

**APPENDIX I**

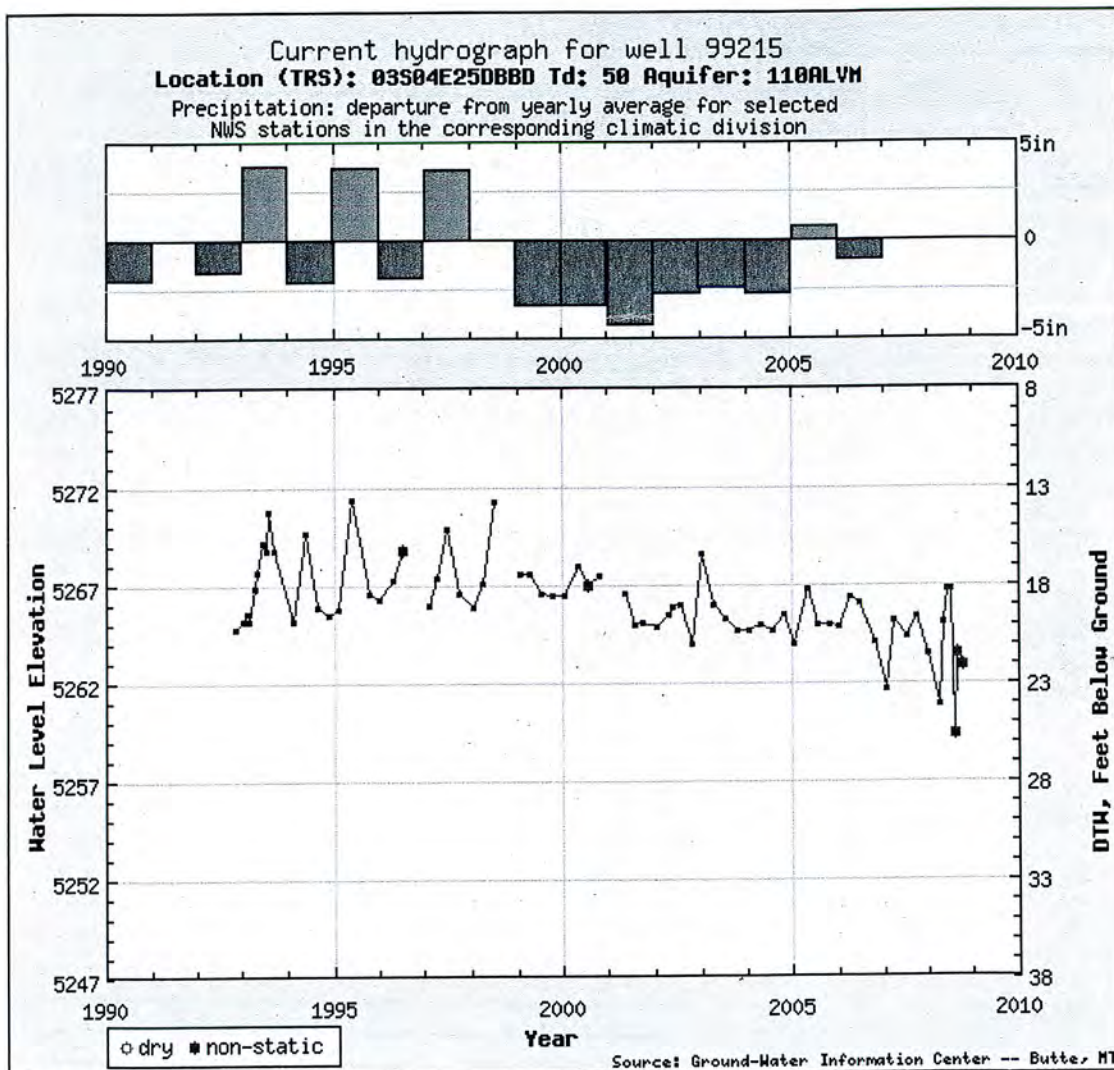
**GROUND WATER MONITORING RESULTS FOR  
HUTTINGA WELL**





## Ground-Water Information Center Well Hydrograph

The following chart represents the current hydrograph for this well. Data reported are in feet below ground surface or feet above mean sea level.



GWIC Id: 99215

Site Name: HUTTINGA JELKE

Location: 03S04E25DBBD

Total Depth: 50 feet

Number of Measurements: 72

Period of Record: 6/18/1991 - 10/1/2008 2:20:00 PM

[Get the data used to make this chart](#)

[View the one page site summary](#)

The preceding materials represent the contents of the GWIC databases at the Montana Bureau of Mines and Geology at the time and date [Thursday, October 16, 2008 8:14:39 AM] 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 The information is considered unpublished and is subject to correction and review on a daily basis.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 at the time and date of the retrieval. Retransmission of the data to other users is discouraged and the Bureau claims no responsibility if the material is retransmitted. There may be wells in the request area that are not recorded at the Information Center.





Ground-Water Information Center  
 Montana Bureau of Mines and Geology  
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**SWL data > Raw data**

GWIC Id	Site Name	Location	Total Depth	Method	Show	Number of Meas	Period
99215	HUTTINGA JELKE	03S04E25DBBD	50 feet	SOUNDER	<a href="#">Show Me</a>	56	2/11/1994 9:02:00 AM - 10/1/2008 2:20:00 PM
99215	HUTTINGA JELKE	03S04E25DBBD	50 feet	STEEL TAPE	<a href="#">Show Me</a>	16	6/18/1991 - 10/17/2004 10:52:00 AM

GWIC Id	Date	SWL - Ground	SWL - Elevation	Agency	Method	Remarks	Dry?	NonStatic?
99215	10/1/2008 2:20:00 PM	22.25	5,262.75	GCWQD	SOUNDER	RECOVERING		YES
99215	8/29/2008 12:11:00 PM	21.59	5,263.41	GCWQD	SOUNDER	RECOVERING		YES
99215	8/4/2008 12:17:00 PM	25.71	5,259.29	GCWQD	SOUNDER			YES
99215	6/30/2008 12:49:00 PM	18.29	5,266.71	GCWQD	SOUNDER			
99215	6/2/2008 11:37:00 AM	18.31	5,266.69	GCWQD	SOUNDER			
99215	5/7/2008 2:42:00 PM	20.02	5,264.98	GCWQD	SOUNDER			
99215	4/2/2008 2:02:00 PM	24.19	5,260.81	GCWQD	SOUNDER			
99215	1/9/2008 11:00:00 AM	21.62	5,263.38	GCWQD	SOUNDER			
99215	10/1/2007 10:09:00 AM	19.67	5,265.33	GCWQD	SOUNDER			
99215	7/13/2007 4:54:00 PM	20.67	5,264.33	GCWQD	SOUNDER			
99215	3/31/2007 5:38:00 PM	19.91	5,265.09	MSU	SOUNDER			
99215	1/22/2007 5:05:00 PM	23.35	5,261.65	MSU	SOUNDER			
99215	10/22/2006 9:15:00 AM	21.03	5,263.97	MSU	SOUNDER			
99215	6/16/2006 5:35:00 PM	19.01	5,265.99	MSU	SOUNDER			
99215	4/9/2006 8:50:00 AM	18.69	5,266.31	MSU	SOUNDER			
99215	1/8/2006 9:15:00 AM	20.17	5,264.83	MSU	SOUNDER			
99215	10/9/2005 8:56:00 AM	20.13	5,264.87	MSU	SOUNDER			
99215	7/19/2005 9:32:00 AM	20.06	5,264.94	MSU	SOUNDER			
99215	4/30/2005 10:07:00 AM	18.31	5,266.69	MSU	SOUNDER			
99215	1/11/2005 11:25:00 AM	21.14	5,263.86	MSU	SOUNDER			
99215	10/17/2004 10:52:00 AM	19.55	5,265.45	MSU	STEEL TAPE			
99215	7/21/2004 10:35:00 AM	20.35	5,264.65	MSU	STEEL TAPE			
99215	4/17/2004 3:45:00 PM	20.05	5,264.95	MSU	SOUNDER			
99215	1/24/2004 5:00:00 PM	20.39	5,264.61	MSU	STEEL TAPE			
99215	10/12/2003 5:35:00 PM	20.38	5,264.62	MSU	STEEL TAPE			
99215	7/19/2003 11:23:00 AM	19.82	5,265.18	MSU	SOUNDER			
99215	4/18/2003 9:01:00 AM	19.12	5,265.88	MSU	SOUNDER			
99215	1/6/2003 9:42:00 AM	16.52	5,268.48	MSU	STEEL TAPE			
99215	10/17/2002 5:34:00 PM	21.05	5,263.95	MSU	SOUNDER			
99215	7/16/2002 9:31:00 AM	19.10	5,265.90	MSU	SOUNDER			

99215 6/18/1991

USGS STEEL TAPE

SWL-MP = Static water level in feet below measuring point.  
SWL-Ground = Static water level in feet below ground surface.  
SWL-Elevation = Static water level in feet above mean sea level.

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Ground-Water Information Center Water Quality Report  
**Report Date:** 10/16/2008

**Site Name:** HUTTINGA JELKE  
**Compare to Water Quality Standards**

**Location Information**

Sample Id/Site Id: 2009Q0187 / 99215	Sample Date: 8/14/2008 11:04:00 AM
Location (TRS): 03S 04E 25 DBBD	Agency/Sampler: MBMG / DCM
Latitude/Longitude: 45° 32' 45" N 111° 10' 24" W	Field Number: 99215
Datum: NAD27	Lab Date: 10/13/2008
Altitude: 5285	Lab/Analyst: MBMG / SM
County/State: GALLATIN / MT	Sample Method/Handling: / 4230
Site Type: WELL	Procedure Type: DISSOLVED
Geology: 110ALVM	Total Depth (ft): 50
USGS 7.5' Quad: GALLATIN GATEWAY	SWL-MP (ft): NR
PWS Id:	Depth Water Enters (ft): 50
Project: GWAAMON	

**Major Ion Results**

	mg/L	meq/L		mg/L	meq/L
Calcium (Ca)	63.800	3.184	Bicarbonate (HCO3)	243.300	3.988
Magnesium (Mg)	8.110	0.667	Carbonate (CO3)	0.000	0.000
Sodium (Na)	5.700	0.248	Chloride (Cl)	2.820	0.080
Potassium (K)	8.560	0.219	Sulfate (SO4)	5.910	0.123
Iron (Fe)	<0.003	0.000	Nitrate (as N)	0.607 P	0.043
Manganese (Mn)	0.241	0.009	Fluoride (F)	0.120	0.006
Silica (SiO2)	24.300		Orthophosphate (OPO4)	<0.05	0.000
<b>Total Cations</b>		<b>4.331</b>	<b>Total Anions</b>		<b>4.240</b>

**Trace Element Results (µg/L)**

Aluminum (Al): 3.670	Cesium (Cs): <0.1	Molybdenum (Mo): 0.182	Strontium (Sr): 144.000
Antimony (Sb): <0.1	Chromium (Cr): <0.1	Nickel (Ni): <0.1	Thallium (Tl): <0.1
Arsenic (As): 0.513	Cobalt (Co): <0.1	Niobium (Nb): <0.1	Thorium (Th): <0.1
Barium (Ba): 77.900	Copper (Cu): 1.020	Neodymium (Nd): <0.2	Tin (Sn): <0.1
Beryllium (Be): <0.1	Gallium (Ga): <0.1	Palladium (Pd): 0.198	Titanium (Ti): <0.1
Boron (B): 3.140	Lanthanum (La): <1.0	Praseodymium (Pr): <0.1	Tungsten (W): <0.1
Bromide (Br): <50	Lead (Pb): <0.5	Rubidium (Rb): 1.030	Uranium (U): 0.783
Cadmium (Cd): <0.1	Lithium (Li): <0.5	Silver (Ag): <0.1	Vanadium (V): 1.450
Cerium (Ce): <0.5	Mercury (Hg): NR	Selenium (Se): <0.5	Zinc (Zn): 11.720
			Zirconium (Zr): <0.1

**Field Chemistry and Other Analytical Results**

**Total Dissolved Solids (mg/L): 239.630	Field Hardness as CaCO3 (mg/L): NR	Ammonia (mg/L): NR
**Sum of Diss. Constituents (mg/L): 362.930	Hardness as CaCO3: 192.690	T.P. Hydrocarbons (µg/L): NR
Field Conductivity (µmhos): NR	Field Alkalinity as CaCO3 (mg/L): NR	PCP (µg/L): NR
Lab Conductivity (µmhos): 374	Akalinity as CaCO3 (mg/L): 199.3	Phosphate, TD (mg/L as P): <0.05
Field pH: NR	Ryznar Stability Index: 7.311	Field Nitrate (mg/L): NR
Lab pH: 7.48	Sodium Adsorption Ratio: 0.188	Field Dissolved O2 (mg/L): NR
Water Temp (°C): NR	Langlier Saturation Index: 0.084	Field Chloride (mg/L): NR
Air Temp (°C): NR	Nitrite (mg/L as N): NR	Field Redox (mV): NR
	Hydroxide (mg/L as OH): NR	

**Notes**

Sample Condition:  
 Field Remarks:  
 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; K = Na+K combined; N = Spiked sample recovery not within control limits; P = Preserved sample; S = Method of standard additions; \* = 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.

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