Montana Bureau of Mines and Geology

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NOV [illegible] 2014

Ravalli County Commissioners

November 17, 2014

County Commissioners
215 South 4th Street
Hamilton, MT 59840

SUBJECT: Results of Nitrate Sampling and Request for Future Sampling

Dear Well Owner,

In September, the Montana Bureau of Mines and Geology analyzed the chemistry of your well water for nitrate. The nitrate concentration from the September 2014 sampling event was:

<0.20 mg/L NO_3-N.

The nitrate concentration is below the Environmental Protection Agency's MCL (maximum contaminant level) of 10 mg/L NO_3-N. The laboratory's analytical data sheet with highlighted nitrate concentration is attached.

Nitrate levels can change throughout the year; therefore, with your permission, we would like to sample your well water quarterly in December 2014, March 2015 and June 2015 to see if there is any change in concentration due to seasonality. We will contact you in early December to see if you are interested and set up a time to sample at your convenience, and to discuss the best place to collect a sample (i.e. outside faucet, inside pre-treatment tap, etc.).

The water level and chemistry data we collect is available online through the Groundwater Information Center (GWIC) using the GWIC ID of your well. The **GWIC ID** for your well is **276476**.

Included is a step by step instruction sheet to help you access these data as well as other information associated with your well.

If you have any questions or would like to discuss your analyses further please contact Dean Snyder or Todd Myse. We appreciate your participation in this groundwater study, and look forward to working with you in the future.

Sincerely,

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Ground-Water Information Center Water Quality Report
Report Date: 11/13/2014

Site Name: BLODGETT ROTARY PARK
Compare to Water Quality Standards

Location Information

Sample Id/Site Id: 208353 / 276476
Location (TRS): 06N 21W 12 ADBA
Latitude/Longitude: 46° 17' 39" N 114° 9' 28" W
Datum: NAD83
Altitude: 3495.06
County/State: RAVALLI / MT
Site Type: WELL
Geology:
USGS 7.5' Quad: HAMILTON NORTH
PWS Id:
Project: BWIPHM

Sample Date: 9/18/2014 5:13:00 PM
Agency/Sampler: MBMG / ALLISON BROWN
Field Number: BLODGETT ROTARY PARK
Lab Date: 11/7/2014 3:30:05 PM
Lab/Analyst: MBMG / TIMMER, JACKIE
Sample Method/Handling: GRAB / ru:0 ra:0 fu:2 fa:1
Procedure Type: DISSOLVED
Total Depth (ft): NR
SWL-MP (ft): NR
Depth Water Enters (ft): NR

Major Ion Results

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	NR	0.000	Bicarbonate (HCO3)	NR	0.000
Magnesium (Mg)	NR	0.000	Carbonate (CO3)	NR	0.000
Sodium (Na)	NR	0.000	Chloride (Cl)	6.970	0.197
Potassium (K)	NR	0.000	Sulfate (SO4)	NR	0.000
Iron (Fe)	NR	0.000	Nitrate (as N)	NR	0.000
Manganese (Mn)	NR	0.000	Fluoride (F)	NR	0.000
Silica (SiO2)	NR		Orthophosphate (as P)	NR	0.000
Total Cations		0.000	**Total Anions**		0.197

Trace Element Results (µg/L)

Aluminum (Al):	NR	Cesium (Cs):	NR	Molybdenum (Mo):	NR	Strontium (Sr):	NR
Antimony (Sb):	NR	Chromium (Cr):	NR	Nickel (Ni):	NR	Thallium (Tl):	NR
Arsenic (As):	NR	Cobalt (Co):	NR	Niobium (Nb):	NR	Thorium (Th):	NR
Barium (Ba):	NR	Copper (Cu):	NR	Neodymium (Nd):	NR	Tin (Sn):	NR
Beryllium (Be):	NR	Gallium (Ga):	NR	Palladium (Pd):	NR	Titanium (Ti):	NR
Boron (B):	NR	Lanthanum (La):	NR	Praseodymium (Pr):	NR	Tungsten (W):	NR
Bromide (Br):	<10.000 U	Lead (Pb):	NR	Rubidium (Rb):	NR	Uranium (U):	NR
Cadmium (Cd):	NR	Lithium (Li):	NR	Silver (Ag):	NR	Vanadium (V):	NR
Cerium (Ce):	NR	Mercury (Hg):	NR	Selenium (Se):	NR	Zinc (Zn):	NR
						Zirconium (Zr):	NR

Field Chemistry and Other Analytical Results

**Total Dissolved Solids (mg/L):	NR	Field Hardness as CaCO3 (mg/L):	NR	Ammonia (mg/L):	NR
**Sum of Diss. Constituents (mg/L):	NR	Hardness as CaCO3:	NR	T.P. Hydrocarbons (µg/L):	NR
Field Conductivity (µmhos):	140	Field Alkalinity as CaCO3 (mg/L):	NR	PCP (µg/L):	NR
Lab Conductivity (µmhos):	NR	Alkalinity as CaCO3 (mg/L):	NR	Phosphate, TD (mg/L as P):	NR
Field pH:	6.44	Ryznar Stability Index:	NR	Field Nitrate (mg/L):	0.100
Lab pH:	NR	Sodium Adsorption Ratio:	0	Field Dissolved O2 (mg/L):	0.300
Water Temp (°C):	10.7	Langlier Saturation Index:	NR	Field Chloride (mg/L):	NR
Air Temp (°C):	NR	Nitrite (mg/L as N):	NR	Field Redox (mV):	NR
Nitrate + Nitrite (mg/L as N)	<0.200 U	Hydroxide (mg/L as OH):	NR	Lab, Dissolved Organic Carbon (mg/L):	NR
Total Kjeldahl Nitrogen (mg/L as N)	NR	Lab, Dissolved Inorganic Carbon (mg/L):	NR	Lab, Total Organic Carbon (mg/L):	NR
Total Nitrogen (mg/L as N)	<1.000 U	Acidity to 4.5 (mg/L CaCO3)	NR	Acidity to 8.3 (mg/L CaCO3)	NR
As(III) (ug/L)	NR	As(V) (ug/L)	NR	Total Susp Solids (mg/L)	NR

Sample Condition: CLEAR

Notes

Field Remarks: SAMPLED FOR TOTAL N, CL, BR, AND 18O/2H. FIELD NITRATE BY ION SELECTIVE ELECTRODE,

Lab Remarks:

Explanation: **mg/L** = milligrams per Liter; **µg/L** = micrograms per Liter; **ft** = feet; **NR** = No Reading in GWIC

Qualifiers: **A** = Hydride atomic absorption; **E** = Estimated due to interference; **H** = Exceeded holding time; **J** = Estimated quantity above detection limit but below reporting limit; **K** = Na+K combined; **N** = Spiked sample recovery not within control limits; **P** = Preserved sample; **S** = Method of standard additions; **U** = Undetected quantity below detection limit; ***** = Duplicate analysis not within control limits; ****** = Sum of Dissolved Constituents is the sum of major cations (Na, Ca, K, Mg, Mn, Fe) and anions (HCO3, CO3, SO4, Cl, SiO2, NO3, F) in mg/L. Total Dissolved Solids is reported as equivalent weight of evaporation residue.

Disclaimer

These data represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date of the retrieval. The information is considered unpublished and is subject to correction and review on a daily basis. The Bureau warrants the accurate transmission of the data to the original end user. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted.

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Montana Bureau of Mines and Geology

ACCESSING YOUR WELL DATA IN THE MBMG GROUNDWATER INFORMATION CENTER (GWIC):

1. Visit the GWIC login page, at http://mbmggwic.mtech.edu/
2. In the "sign in status" box (top right-hand box under the header), click the "create one here" link if you do not have a User ID yet (skip to Step 4 if you do).
3. Fill in your info and click the "create account" button at the bottom.
4. Return to the GWIC login page, enter your User ID, select a 'data use' from the drop down menu, and click the 'sign in' button.
5. You are taken to a search page that provides many ways to search for a well log. The easiest approach is to scroll down to the bottom of the page and enter your well's GWIC ID in the "GWIC ID" field.
6. After entering the GWIC ID number, click the "retrieve" button, and the well log report will appear.
7. If you wish to view the scanned driller's log or any other data from your well including chemistry, click the link in the upper right-hand corner of the page.

Thank you for assisting with our investigation.

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