection water for the constituents and parameters at the frequency required by OHA for community drinking water systems. During periods of short-term intermittent injection, source water shall be collected for coliform analysis no more than two weeks prior to injection and weekly during injection periods.

Pre-Injection Groundwater Sampling 5(B)

Condition 5(B) of the City's ASR Permit #001 requires water quality sampling for the injection period. Water quality analytes from the Permit application include a comprehensive suite to be analyzed for pre-injection groundwater. The City has collected pre-injection groundwater samples under their Permit for ten years (and five years under Limited License testing), and have not had any exceedances of regulated drinking water constituents. The City proposes removing this sampling requirement from the Permit, as groundwater quality has been very well characterized, and no concerns have been identified (see Appendix B). The revised Table 8 (Appendix A) does not include pre-injection groundwater samples.

Therefore, the following language is proposed for Condition 5(B):

Wells. The permittee shall sample receiving aquifer water at the Reservoir (ASR) well for the constituents and parameters only at the frequency required by OHA for community drinking water systems.

Request to Change Language of Condition 9(C)

Currently, ASR Permit #001 states that "surface water diversions for ASR injection may only occur between November 1 and July 15." The City has determined that excess source water may be available for injection on the shoulder seasons (including September and October). Water that is not used in the distribution system is stored in the City's 4.5 MG reservoir. Occasionally, the reservoir is filled, and the City has to release water to a pond.

We propose to change Condition 9(C) to better account for the way the City operates their ASR system by changing the wording to the following:

(C) Surface water diversions for ASR injection may occur when flows exceed water use demands, up to the rates authorized under Certificate 80496.

Request to Add Additional ASR Well

As the City expands and demands grow, the City is evaluating additional groundwater supply wells. The City anticipates conducting ASR at these locations. As such, the City recently amended Permit G-

17476 to add additional points of appropriation. The City also completed a transfer of certificates 23384 and 68683 (T-12977) to add the same proposed well locations. Several proposed well locations were added under the permit amendment and transfer process for future well sites. The City anticipates adding up to two new wells in the next two to ten years, and ideally both wells would include ASR systems. The City requests that ASR Permit #001 include the well location on the water rights identified as "Golf Course 2," located 64 feet south and 21 feet east from the center of Section 21, Township 9 south, Range 40 east as a second ASR well.

Appendix A
Water Quality Sampling Schedule

Table 8
Summary of ASR Water Quality Testing
Baker City ASR Permit

Sampling Frequency	Analyte Group	Analyte	Notes	
Collected Annually	Geochemical	Bicarbonate	ASR source water, and ASR stored water will be sampled every year.	
		Calcium		
		Carbonate		
		Chloride		
		Hardness (as CaCO ₃)		
		Magnesium		
		Total Nitrate-Nitrite		
		Potassium		
		Silica		
		Sodium		
		Sulfate		
		Total Alkalinity		
		Total Dissolved Solid		
		Total Organic Carbon		
		Total Suspended Solids		
		Metals		Aluminum
				Antimony
	Arsenic			
	Barium			
	Beryllium			
	Cadmium			
	Chromium			
	Iron (Total)			
	Iron (Dissolved)			
	Manganese (Total)			
	Manganese (Dissolved)			
	Mercury			
	Nickel			
	Selenium			
	Silver			
	Thallium			
	Zinc			
	Miscellaneous	Odor		
		Color		
		Methylene Blue Active Substance		
		Corrosivity (Langlier Saturation Index)		
		Cyanide (as free cyanide)		
		Fluoride		
	Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane		
		1,1,2-Trichloroethane		
		1,1-Dichloroethylene		
		1,2,4-Trichlorobenzene		
		1,2-Dichlorobenzene (o)		
		1,2-Dichloroethane (EDC)		
		1,2-Dichloropropane		
		1,4-Dichlorobenzene (p)		
		Benzene		
Carbon Tetrachloride				
Chlorobenzene (monochlorobenzene)				
cis-1,2-Dichloroethylene				
Ethylbenzene				
Dichloromethane (methylene chloride)				
Styrene				
Tetrachloroethylene				
Toluene				
trans-1,2-Dichloroethylene				
Trichloroethylene				
Vinyl chloride				
Total Xylenes				

Note: Table is based on information contained in Oregon Department of Human Services Community & Non-Transient Water Systems Routine Chemical Monitoring Table (see Appendix B attached)

Sampling Frequency	Analyte Group	Analyte	Notes
Collected at system startup	Bacteriological	Fecal Coliforms/E.Coli Total Coliform	Samples of ASR source water will be collected annually at the initiation of each ASR injection season, and weekly during injection cycles. ASR stored water will be collected annually during recovery.
	Field Parameters	Temperature Conductivity Dissolved Oxygen pH Turbidity ORP	
Collected Quarterly	Disinfection By-Products	Chloroform (Trichloromethane)	ASR source water and ASR stored water will be sampled every quarter-year (every 3 months).
		Bromodichloromethane	
		Dibromochloromethane	
		Bromoform (Tribromomethane)	
		Total Trihalomethanes	
		Monochloroacetic Acid	
		Dichloroacetic Acid	
		Trichloroacetic Acid	
		Monobromoacetic Acid	
		Dibromoacetic Acid	
Collected once every 3 years	Metals	Lead	ASR source water, and ASR stored water will be sampled once every three years.
		Copper	
Collected quarterly for four consecutive quarters	Radionuclides	Combined Radium 226/228	ASR source water and ASR stored water will be sampled quarterly for four consecutive quarters.
		Uranium ¹	
		Gross Alpha	
		Beta/Photon emitters ²	
		Gross Beta	
		Radon	
Collected once every 9 years	Inorganics Synthetic Organic Compounds (SOCs)	Asbestos	ASR source water and ASR stored water will be sampled every 9 years.
		Nitrite as N	
		2,4,5-TP (Silvex)	
		2,4-D	
		Alachlor (Lasso)	
		Atrazine	
		Benzo(a)Pyrene	
		BHC-gamma (Lindane)	
		Carbofuran	
		Chlordane	
		Dalapon	
		Di(2-ethylhexyl)adipate (<i>adipates</i>)	
		Di(2-ethylhexyl)phthalate (<i>phthalates</i>)	
		Dibromochloropropane (DBCP)	
		Dinoseb	
		Dioxin	
		Diquat	
		Ethylene Dibromide (EDB)	
		Endothall	
		Endrin	
		Glyphosate	
		Heptachlor	
		Heptachlor Epoxide	
		Hexachlorobenzene (HCB)	
		Hexachlorocyclopentadiene	
		Methoxychlor	
		Polychlorinated Biphenyls (PCBs)	
Pentachlorophenol			
Picloram			
Simazine			
Toxaphene			
Vydate (Oxamyl)			

Appendix B
Water Quality Results – 2009-2018

City of Baker City

Aquifer Storage and Recovery

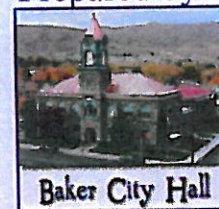
Permit # 001

Year 2009



Prepared March 2010

Prepared by



City of Baker City

Public Works Department

P.O. Box 650

Baker City, Oregon 97814

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Analyte List for ASR Pilot Test Cycle 6
City of Baker City ASR Program

Class	Analyte	ASR Standard	Units	Regulatory Criteria	BCRW-C6SW-1 0% Injection Volume		BCRW-C6GW-2 94% Recovery Volume	
					6-May-09	29-Jul-09		
Bacteriological	Fecal Coliforms/E.Coli				1		1	
	Total Coliform	None	CFU/100 ml	MML	1		1	
Disinfection By-Products	Chloroform (Trichloromethane)	None	mg/L	URC	0.0247		0.00754	
	Bromodichloromethane	None	mg/L	None	0.00103		0.0005	U
	Dibromochloromethane	None	mg/L	None	0.0005	U	0.0005	U
	Bromoform (Tribromomethane)	None	mg/L	URC	0.0005	U	0.0005	U
	Total Trihalomethanes	0.08	mg/L	MCL, MML	0.0257		0.00754	
	Monochloroacetic Acid	None	mg/L	None	0.002	U	0.002	U
	Dichloroacetic Acid	None	mg/L	None	0.0119		0.001	U
	Trichloroacetic Acid	None	mg/L	None	0.0188		0.001	U
	Monobromoacetic Acid	None	mg/L	None	0.001	U	0.001	U
	Dibromoacetic Acid	None	mg/L	None	0.001	U	0.001	U
	Total Haloacetic Acids	0.06	mg/L	MCL	0.0307		0.001	U
Field Parameters	Temperature	None	Celsius	None	7			
	Conductivity	None	mS/cm	None				
	pH	6 - 8.5	Units	SMCL	7.5		7.5	
	Turbidity	0.5	NTU	MCL, MML				
	ORP	None	mV	None				
Geochemical	Bicarbonate	None	mg/L	None	62		42	
	Calcium	None	mg/L	None	17.1		20.3	
	Carbonate	None	mg/L	None	1	U	1	U
	Chloride	250 -	mg/L	SMCL	1.49		1.6	
	Hardness (as CaCO3)	None	mg/L	URC	55.2		70.9	
	Magnesium	None	mg/L	None	2.41		4.87	
	Nitrate as N	5	mg/L	MML	0.3	U	0.3	U
	Nitrite as N	0.5	mg/L	MCL	0.2	U	0.2	U
	Total Nitrate-Nitrite	5	mg/L	MML	0.3	U	0.3	U
	Potassium	None	mg/L	None	0.28		0.5	U
	Silica	None	mg/L	None	12.5		9.66	
	Sodium	None	mg/L	URC (advisory)	1.42		2.84	
	Sulfate	250	mg/L	URC, SMCL	2.91		10.5	
	Total Alkalinity	250	mg/L	SMCL	62		42	
	Total Dissolved Solid	500	mg/L	SMCL	73		113	
	Total Organic Carbon	None	mg/L	None	1.39		0.672	
	Total Suspended Solids	None	mg/L	None	1	U	1	U

Class	Analyte	ASR Standard	Units	Regulatory Criteria	BCRW-C6SW-1	BCRW-C6GW-2			
					0% Injection Volume	94% Recovery Volume			
					6-May-09	29-Jul-09			
Metals	Aluminum	0.05 to 0.2	mg/L	SMCL	0.05	U	0.05	U	
	Antimony	0.003	mg/L	MCL	0.005	U	0.005	U	
	Arsenic	0.025	mg/L	MCL, MML	0.005	U	0.005	U	
	Barium	0.5	mg/L	MCL, MML	0.05	U	20.5	U	
	Beryllium	0.002	mg/L	MCL	0.05	U	0.005	U	
	Cadmium	0.0025	mg/L	MCL, MML	0.05	U	0.0005	U	
	Chromium	0.025	mg/L	MCL, MML	0.05	U	0.005	U	
	Copper	0.65	mg/L	MCL, MML	0.1	U	0.05	U	
	Iron (Total)	None	mg/L	None	0.18		0.5	U	
	Iron (Dissolved)	0.3	mg/L	SMCL	0.1	U	0.5	U	
	Lead	0.0075	mg/L	MCL, MML	0.1	U	0.005	U	
	Manganese (Total)	None	mg/L	None	0.05	U	0.05	U	
	Manganese (Dissolved)	0.05	mg/L	SMCL	0.05	U	0.05	U	
	Mercury	0.001	mg/L	MCL, MML	0.0001	U	0.0001	U	
	Nickel	0.05	mg/L	MCL	0.05	U	0.01	U	
	Selenium	0.005	mg/L	MCL, MML	0.005	U	0.005	U	
	Silver	0.025	mg/L	MML, SMCL	0.05	U	0.05	U	
	Thallium	0.001	mg/L	MCL	0.002	U	0.002	U	
	Zinc	5	mg/L	SMCL	0.05	U	0.5	U	
	Miscellaneous	Odor	3	TON	SMCL	ND		ND	
		Color	15	ACU	SMCL	ND		ND	
Methylene Blue Active Substance		0.5	mg/L	SMCL	0.1	U	0.1	U	
Corrosivity (Langelier Saturation Index)		Non-Corrosive	mg/L	SMCL	-0.82		-0.93		
Cyanide (as free cyanide)		0.1	mg/l	MCL	0.01	U	0.001	U	
Fluoride		1	mg/L	MCL, MML, SMCL	1.35		0.3	U	
Radionuclides	Combined Radium 226/228	2.5	pCi/L	MCL, MML	0.53		0.97		
	Uranium ¹	0.015	mg/l	MCL	0.001	U	0.001	U	
	Gross Alpha	7.5	pCi/l	MCL, MML	0.39		2.47		
	Beta/Photon emitters ²	2	mrem/yr	MCL	-0.04		1.78		
	Radon	None	pCi/L	None					
Synthetic Organic Compounds (SOCs)	2,4,5-TP (Silvex)	0.005	mg/L	MCL, MML	0.0001	U	0.0001	U	
	2,4-D	0.035	mg/L	MCL, MML	0.0001	U	0.0001	U	
	Alachlor (Lasso)	0.001	mg/L	MCL	0.0001	U	0.0001	U	
	Atrazine	0.0015	mg/L	MCL	0.0001	U	0.0001	U	
	Benzo(a)Pyrene	0.0001	mg/L	MCL	0.00002	U	0.00002	U	
	BHC-gamma (Lindane)	0.0001	mg/L	MCL, MML	0.00002	U	0.00002	U	
	Carbofuran	0.02	mg/L	MCL	0.0009	U	0.0009	U	
	Chlordane	0.001	mg/L	MCL	0.0001	U	0.0001	U	
	Dalapon	0.1	mg/L	MCL	0.001	U	0.001	U	
	Di(2-ethylhexyl)adipate(adipates)	0.2	mg/L	MCL	0.002	U	0.002	U	
	Di(2-ethylhexyl)phthalate(phthalate)	0.003	mg/L	MCL	0.0006	U	0.0006	U	
	Dibromochloropropane (DBCP)	0.0001	mg/L	MCL	0.00002	U	0.00002	U	
	Dinoseb	0.0035	mg/L	MCL	0.0001	U	0.0001	U	
	Diquat	0.01	mg/L	MCL	0.0004	U	0.0004	U	
	Ethylene Dibromide (EDB)	0.000025	mg/L	MCL	0.00001	U	0.00001	U	
	Endothall	0.05	mg/L	MCL	0.009	U	0.009	U	
	Endrin	0.0001	mg/L	MCL, MML	0.00003	U	0.00003	U	
	Glyphosate	0.35	mg/L	MCL	0.006	U	0.006	U	
	Heptachlor	0.0002	mg/L	MCL	0.00004	U	0.00004	U	
	Heptachlor Epoxide	0.0001	mg/L	MCL	0.00002	U	0.00002	U	

Class	Analyte	ASR Standard	Units	Regulatory Criteria	BCRW-C6SW-1 0% Injection Volume		BCRW-C6GW-2 94% Recovery Volume	
					6-May-09	29-Jul-09		
Synthetic Organic Compounds (SOCs) Continued	Hexachlorobenzene (HCB)	0.0005	mg/L	MCL	0.0001	U	0.0001	U
	Hexachlorocyclopentadiene	0.025	mg/L	MCL	0.0001	U	0.0001	U
	Methoxychlor	0.02	mg/L	MCL, MML	0.0001	U	0.0001	U
	Polychlorinated Biphenyls (PCBs)	0.00025	mg/L	MCL	0.00001	U	0.00001	U
	Pentachlorophenol	0.0005	mg/L	MCL	0.00004	U	0.00004	U
	Pictoram	0.25	mg/L	MCL	0.0001	U	0.0001	U
	Simazine	0.002	mg/L	MCL	0.00007	U	0.00007	U
	Toxaphene	0.0015	mg/L	MCL, MML	0.001	U	0.001	U
	Vydate (Oxamyl)	0.1	mg/L	MCL	0.001	U	0.001	U
Volatile Organic	1,1,1-Trichloroethane	0.1	mg/L	MCL, MML	0.0005	U	0.0005	U
	1,1,2-Trichloroethane	0.0025	mg/L	MCL	0.0005	U	0.0005	U
	1,1-Dichloroethylene	0.0035	mg/L	MCL, MML	0.0005	U	0.0005	U
	1,2,4-Trichlorobenzene	0.035	mg/L	MCL	0.0005	U	0.0005	U
	1,2-Dichlorobenzene (o)	0.3	mg/L	MCL	0.0005	U	0.0005	U
	1,2-Dichloroethane (EDC)	0.0025	mg/L	MCL, MML	0.0005	U	0.0005	U
	1,2-Dichloropropane	0.0025	mg/L	MCL	0.0005	U	0.0005	U
	1,4-Dichlorobenzene (p)	0.0375	mg/L	MCL, MML	0.0005	U	0.0005	U
	Benzene	0.0025	mg/L	MCL, MML	0.0005	U	0.0005	U
	Carbon Tetrachloride	0.0025	mg/L	MCL, MML	0.0005	U	0.0005	U
	Chlorobenzene (monochlorobenzene)	0.05	mg/L	MCL	0.0005	U	0.0005	U
	cis-1,2-Dichloroethylene	0.035	mg/L	MCL	0.0005	U	0.0005	U
	Ethylbenzene	0.35	mg/L	MCL	0.0005	U	0.0005	U
	Dichloromethane (methylene chloride)	0.0025	mg/L	MCL	0.0005	U	0.0005	U
	Styrene	0.05	mg/L	MCL	0.0005	U	0.0005	U
	Tetrachloroethylene	0.0025	mg/L	MCL	0.0005	U	0.0005	U
	Toluene	0.5	mg/L	MCL	0.0005	U	0.0005	U
	trans-1,2-Dichloroethylene	0.05	mg/L	MCL	0.0005	U	0.0005	U
	Trichloroethylene	0.0025	mg/L	MCL, MML	0.0005	U	0.0005	U
	Vinyl chloride	0.001	mg/L	MCL, MML	0.0005	U	0.0005	U
Total Xylenes	5	mg/L	MCL	0.0005	U	0.0005	U	

NOTE

Indicates analyte not sampled during sampling event

MDL = Method Detection Limit

ND = Not detected at concentrations greater than the MDL

NT = Analyte not tested

N/A = Analysis requested to lab, data not available at the time of report. Data will be forwarded as available

U = Constituent not detected at or above MDL

J = The analyte was detected and has been qualified as an estimated quantity

MCL = Federal maximum contaminant level for drinking water

MML = DEQ's maximum measurable levels for groundwater

URC = State unregulated contaminant

SMCL = Federal secondary maximum contaminant levels for drinking water

UCMR = EPA unregulated contaminant monitoring regulations for drinking water

Samples are unfiltered unless noted (i.e., dissolved)

1 = Combined Radium 226/228 and Uranium required after December 2003

2 = Only need to analyze if in a vulnerable area per OAR 333-61-0036, 6(b)(A) (i.e., near man-made radioactive sources, such as nuclear facilities - currently only selected systems along Columbia River classified as vulnerable)

3 = These compounds would be analyzed if Gross Alpha or Beta exceed an MCL

CITY OF BAKER CITY

AQUIFER STORAGE AND RECOVERY



Prepared January 2011

Permit # 001

For water year 2010

Prepared by

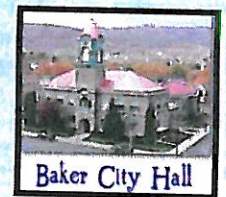
City of Baker City

Public Works Department

P.O. Box 650

Baker City, Oregon 97814

P:(541)523-6541



Baker City Hall

Analyte List for ASR Cycle 7
City of Baker City ASR Program

Class	Analyte	ASR Standard	Units	Regulatory Criteria	BCRW-C7SW-1 0% Injection Volume		BCRW-C7SW-2 65% Injection Volume		BCRW-C7GW-1 0% Recovery Volume	
					9-Dec-09	U	17-Mar-10	U	21-Apr-10	U
Bacteriological	Fecal Coliforms/E.Coli				1	U	1	U	1	U
	Total Coliform	None	CFU/100 ml	MML	1	U	1	U	1	U
Disinfection By-Products	Chloroform (Trichloromethane)	None	mg/L	URC	0.0093		0.00955		0.046	
	Bromodichloromethane	None	mg/L	None	0.00056		0.0005	U	0.00132	
	Dibromochloromethane	None	mg/L	None	0.0005	U	0.0005	U	0.0005	U
	Bromoform (Tribromomethane)	None	mg/L	URC	0.0005	U	0.0005	U	0.0007	
	Total Trihalomethanes	0.08	mg/L	MCL, MML	0.00986		0.00955		0.048	
	Monochloroacetic Acid	None	mg/L	None	0.002	U	0.002	U	0.002	U
	Dichloroacetic Acid	None	mg/L	None	0.00518		0.00694		0.0116	
	Trichloroacetic Acid	None	mg/L	None	0.00821		0.0084		0.0162	
	Monobromoacetic Acid	None	mg/L	None	0.001	U	0.001	U	0.001	U
	Dibromoacetic Acid	None	mg/L	None	0.001	U	0.001	U	0.001	U
	Total Haloacetic Acids	0.06	mg/L	MCL	0.0134		0.00153		0.0278	
Field Parameters	Temperature	None	Celsius	None	4		5		6.2	
	Conductivity	None	mS/cm	None					248	
	pH	6 - 8.5	Units	SMCL	7.5		7.4		7.5	
	Turbidity	0.5	NTU	MCL, MML	0.3		0.222			
	ORP	None	mV	None					311	
Geochemical	Bicarbonate	None	mg/L	None	66		56		48	
	Calcium	None	mg/L	None	17.5		22.7		17.7	
	Carbonate	None	mg/L	None	1	U	1	U	1	U
	Chloride	250	mg/L	SMCL	1.65		1.80		1.82	
	Hardness (as CaCO3)	None	mg/L	URC	59.1		83		82.7	
	Magnesium	None	mg/L	None	2.36		3.18		2.68	
	Nitrate as N	5	mg/L	MML	0.3	U	0.3	U	0.3	U
	Nitrite as N	0.5	mg/L	MCL	0.2	U	0.2	U	0.2	U
	Total Nitrate-Nitrite	5	mg/L	MML	0.3	U	0.3	U	0.3	U
	Potassium	None	mg/L	None	0.296		0.0005	U	0.0005	U
	Silica	None	mg/L	None	11.7		13.4		13	
	Sodium	None	mg/L	URC (advisory)	1.88		1.09		1.6	
	Sulfate	250	mg/L	URC, SMCL	3.21		4.9		4.8	
	Total Alkalinity	250	mg/L	SMCL	66		56		4.38	
	Total Dissolved Solid	500	mg/L	SMCL	72		64		77	
	Total Organic Carbon	None	mg/L	None	0.833		1.15		3.42	
	Total Suspended Solids	None	mg/L	None	1	U	2		3	
Metals	Aluminum	0.05 to 0.2	mg/L	SMCL	0.01	U				
	Antimony	0.003	mg/L	MCL	0.001	U				
	Arsenic	0.025	mg/L	MCL, MML	0.001	U				
	Barium	0.5	mg/L	MCL, MML	0.011					
	Beryllium	0.002	mg/L	MCL	0.001	U				
	Cadmium	0.0025	mg/L	MCL, MML	0.001	U				
	Chromium	0.025	mg/L	MCL, MML	0.001	U				
	Copper	0.65	mg/L	MCL, MML	0.00733					
	Iron (Total)	None	mg/L	None	0.0118					

Class	Analyte	ASR Standard	Units	Regulatory Criteria	BCRW-C7SW-1 0% Injection Volume		BCRW-C7SW-2 65% Injection Volume		BCRW-C7GW-1 0% Recovery Volume	
					9-Dec-09	U	17-Mar-10	U	21-Apr-10	U
Metals Continued	Iron (Dissolved)	0.3	mg/L	SMCL	0.01	U				
	Lead	0.0075	mg/L	MCL, MML	0.001	U				
	Manganese (Total)	None	mg/L	None	0.01	U				
	Manganese (Dissolved)	0.05	mg/L	SMCL	0.01	U				
	Mercury	0.001	mg/L	MCL, MML	0.0001	U				
	Nickel	0.05	mg/L	MCL	0.001	U				
	Selenium	0.005	mg/L	MCL, MML	0.001	U				
	Silver	0.025	mg/L	MML, SMCL	0.001	U				
	Thallium	0.001	mg/L	MCL	0.001	U				
	Zinc	5	mg/L	SMCL	0.0052	U				
Miscellaneous	Odor	3	TON	SMCL	ND					ND
	Color	15	ACU	SMCL	ND					ND
	Methylene Blue Active Substance	0.5	mg/L	SMCL	0.01	U				0.1 U
	Corrosivity (Langelier Saturation Index)	Non-Corrosive	mg/L	SMCL	-1.29					-1.77
	Cyanide (as free cyanide)	0.1	mg/l	MCL	0.01	U				0.01 U
Radionuclides	Fluoride	1	mg/L	MCL, MML, SMCL	0.3	U				1.16
	Combined Radium 226/228	2.5	pCi/L	MCL, MML	0.14					
	Uranium ¹	0.015	mg/L	MCL	0.001	U				
	Gross Alpha	7.5	pCi/L	MCL, MML	0					
	Beta/Photon emitters ²	2	mrem/yr	MCL	0.02					
Synthetic Organic Compounds (SOCs)	<i>Radon</i>	None	pCi/L	None						
	2,4,5-TP (Silvex)	0.005	mg/L	MCL, MML	0.0001	U				
	2,4-D	0.035	mg/L	MCL, MML	0.0001	U				
	Alachlor (Lasso)	0.001	mg/L	MCL	0.0001	U				
	Atrazine	0.0015	mg/L	MCL	0.0001	U				
	Benzo(a)Pyrene	0.0001	mg/L	MCL	0.00002	U				
	BHC-gamma (Lindane)	0.0001	mg/L	MCL, MML	0.00002	U				
	Carbofuran	0.02	mg/L	MCL	0.0009	U				
	Chlordane	0.001	mg/L	MCL	0.0001	U				
	Dalapon	0.1	mg/L	MCL	0.001	U				
	Di(2-ethylhexyl)adipate (<i>adipates</i>)	0.2	mg/L	MCL	0.002	U				
	Di(2-ethylhexyl)phthalate (<i>phthalate</i>)	0.003	mg/L	MCL	0.0006	U				
	Dibromochloropropane (DBCP)	0.0001	mg/L	MCL	0.00002	U				
	Dinoseb	0.0035	mg/L	MCL	0.0001	U				
	Diquat	0.01	mg/L	MCL	0.0004	U				
	Ethylene Dibromide (EDB)	0.000025	mg/L	MCL	0.00001	U				
	Endothall	0.05	mg/L	MCL	0.009	U				
	Endrin	0.0001	mg/L	MCL, MML	0.00003	U				
	Glyphosate	0.35	mg/L	MCL	0.006	U				
	Heptachlor	0.0002	mg/L	MCL	0.00004	U				
	Heptachlor Epoxide	0.0001	mg/L	MCL	0.00002	U				
	Hexachlorobenzene (HCB)	0.0005	mg/L	MCL	0.0001	U				
	Hexachlorocyclopentadiene	0.025	mg/L	MCL	0.0001	U				
	Methoxychlor	0.02	mg/L	MCL, MML	0.0001	U				
	Polychlorinated Biphenyls (PCBs)	0.00025	mg/L	MCL	0.00001	U				
	Pentachlorophenol	0.0005	mg/L	MCL	0.00004	U				
	Picloram	0.25	mg/L	MCL	0.0001	U				
	Simazine	0.002	mg/L	MCL	0.00007	U				
	Toxaphene	0.0015	mg/L	MCL, MML	0.001	U				
	Vydate (Oxamyl)	0.1	mg/L	MCL	0.001	U				

Class	Analyte	ASR Standard	Units	Regulatory Criteria	BCRW-C7SW-1 0% Injection Volume		BCRW-C7SW-2 65% Injection Volume		BCRW-C7GW-1 0% Recovery Volume	
					9-Dec-09	U	17-Mar-10	U	21-Apr-10	U
Volatile Organic Compounds	1,1,1-Trichloroethane	0.1	mg/L	MCL, MML	0.0005	U			0.0005	U
	1,1,2-Trichloroethane	0.0025	mg/L	MCL	0.0005	U			0.0005	U
	1,1-Dichloroethylene	0.0035	mg/L	MCL, MML	0.0005	U			0.0005	U
	1,2,4-Trichlorobenzene	0.035	mg/L	MCL	0.0005	U			0.0005	U
	1,2-Dichlorobenzene (o)	0.3	mg/L	MCL	0.0005	U			0.0005	U
	1,2-Dichloroethane (EDC)	0.0025	mg/L	MCL, MML	0.0005	U			0.0005	U
	1,2-Dichloropropane	0.0025	mg/L	MCL	0.0005	U			0.0005	U
	1,4-Dichlorobenzene (p)	0.0375	mg/L	MCL, MML	0.0005	U			0.0005	U
	Benzene	0.0025	mg/L	MCL, MML	0.0005	U			0.0005	U
	Carbon Tetrachloride	0.0025	mg/L	MCL, MML	0.0005	U			0.0005	U
	Chlorobenzene (monochlorobenzene)	0.05	mg/L	MCL	0.0005	U			0.0005	U
	cis-1,2-Dichloroethylene	0.035	mg/L	MCL	0.0005	U			0.0005	U
	Ethylbenzene	0.35	mg/L	MCL	0.0005	U			0.0005	U
	Dichloromethane (methylene chloride)	0.0025	mg/L	MCL	0.0005	U			0.0005	U
	Styrene	0.05	mg/L	MCL	0.0005	U			0.0005	U
	Tetrachloroethylene	0.0025	mg/L	MCL	0.0005	U			0.0005	U
	Toluene	0.5	mg/L	MCL	0.0005	U			0.0005	U
	trans-1,2-Dichloroethylene	0.05	mg/L	MCL	0.0005	U			0.0005	U
	Trichloroethylene	0.0025	mg/L	MCL, MML	0.0005	U			0.0005	U
	Vinyl chloride	0.001	mg/L	MCL, MML	0.0005	U			0.0005	U
Total Xylenes	5	mg/L	MCL	0.0005	U			0.0005	U	

NOTE

█ Indicates analyte not sampled during sampling event

MDL = Method Detection Limit

ND = Not detected at concentrations greater than the MDL

NT = Analyte not tested

N/A - Analysis requested to lab, data not available at the time of report. Data will be forwarded as available.

U = Constituent not detected at or above MDL

J = The analyte was detected and has been qualified as an estimated quantity

MCL = Federal maximum contaminant level for drinking water

MML = DEQ's maximum measurable levels for groundwater

URC = State unregulated contaminant

SMCL = Federal secondary maximum contaminant levels for drinking water

UCMR = EPA unregulated contaminant monitoring regulations for drinking water

Samples are unfiltered unless noted (i.e., dissolved)

1 = Combined Radium 226/228 and Uranium required after December 2003

2 = Only need to analyze if in a vulnerable area per OAR 333-61-0036, 6(b)(A) (i.e., near man-made radioactive sources, such as nuclear facilities - currently only selected systems along Columbia River classified as vulnerable)

3 = These compounds would be analyzed if Gross Alpha or Beta exceed an MCL

CITY OF BAKER CITY

Annual ASR Report



Prepared January 2012

Permit # 001

For water year 2011

Prepared by

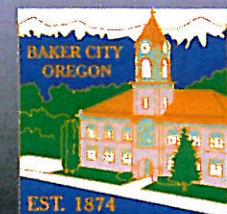
City of Baker City

Public Works Department

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Baker City, Oregon 97814

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Analyte List for ASR Cycle 8
City of Baker City ASR Program

Class	Analyte	ASR Standard	Units	Regulatory Criteria	0% Injection Volume	0% Injection Volume	0% Recovery Volume
					No Sample	No Sample	No Sample
Bacteriological	Fecal Coliforms/E.Coli						
	Total Coliform	None	CFU/100 ml	MML			
Disinfection By-Products	Chloroform (Trichloromethane)	None	mg/L	URC			
	Bromodichloromethane	None	mg/L	None			
	Dibromochloromethane	None	mg/L	None			
	Bromoform (Tribromomethane)	None	mg/L	URC			
	Total Trihalomethanes	0.08	mg/L	MCL, MML			
	Monochloroacetic Acid	None	mg/L	None			
	Dichloroacetic Acid	None	mg/L	None			
	Trichloroacetic Acid	None	mg/L	None			
	Monobromoacetic Acid	None	mg/L	None			
	Dibromoacetic Acid	None	mg/L	None			
	Total Haloacetic Acids	0.06	mg/L	MCL			
Field Parameters	Temperature	None	Celsius	None			
	Conductivity	None	mS/cm	None			
	pH	6 - 8.5	Units	SMCL			
	Turbidity	0.5	NTU	MCL, MML			
	ORP	None	mV	None			
Geochemical	Bicarbonate	None	mg/L	None			
	Calcium	None	mg/L	None			
	Carbonate	None	mg/L	None			
	Chloride	250	mg/L	SMCL			
	Hardness (as CaCO3)	None	mg/L	URC			
	Magnesium	None	mg/L	None			
	Nitrate as N	5	mg/L	MML			
	Nitrite as N	0.5	mg/L	MCL			
	Total Nitrate-Nitrite	5	mg/L	MML			
	Potassium	None	mg/L	None			
	Silica	None	mg/L	None			
	Sodium	None	mg/L	URC (advisory)			
	Sulfate	250	mg/L	URC, SMCL			
	Total Alkalinity	250	mg/L	SMCL			
	Total Dissolved Solid	500	mg/L	SMCL			
	Total Organic Carbon	None	mg/L	None			
	Total Suspended Solids	None	mg/L	None			
Metals	Aluminum	0.05 to 0.2	mg/L	SMCL			
	Antimony	0.003	mg/L	MCL			
	Arsenic	0.025	mg/L	MCL, MML			
	Barium	0.5	mg/L	MCL, MML			
	Beryllium	0.002	mg/L	MCL			
	Cadmium	0.0025	mg/L	MCL, MML			
	Chromium	0.025	mg/L	MCL, MML			
	Copper	0.65	mg/L	MCL, MML			
	Iron (Total)	None	mg/L	None			

Class	Analyte	ASR Standard	Units	Regulatory Criteria	0% Injection Volume	0% Injection Volume	0% Recovery Volume
					No Sample	No Sample	No Sample
Metals Continued	Iron (Dissolved)	0.3	mg/L	SMCL			
	Lead	0.0075	mg/L	MCL, MML			
	Manganese (Total)	None	mg/L	None			
	Manganese (Dissolved)	0.05	mg/L	SMCL			
	Mercury	0.001	mg/L	MCL, MML			
	Nickel	0.05	mg/L	MCL			
	Selenium	0.005	mg/L	MCL, MML			
	Silver	0.025	mg/L	MML, SMCL			
	Thallium	0.001	mg/L	MCL			
	Zinc	5	mg/L	SMCL			
Miscellaneous	Odor	3	TON	SMCL			
	Color	15	ACU	SMCL			
	Methylene Blue Active Substance	0.5	mg/L	SMCL			
	Corrosivity (Langelier Saturation Index)	Non-Corrosive	mg/L	SMCL			
	Cyanide (as free cyanide)	0.1	mg/l	MCL			
	Fluoride	1	mg/L	MCL, MML, SMCL			
Radionuclides	Combined Radium 226/228	2.5	pCi/L	MCL, MML			
	Uranium ¹	0.015	mg/L	MCL			
	Gross Alpha	7.5	pCi/L	MCL, MML			
	Beta/Photon emitters ²	2	mrem/yr	MCL			
	Radon	None	pCi/L	None			
Synthetic Organic Compounds (SOCs)	2,4,5-TP (Silvex)	0.005	mg/L	MCL, MML			
	2,4-D	0.035	mg/L	MCL, MML			
	Alachlor (Lasso)	0.001	mg/L	MCL			
	Atrazine	0.0015	mg/L	MCL			
	Benzo(a)Pyrene	0.0001	mg/L	MCL			
	BHC-gamma (Lindane)	0.0001	mg/L	MCL, MML			
	Carbofuran	0.02	mg/L	MCL			
	Chlordane	0.001	mg/L	MCL			
	Dalapon	0.1	mg/L	MCL			
	Di(2-ethylhexyl)adipate (<i>adipates</i>)	0.2	mg/L	MCL			
	Di(2-ethylhexyl)phthalate (<i>phthalate</i>)	0.003	mg/L	MCL			
	Dibromochloropropane (DBCP)	0.0001	mg/L	MCL			
	Dinoseb	0.0035	mg/L	MCL			
	Diquat	0.01	mg/L	MCL			
	Ethylene Dibromide (EDB)	0.000025	mg/L	MCL			
	Endothall	0.05	mg/L	MCL			
	Endrin	0.0001	mg/L	MCL, MML			
	Glyphosate	0.35	mg/L	MCL			
	Heptachlor	0.0002	mg/L	MCL			
	Heptachlor Epoxide	0.0001	mg/L	MCL			
	Hexachlorobenzene (HCB)	0.0005	mg/L	MCL			
	Hexachlorocyclopentadiene	0.025	mg/L	MCL			
	Methoxychlor	0.02	mg/L	MCL, MML			
	Polychlorinated Biphenyls (PCBs)	0.00025	mg/L	MCL			
	Pentachlorophenol	0.0005	mg/L	MCL			
	Picloram	0.25	mg/L	MCL			
	Simazine	0.002	mg/L	MCL			
	Toxaphene	0.0015	mg/L	MCL, MML			
	Vydate (Oxamy)	0.1	mg/L	MCL			

Class	Analyte	ASR Standard	Units	Regulatory Criteria	0% Injection Volume	0% Injection Volume	0% Recovery Volume
					No Sample	No Sample	No Sample
Volatile Organic Compounds	1,1,1-Trichloroethane	0.1	mg/L	MCL, MML			
	1,1,2-Trichloroethane	0.0025	mg/L	MCL			
	1,1-Dichloroethylene	0.0035	mg/L	MCL, MML			
	1,2,4-Trichlorobenzene	0.035	mg/L	MCL			
	1,2-Dichlorobenzene (o)	0.3	mg/L	MCL			
	1,2-Dichloroethane (EDC)	0.0025	mg/L	MCL, MML			
	1,2-Dichloropropane	0.0025	mg/L	MCL			
	1,4-Dichlorobenzene (p)	0.0375	mg/L	MCL, MML			
	Benzene	0.0025	mg/L	MCL, MML			
	Carbon Tetrachloride	0.0025	mg/L	MCL, MML			
	Chlorobenzene (monochlorobenzene)	0.05	mg/L	MCL			
	cis-1,2-Dichloroethylene	0.035	mg/L	MCL			
	Ethylbenzene	0.35	mg/L	MCL			
	Dichloromethane (methylene chloride)	0.0025	mg/L	MCL			
	Styrene	0.05	mg/L	MCL			
	Tetrachloroethylene	0.0025	mg/L	MCL			
	Toluene	0.5	mg/L	MCL			
	trans-1,2-Dichloroethylene	0.05	mg/L	MCL			
	Trichloroethylene	0.0025	mg/L	MCL, MML			
	Vinyl chloride	0.001	mg/L	MCL, MML			
Total Xylenes	5	mg/L	MCL				

NOTE

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CITY OF BAKER CITY

Annual ASR Report



Prepared January 2013

Permit # 001

For water year 2012

Prepared by

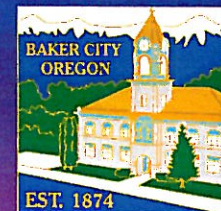
City of Baker City

Public Works Department

P.O. Box 650

Baker City, Oregon 97814

P: (541) 523-6541



Analyte List for ASR Cycle 9
City of Baker City ASR Program

Class	Analyte	ASR Standard	Units	Regulatory Criteria	0% Injection Volume	0% Injection Volume	0% Recovery Volume
					No Sample	No Sample	No Sample
Bacteriological	Fecal Coliforms/E.Coli						
	Total Coliform	None	CFU/100 ml	MML			
Disinfection By-Products	Chloroform (Trichloromethane)	None	mg/L	URC			
	Bromodichloromethane	None	mg/L	None			
	Dibromochloromethane	None	mg/L	None			
	Bromoform (Tribromomethane)	None	mg/L	URC			
	Total Trihalomethanes	0.08	mg/L	MCL, MML			
	Monochloroacetic Acid	None	mg/L	None			
	Dichloroacetic Acid	None	mg/L	None			
	Trichloroacetic Acid	None	mg/L	None			
	Monobromoacetic Acid	None	mg/L	None			
	Dibromoacetic Acid	None	mg/L	None			
	Total Haloacetic Acids	0.06	mg/L	MCL			
Field Parameters	Temperature	None	Celsius	None			
	Conductivity	None	mS/cm	None			
	pH	6 - 8.5	Units	SMCL			
	Turbidity	0.5	NTU	MCL, MML			
	ORP	None	mV	None			
Geochemical	Bicarbonate	None	mg/L	None			
	Calcium	None	mg/L	None			
	Carbonate	None	mg/L	None			
	Chloride	250	mg/L	SMCL			
	Hardness (as CaCO3)	None	mg/L	URC			
	Magnesium	None	mg/L	None			
	Nitrate as N	5	mg/L	MML			
	Nitrite as N	0.5	mg/L	MCL			
	Total Nitrate-Nitrite	5	mg/L	MML			
	Potassium	None	mg/L	None			
	Silica	None	mg/L	None			
	Sodium	None	mg/L	URC (advisory)			
	Sulfate	250	mg/L	URC, SMCL			
	Total Alkalinity	250	mg/L	SMCL			
	Total Dissolved Solid	500	mg/L	SMCL			
	Total Organic Carbon	None	mg/L	None			
	Total Suspended Solids	None	mg/L	None			
Metals	Aluminum	0.05 to 0.2	mg/L	SMCL			
	Antimony	0.003	mg/L	MCL			
	Arsenic	0.025	mg/L	MCL, MML			
	Barium	0.5	mg/L	MCL, MML			
	Beryllium	0.002	mg/L	MCL			
	Cadmium	0.0025	mg/L	MCL, MML			
	Chromium	0.025	mg/L	MCL, MML			
	Copper	0.65	mg/L	MCL, MML			

Class	Analyte	ASR Standard	Units	Regulatory Criteria	0% Injection Volume	0% Injection Volume	0% Recovery Volume
					No Sample	No Sample	No Sample
	Iron (Total)	None	mg/L	None			
Metals Continued	Iron (Dissolved)	0.3	mg/L	SMCL			
	Lead	0.0075	mg/L	MCL, MML			
	Manganese (Total)	None	mg/L	None			
	Manganese (Dissolved)	0.05	mg/L	SMCL			
	Mercury	0.001	mg/L	MCL, MML			
	Nickel	0.05	mg/L	MCL			
	Selenium	0.005	mg/L	MCL, MML			
	Silver	0.025	mg/L	MML, SMCL			
	Thallium	0.001	mg/L	MCL			
	Zinc	5	mg/L	SMCL			
Miscellaneous	Odor	3	TON	SMCL			
	Color	15	ACU	SMCL			
	Methylene Blue Active Substance	0.5	mg/L	SMCL			
	Corrosivity (Langelier Saturation In	Non-Corrosive	mg/L	SMCL			
	Cyanide (as free cyanide)	0.1	mg/l	MCL			
	Fluoride	1	mg/L	MCL, MML, SMCL			
Radionuclides	Combined Radium 226/228	2.5	pCi/L	MCL, MML			
	Uranium ¹	0.015	mg/L	MCL			
	Gross Alpha	7.5	pCi/L	MCL, MML			
	Beta/Photon emitters ²	2	mrem/yr	MCL			
	Radon	None	pCi/L	None			
Synthetic Organic Compounds (SOCs)	2,4,5-TP (Silvex)	0.005	mg/L	MCL, MML			
	2,4-D	0.035	mg/L	MCL, MML			
	Alachlor (Lasso)	0.001	mg/L	MCL			
	Atrazine	0.0015	mg/L	MCL			
	Benzo(a)Pyrene	0.0001	mg/L	MCL			
	BHC-gamma (Lindane)	0.0001	mg/L	MCL, MML			
	Carbofuran	0.02	mg/L	MCL			
	Chlordane	0.001	mg/L	MCL			
	Dalapon	0.1	mg/L	MCL			
	Di(2-ethylhexyl)adipate (<i>adipates</i>)	0.2	mg/L	MCL			
	Di(2-ethylhexyl)phthalate (<i>phthalat</i>	0.003	mg/L	MCL			
	Dibromochloropropane (DBCP)	0.0001	mg/L	MCL			
	Dinoseb	0.0035	mg/L	MCL			
	Diquat	0.01	mg/L	MCL			
	Ethylene Dibromide (EDB)	0.000025	mg/L	MCL			
	Endothall	0.05	mg/L	MCL			
	Endrin	0.0001	mg/L	MCL, MML			
	Glyphosate	0.35	mg/L	MCL			
	Heptachlor	0.0002	mg/L	MCL			
	Heptachlor Epoxide	0.0001	mg/L	MCL			
	Hexachlorobenzene (HCB)	0.0005	mg/L	MCL			
	Hexachlorocyclopentadiene	0.025	mg/L	MCL			
	Methoxychlor	0.02	mg/L	MCL, MML			
	Polychlorinated Biphenyls (PCBs)	0.00025	mg/L	MCL			
	Pentachlorophenol	0.0005	mg/L	MCL			
	Picloram	0.25	mg/L	MCL			

Class	Analyte	ASR Standard	Units	Regulatory Criteria	0% Injection Volume	0% Injection Volume	0% Recovery Volume
					No Sample	No Sample	No Sample
Volatile Organic Compounds	Simazine	0.002	mg/L	MCL			
	Toxaphene	0.0015	mg/L	MCL, MML			
	Vydate (Oxamyl)	0.1	mg/L	MCL			
	1,1,1-Trichloroethane	0.1	mg/L	MCL, MML			
	1,1,2-Trichloroethane	0.0025	mg/L	MCL			
	1,1-Dichloroethylene	0.0035	mg/L	MCL, MML			
	1,2,4-Trichlorobenzene	0.035	mg/L	MCL			
	1,2-Dichlorobenzene (o)	0.3	mg/L	MCL			
	1,2-Dichloroethane (EDC)	0.0025	mg/L	MCL, MML			
	1,2-Dichloropropane	0.0025	mg/L	MCL			
	1,4-Dichlorobenzene (p)	0.0375	mg/L	MCL, MML			
	Benzene	0.0025	mg/L	MCL, MML			
	Carbon Tetrachloride	0.0025	mg/L	MCL, MML			
	Chlorobenzene (monochlorobenzene)	0.05	mg/L	MCL			
	cis-1,2-Dichloroethylene	0.035	mg/L	MCL			
	Ethylbenzene	0.35	mg/L	MCL			
	Dichloromethane (methylene chloride)	0.0025	mg/L	MCL			
	Styrene	0.05	mg/L	MCL			
	Tetrachloroethylene	0.0025	mg/L	MCL			
	Toluene	0.5	mg/L	MCL			
trans-1,2-Dichloroethylene	0.05	mg/L	MCL				
Trichloroethylene	0.0025	mg/L	MCL, MML				
Vinyl chloride	0.001	mg/L	MCL, MML				
Total Xylenes	5	mg/L	MCL				

NOTE

Indicates analyte not sampled during sampling event

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URC = State unregulated contaminant

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Samples are unfiltered unless noted (i.e., dissolved)

1 = Combined Radium 226/228 and Uranium required after December 2003

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3 = These compounds would be analyzed if Gross Alpha or Beta exceed an MCL.

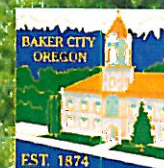
Annual ASR Report

Water Year 2013

Permit #001

Prepared January 2014

City of Baker City
Public Works Department
1655 First Street
P.O. Box 650
Baker City, OR 97814
(541) 524-2019



Analyte List 'A' & 'B' for ASR Cycle 10. Note List 'D' not used due to prior year of ASR non usage. List 'D' to be used for 2014 water year.

	Analyte	Lowest Regulatory Standard	ASR Standard	Units	Regulatory Criteria	BCRW-C10SW-1 Pre-Injection		BCRW-C10GW-1 0% Injection Volume		ENTER SAMPLE NAME 0% Injection Volume	BCRW-C10GW-1 Recovery	ENTER SAMPLE NAME 0% Recovery Volume
						Feb. 27, 2013	Feb. 27, 2013		June 11, 2013			
Bacteriological	Fecal Coliforms/E.Coli	None										
	Total Coliform	<1/100 ML	None	CFU/100 ml	MML						<1 MPN/100ML	
Disinfection	Chloroform (Trichloromethane)	None	None	mg/L	URC	0.0109		0.00172			0.0219	
By-Products	Bromodichloromethane	None	None	mg/L	None	0.00056		0.0005			0.00061	
	Dibromochloromethane	None	None	mg/L	None	<0.0005		0.0005			<0.0005	
	Bromoform (Tribromomethane)	None	None	mg/L	URC	<0.0005		0.0005			<0.0005	
	Total Trihalomethanes	0.08	0.08	mg/L	MCL, MML	0.0115		0.00172			0.0225	
	Monochloroacetic Acid	None	None	mg/L	None	<0.0002		<0.002			<0.002	
	Dichloroacetic Acid	None	None	mg/L	None	0.00604		<0.001			<0.001	
	Trichloroacetic Acid	None	None	mg/L	None	0.00757		<0.001			<0.001	
	Monobromoacetic Acid	None	None	mg/L	None	<0.001		<0.001			<0.001	
	Dibromoacetic Acid	None	None	mg/L	None	<0.001		<0.001			<0.001	
	Total Haloacetic Acids	0.06	0.06	mg/L	MCL	0.0137		<0.001			<0.001	
	Chlorite (only for plants using chlorine dioxide)	1	1	mg/L	MCL							
	Bromate (only for plants using ozone)	0.01	0.01	mg/L	MCL							
Field Parameters	Temperature	None	None	Celsius	None							
	Conductivity	None	None	mS/cm	None							
	Dissolved Oxygen	None	None	mg/L	None							
	pH	6 - 8.5	6 - 8.5	Units	SMCL	7.47		7.66			7.19	
	Turbidity	1	0.5	NTU	MCL, MML							
	ORP	None	None	mV	None							
Geochemical	Bicarbonate	None	None	mg/L	None	59		68			39	
	Calcium	None	None	mg/L	None	18.9		25.2			19.7	
	Carbonate	None	None	mg/L	None	<1		<1			<1	
	Chloride	250	250	mg/L	SMCL	1.32		2.11			1.96	
	Hardness (as CaCO3)	250	None	mg/L	URC	67		118			83	
	Magnesium	None	None	mg/L	None	2.77		8.46			3.78	
	Nitrate as N	10	5	mg/L	MML	<0.30		<0.30			<0.30	
	Nitrite as N	1	0.5	mg/L	MCL	<0.20		<0.20			<0.20	
	Total Nitrate-Nitrite	10	5	mg/L	MML	<0.30		<0.30			<0.30	
	Potassium	None	None	mg/L	None							
	Silica	None	None	mg/L	None							
	Sodium	20	None	mg/L	URC (advisory)							
	Sulfate	250	250	mg/L	URC, SMCL	4.08		22.8			15.3	
	Total Alkalinity	250	250	mg/L	SMCL	59		68			39	
	Total Dissolved Solid	500	500	mg/L	SMCL	90		80			110	
	Total Organic Carbon	None	None	mg/L	None	0.478		0.578			1.22	
	Total Suspended Solids	None	None	mg/L	None	15		1			<1	
Metals	Aluminum	0.05 to 0.2	0.05 to 0.2	mg/L	SMCL							
	Antimony	0.006	0.003	mg/L	MCL							
	Arsenic	0.05	0.025	mg/L	MCL, MML							
	Barium	1	0.5	mg/L	MCL, MML							
	Beryllium	0.004	0.002	mg/L	MCL							
	Cadmium	0.005	0.0025	mg/L	MCL, MML							
	Chromium	0.05	0.025	mg/L	MCL, MML							
	Copper	1.3	0.65	mg/L	MCL, MML							
	Iron (Total)	None	None	mg/L	None							
	Iron (Dissolved)	0.3	0.3	mg/L	SMCL							
	Lead	0.015	0.0075	mg/L	MCL, MML							
	Manganese (Total)	None	None	mg/L	None							
	Manganese (Dissolved)	0.05	0.05	mg/L	SMCL							

Volatile Organic Compounds (continued)	Ethylbenzene	0.7	0.35	mg/L	MCL							ND
	Dichloromethane (methylene chloride)	0.005	0.0025	mg/L	MCL							0.0021
	Styrene	0.1	0.05	mg/L	MCL							ND
	Tetrachloroethylene	0.005	0.0025	mg/L	MCL							ND
	Toluene	1	0.5	mg/L	MCL							ND
	trans-1,2-Dichloroethylene	0.1	0.05	mg/L	MCL							ND
	Trichloroethylene	0.005	0.0025	mg/L	MCL, MML							ND
	Vinyl chloride	0.002	0.001	mg/L	MCL, MML							ND
	Total Xylenes	10	5	mg/L	MCL							ND

NOTE

█ Indicates analyte not sampled during sampling event
 █ = Concentration exceeds lowest regulatory standards or abnormal value.

Bold = Method reporting (or detection) limit exceeds lowest regulatory standards.

mg/L = milligram per liter

MDL = Method Detection Limit

ND = Not detected at concentrations greater than the MDL

NT = Analyte not tested

N/A - Analysis requested to lab, data not available at the time of report. Data will be forwarded as available.

U = Constituent not detected at or above MDL

J = The analyte was detected and has been qualified as an estimated quantity

UJ = The analyte was not detected above the reported sample quantification limit; the quantitation limit is estimated

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MML = DEQ's maximum measurable levels for groundwater

URC = State unregulated contaminant

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Samples are unfiltered unless noted (i.e., dissolved)

1 = Combined Radium 226/228 and Uranium required after December 2003

2 = Only need to analyze if in a vulnerable area per OAR 333-61-0036, 6(b)(A) (i.e., near man-made radioactive sources, such as nuclear facilities - currently only selected systems along Columbia River classified as vulnerable)

3 = These compounds would be analyzed if Gross Alpha or Beta exceed an MCL.

? = Laboratory reported radon concentration for Mountain Line, but is unlikely that surface water would contain radon at any appreciable concentration. Assumed to be groundwater from the Reservoir Well.

NOTES

mg/L = milligram per liter

MDL = Method Detection Limit

ND = Not detected at concentrations greater than the MDL

'--' = Analyte not tested

N/A - Not Applicable

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UCMR = EPA unregulated contaminant monitoring regulations for drinking water

BCRW = Baker City Reservoir Well

GW = Groundwater

SW = Source Water

RW = Recovery Water

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