Appendix 2. Lithologic logs and completion details for U.S. Geological Survey and Fort Peck

Tribes Office of Environmental Protection monitoring wells drilled in and near the East Poplar oil

field, 2006 and 2009

[Site number is described in text. Well ID# same as well name described in text. Well Location: GPS, Global Positioning System. Well Test Data: gpm, gallons per minute. Well Log: Qal, Quaternary alluvium; Qt, Quaternary glacial till; Qw, Quaternary Wiota Gravel; Kb, Upper Cretaceous Bearpaw Shale; %, percent; ", inches; ', feet.]

78N 619, 02 CBHB MONTANA WELL LOG REPORT

Wall ID#	US6506-1
well ID#	1 λ λ 1 0 λ 1 0 0 0 0 1

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

For fields that are not applicable, enter NA. Optional fields have a grayed background. Record additional information in the REMARKS section. 1. WELL OWNER: Drawdown is the amount water level is lowered below static level. Name All depth measurements shall be from the top of the well casing. Mailing address Time of recovery is hours/minutes since pumping stopped. gpm with drill stem set at 64 ft. for 1 hours 2. WELL LOCATION: List 1/4 from smallest to largest Time of recovery _____hrs/min. Recovery water level ____ ft. NW 1/2 NE 1/2 NW 1/4 SW 1/4, Section OZ OR Bailer test* Township 28 N/S Range 51 B/W County 1005event gpm with _____ ft. of drawdown after ___ Lot _____, Tract/Blk ____ Subdivision Name ___ Time of recovery ____ hrs/min. Recovery water level Well Address OR Pump test* GPS ⊠Yes □ No Latitude 48 12 27.5 Longitude <u>105 06 14.7</u> Depth pump set for test _____ ft. ___ gpm pump rate with ____ft. of drawdown after___ hrs pumping Error as reported by GPS locator (± feet) Time of recovery _____ hrs/min. Recovery water level ____ ft. Horizontal datum ⊠NAD27 ☐ WGS84 OR Flowing Artesian* 3. PROPOSED USE: ☐ Stock □ Domestic □ Irrigation gpm for _____hours ☐ Public water supply ☒ Monitoring Well ☐ Other: Flow controlled by *During the well test the discharge rate shall be as uniform as possible. This rate may or may 4. TYPE OF WORK: ⊠ New well □ Deepen existing well □ Abandon existing well
 not be the sustainable yield of the well. Sustainable yield does not include the resevoir of the Method: ☐ Cable ☐ Rotary ☐ Other: 7. WELL LOG: 5. WELL CONSTRUCTION DETAILS: Material: Borehole: Depth, Feet color/rock and type/descriptor (example: blue/shale/hard, in. from _____ ft. to ___ in. from _____ ft. to ____ То Dia. or brown/gravel/water, or brown/sand/heaving) Dia. medium brown/topsoil 0 Ďia. in. from medium brown/day with 10% 5 Casing: fine aravels, 1/8-1/4"
 Wall thickness
 □ Threaded
 □ Welded

 6
 in. from
 + 3.1
 ft. to
 ft.

 in. from
 ft. to
 ft.
 ft.
 Steel: Wall thickness light brown/clay with aravel, I" size at top to 1/4-1/2" Kize at bottom of interval Plastic: Pressure Rating ___ lbs.⊠Threaded □ Welded light brown clay/ more competen 4____in. from ____ 3.1 ft. to 65 ft. than above! With 570 Perforations/Slotted Pipe: Type of perforator used ___ 39 40 Size of perforations/slots clay/sandy, 5% in. by _____ _____ no. of perforations/slots from _____ ft. to ____ evidence of Detroleum, black, no. of perforations/slots from ______ ft. to ____ oil sheen and Screens:

Yes 40 red + brown/aravel/well rounded 1 Size increases 118- 112" with depth (Qw) tark arail shale / weathered Gravel Packed: X Yes Size of gravel 12-20 sand 42 ft. to 65 ft. Gravel placed from ____ RECEIVED Packer: ☐ Yes ☒ No ☐ ADDITIONAL SHEETS ATTACHED Depth(s) Type 8. DATE WELL COMPLETED: OCT 3 0 2006 Grout: Material used Bentonite 9. REMARKS: _ Depth from \bigcirc ft. to $\boxed{42}$ ft. OR \square Continuous feed M.B.M.G 10. DRILLER/CONTRACTOR'S CERTIFICATION: A well test is required for all wells. (See details on well log report cover.) All work performed and reported in this well log is in compliance with the Static water level <u>54.43</u> ft. below top of casing or Montana well construction standards. This report is true to the best of my ☐ Closed-in artesian pressure _____psi. knowledge. Name, firm, or corporation (print) AGRI Industries How was test flow measured: Address BUX 1166 Williston ND. 58801 bucket/stopwatch, weir, flume, flowmeter, etc. Signature Durell & Romeron Yellowstone Controlled Groundwater Area - Water Temperature □ AQUIFER TEST DATA FORM ATTACHED Date 11) - 7 - 06 License no.

CMORONA

Montana Bureau of Mines & Geology The University of Montana 1300 West Park Street Butte, MT 59701 2305(0)

28N 512 13 DISAIS MONTANA WELL LOG REPORT

Well ID# <u>US6506-2</u>

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work.

Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

	For fields that are not applicable, enter NA. Optional fields have a gray	ed backg	round. Re	cord additional information in the REMARKS section.
	WELL OWNER: U.S. Geological Survey Mailing address 3162 Boseman Ave	Test - D A	1 hour min rawdown i II depth m	
	Maining audress 102 VOCENTAGE 11.1			overy is nours/minutes since pullipling stopped.
)	Helona, MT 59601	A	ir test*	gpm with drill stem set at 57 ft. for hours
2.	WELL LOCATION: List 1/4 from smallest to largest	_		
	NW 1/4 NE 1/4 NW 1/4 SE 1/4, Section 03		ime of rec	overyhrs/min. Recovery water level ft.
	Township 28 N/S Range 5/ B/W County Long Vist		Bailer test'	
	Lot, Tract/Blk Subdivision Name			m with ft. of drawdown after hours
		Т	ime of rec	overyhrs/min. Recovery water level ft.
	Well Address GPS ⊠ Yes □ No	OR P	ump test'	•
	Latitude 48 12 30.4 Longitude 105 06 43.3			p set for test ft.
	Error as reported by GPS locator (± feet)		gpm p	oump rate withft. of drawdown after hrs pumping
	Horizontal datum 🗵 NAD27 🗆 WGS84	Т	ime of rec	overy hrs/min. Recovery water level ft.
_	1	ORF	lowing A	rtesian*
3.	PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation ☐ Public water supply ☒ Monitoring Well ☐ Other:	•		gpm for hours
		F		olled by
4.	TYPE OF WORK:	*During	the well test	the discharge rate shall be as uniform as possible. This rate may or may
	New well □ Deepen existing well □ Abandon existing well New well □ Deepen existing well □ Abandon existing well	not be well ca		le yield of the well. Sustainable yield does not include the resevoir of the
	Method: ☐ Cable ☑ Rotary ☐ Other:	7. WEL	L LOG:	170
5.	WELL CONSTRUCTION DETAILS:		h, Feet	Material:
	Borehole: 71/8 in. from	From	To	color/rock and type/descriptor (example: blue/shale/hard,
	Dia in from T. to bU ft.	O	3	or brown/gravel/water, or brown/sand/heaving)
	Diain. from ft. to ft.	3		medium brown/topsoil/sandy
	Casing:	->-	5	medium trown/clan with 500
		<u> </u>	 	fine gravel, 1/16-1/2" (QF)
	Steel: Wall thickness Threaded Welded Dia. 8 in. from +2.4 ft. to 2.6 ft. Dia. in. from ft. to ft.	5	15	medium brown/clan with 65%
	Dia in. from ft. to ft.		<u> </u>	gravel 1/16- 1/4th clay is more
	Plactic: Pressure Rating the N Threaded Wolded			Competent Man about 1000
	Plastic: Pressure Rating lbs. ⊠Threaded ☐ Welded Dia4in. from ft. to5	15	25	medium brown / clay with 570
	Perforations/Slotted Pipe:			paravel 14-1", larger armuls of
	Type of perforator used			Bottom of interval (Qt)
	Size of perforations/slots in. by in.	25	33	medium brown/clan, sanda with
	no. of perforations/slots fromft. toft.			5-1070 pravel 1/8-3/4" (OF)
	no. of perforations/slots from ft. to ft.	33	35	medium blown/Sand/fing
	Screens: ⊠ Yes □ No	35	48	red + prown/ pravel / well raunded/
	Material PC		1	coarse, "4-" (Ow)
	Dia. 4 Slot size 0.02 from 38 ft. to 48 ft. Dia.	48	60	dark gran/ Shale, no weathering
	Dia Slot size from ft. to ft.	-10	120	at top (Kb)
	Gravel Packed: ⊠ Yes □ No	-		RECEIVED RECEIVED
	Gravel Packed: ⊠ Yes □ No Size of gravel \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		+	
	Gravel placed fromft. toft.			107 2 1 7hns
	Packer: ☐ Yes ☐ No	☐ ADE	I DITIONAL SI	HEETS ATTACHED
	Type Depth(s)	8 DAT	FWELL	$\alpha \circ \alpha \iota$
	Grout: Material used Bento nite	1		.vi.b.ivi.d.
	Depth fromOft. to35 ft. OR Continuous feed	9. REN	MARKS: _	
e	WELL TEST DATA:			
0.	A well test is required for all wells. (See details on well log report cover.)			NTRACTOR'S CERTIFICATION:
	Static water level 48.84 ft. below top of casing or	All work	k performe	d and reported in this well log is in compliance with the
	☐ Closed-in artesian pressurepsi.	Montan		struction standards. This report is true to the best of my
	· ——·	Nome	firm or co	rporation (print) AGRI, Indus trips
	How was test flow measured: bucket/stopwatch, weir, flume, flowmeter, etc			
			s Bux	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
Ye	ellowstone Controlled Groundwater Area - Water Temperature °F	Signatu	ire Div	ell & Sowros
	AQUIFER TEST DATA FORM ATTACHED	Date _	10-7	7-06 License no. 156
	MONTANA Montana Bureau of Mines & Geology			MBMG ID#

The University of Montana 1300 West Park Street Butte, MT 59701

230562

29N 502 11 DBAB

MONTANA WELL LOG REPORT

Well ID# <u>US65</u> 06-3

Form No. 603 R2-04

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

	For fields that are not applicable, enter NA. Optional fields have a gray	ed backgr	ound. Re	cord additional information in the REMARKS section.
)	WELL OWNER: U.S. Geological Survey Mailing address 3162 Boze man Ave Helina MT 59601	Test - Dr Al Ti	1 hour mir rawdown i I depth me me of reco	
2.	WELL LOCATION: List 1/4 from smallest to largest	Ti		overyhrs/min. Recovery water level ft.
	NW 1/4 NE 1/4 NW 1/4 SE 1/4, Section 1			
	Township 29 (NVS Range 50 BW County Roose Vett		ailer test*	
		_	gpi	m with ft. of drawdown after hours
	Lot, Tract/Blk Subdivision Name	Ti	me of rec	overyhrs/min. Recovery water level ft.
	Well Address	OR P	ump test*	
	GPS Yes No		•	o set for test ft.
	Latitude 48 16 50.7 Longitude 105 10 33.5		apm p	ump rate withft. of drawdown after hrs pumping
	Error as reported by GPS locator (± feet)			overy hrs/min. Recovery water level ft.
	Horizontal datum ⊠ NAD27 ☐ WGS84		0. 100	
3.	PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation		lowing Ar	
	☐ Public water supply ☑ Monitoring Well ☐ Other:	_		gpm forhours
			low contro	
4.	TYPE OF WORK: ⊠ New well □ Deepen existing well □ Abandon existing well			the discharge rate shall be as uniform as possible. This rate may or may be yield of the well. Sustainable yield does not include the resevoir of the
		well cas		A A
	Method: ☐ Cable ☐ Rotary ☐ Other:	7. WEL	L LOG:	(7)
	WELL CONSTRUCTION DETAILS:		, Feet	Material:
	Borehole: 83/4 in. from 0 ft. to 49 ft. Dia. in. from ft. to ft.	From	То	color/rock and type/descriptor (example: blue/shale/hard,
	Dia. O 14 in from the fit of the fit.		10	or brown/gravel/water, or brown/sand/heaving)
	Diain. from ft. to ft.	0		medium brown/topsoil/fine sand
		1	27	yellow trown/day/sandy with
	Casing: Steel: Wall thickness Threaded Welded			<5010 aravel, 1/8-3/4" 5126
	Dia. 8 in from $+3.2$ ft. to 1.8 ft.		1	increases with depth
	Dia. 8 in. from +3.2 ft. to 1.8 ft. Dia. in. from ft. to ft.	27	37	medium brown/clay/5-1090
				gravel, subangular, 1/16-1",
	Plastic: Pressure Ratinglbs. ☐ Threaded ☐ Welded Diain. from+Zft. to47ft.			Size mureases thirth depth
				clave is more competent and
•	Perforations/Slotted Pipe:			dry (Qt)
	Type of perforator used	37	49	dark aray Ishale dry + Spft,
	Size of perforations/slots in. by in.		-1-1	
	no. of perforations/slots from ft. to ft. no. of perforations/slots from ft. to ft. to ft.		-	Ivan Staining
	Screens: ⊠Yes □ No Material PVC			
	Dia. <u>5</u> Slot size <u>0.02</u> from <u>32</u> ft. to <u>37</u> ft.		ļ	DECEN/F5
	Dia Slot size from ft. to ft.			RECEIVED
	,			,
	Gravel Packed: ⊠ Yes □ No Size of gravel 12-20 Sa.rd Gravel placed from			UCT 3 // 2006
	Gravel placed from			
	Packer: ☐ Yes ☒ No			M.B.M.G.
	Type Depth(s)	<u> </u>		HEETS ATTACHED
	3 1 ()	8. DAT	E WELL C	OMPLETED: <u>9-4-06</u>
	Grout: Material used \(\frac{\frac{1}{2}\times \tau\times \frac{1}{2}\times \frac\	9. REM	ARKS: _	
		l ——		
6.	WELL TEST DATA:	10. DRI	LLER/COI	NTRACTOR'S CERTIFICATION:
	A well test is required for all wells. (See details on well log report cover.)	All work	performe	d and reported in this well log is in compliance with the
	Static water level 37.04 ft. below top of casing or	Montana	a well con:	struction standards. This report is true to the best of my
	Closed-in artesian pressurepsi.	knowled	lge.	1000011
	How was test flow measured:	Name, f	irm, or co	rporation (print) ACRI Industries
	bucket/stopwatch, weir, flume, flowmeter, etc	Address	150x	1166 Williston N.D. 58801
Υe	ellowstone Controlled Groundwater Area - Water Temperature °F	Signatu	re $\mathcal{D}\omega$	rell & Foreron
	☐ AQUIFER TEST DATA FORM ATTACHED	Date	10-7	-06 License no. 156
_	Mantana Duragu of Minos & Coolany	_ Date _		MPMC ID#

The University of Montana 1300 West Park Street Butte, MT 59701

MONTANA WELL LOG REPORT

Well ID# USGS06-4

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

For fields that are not applicable, enter NA. Optional fields have a grayed background. Record additional information in the REMARKS section. Test - 1 hour minimum 1. WELL OWNER: Drawdown is the amount water level is lowered below static level. All depth measurements shall be from the top of the well casing. Mailing address _ Time of recovery is hours/minutes since pumping stopped. ≤ 1 gpm with drill stem set at $\frac{44}{9}$ ft. for $\frac{5}{9}$ hours 2. WELL LOCATION: List 1/4 from smallest to largest Time of recovery hrs/min. Recovery water level ft. SE 1/4 SE 1/4 SE 1/4, Section _ O | OR Bailer test* Township 28 D/S Range 50 B/W County Poosevelt ____ gpm with ____ ft. of drawdown after ____ hours Lot _____, Tract/Blk ____ Subdivision Name Time of recovery _____hrs/min. Recovery water level ____ ft. Well Address OR Pump test* GPS ⊠Yes □ No Latitude 48 12 05, 0 Longitude 105 11 35, 3 Depth pump set for test ___ ___ gpm pump rate with ____ft. of drawdown after___ hrs pumping Error as reported by GPS locator (± feet) Time of recovery _____ hrs/min. Recovery water level ____ ft. Horizontal datum XNAD27 ☐ WGS84 OR Flowing Artesian* 3. PROPOSED USE: □ Domestic ☐ Stock ☐ Irrigation RECEIVED gpm for ____ __ hours ☐ Public water supply ☐ Monitoring Well ☐ Other: Flow controlled by

*During the well test the discharge rate shall be as uniform as possible. This pate may be not be the sustainable yield of the well. Sustainable yield does not include the reservoir or the 4. TYPE OF WORK: ☑ New well ☐ Deepen existing well ☐ Abandon existing well Method: ☐ Cable ☐ Rotary ☐ Other: 7. WELL LOG: 5. WELL CONSTRUCTION DETAILS: Material: Borehole: 77/8 Depth, Feet color/rock and type/descriptor (example: blue/shale/hard, То Dia. in, from or brown/gravel/water, or brown/sand/heaving) Dia. in. from _____ ft. to ____ 4 dark brown/topsoil Dia. in. from 4 dark brown/clar/silt Casing: 5% gravel/fine/subangular.

 Wall thickness
 □ Threaded
 □

 6
 in. from
 +2.5
 ft. to
 2.

 in. from
 ft. to
 to
 1.

 Steel: Wall thickness clay content increases with Dia. 15 medium brown/clay/dn with Pressure Rating ______ lbs. ⊠Threaded □ Welded ______ in. from _______ ft. to ______ 45 ____ ft. Plastic: Pressure Rating <570 gravel/very fine/rounded. Clay more competent than Perforations/Slotted Pipe: Type of perforator used ____ 24 Size of perforations/slots __ 30 _ in. by _____ aravel/subangular no. of perforations/slots from ______ft. to ____ (Qt) J dry __ no. of perforations/slots from _____ ft. to ____ 35 upll-rounded aravel Screens: Yes iron staining. Gravel With Material PVC Size increases with depth (QH

 Dia.
 4"
 Slot size
 0.02
 from
 25
 ft. to
 35
 ft.

 Dia.
 Slot size
 from
 ft. to
 ft.

 dark gray/shale/dn Size of gravel 12-20 Sand <u>Z1</u> ft. to <u>47</u> ft. Gravel placed from ____ Packer: ☐ Yes ☑ No ☐ ADDITIONAL SHEETS ATTACHED Depth(s) 8. DATE WELL COMPLETED: Grout: Material used Bentonite 9. REMARKS: Depth from O ft. to ZI ft. OR Continuous feed 6. WELL TEST DATA: 10. DRILLER/CONTRACTOR'S CERTIFICATION: A well test is required for all wells. (See details on well log report cover.) All work performed and reported in this well log is in compliance with the Static water level 36,95 ft. below top of casing or Montana well construction standards. This report is true to the best of my ☐ Closed-in artesian pressure _____psi. knowledge. Name, firm, or corporation (print) ACRS How was test flow measured: bucket/stopwatch, weir, flume, flowmeter, etc Yellowstone Controlled Groundwater Area - Water Temperature □ AQUIFER TEST DATA FORM ATTACHED



Montana Bureau of Mines & Geology The University of Montana 1300 West Park Street Butte, MT 59701

230560

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

	For fields that are not applicable, enter NA. Optional fields have a gray	ed backgı	round. Re	cord additional information in the REMARKS section.	
1.	WELL OWNER: U.S. Geological Survey Mailing address 3162 Bozeman Ave Helena WIT 59601	Test - D A Ti	1 hour mi rawdown i Il depth m		
2.	WELL LOCATION: List ¼ from smallest to largest SW ¼ NE ¼ NE ¼ NE ¼, Section Z8 Township 29 (N)S Range 51 (B)W County Zoosevelt Lot, Tract/Blk Subdivision Name	OR B	ime of rec ailer test' gp	gpm with drill stem set at ft. for hours overy hrs/min. Recovery water level ft. m with ft. of drawdown after hours overy hrs/min. Recovery water level ft.	
	Well Address GPS ⊠ Yes □ No Latitude 48 4 36 Longitude 105 05 10 .8 Error as reported by GPS locator (± feet) Horizontal datum ⊠ NAD27 □ WGS84	OR P D	ump test* epth pump gpm p ime of rec	p set for test ft. ump rate withft. of drawdown after hrs pumping overy hrs/min. Recovery water level ft.	
	PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation ☐ Public water supply ☑ Monitoring Well ☐ Other:			tesian* _ gpm for hours illed by	
4.	TYPE OF WORK: ☑ New well ☐ Deepen existing well ☐ Abandon existing well Method: ☐ Cable ☑ Rotary ☐ Other:	*During	the well test he sustainabl	the discharge rate shall be as uniform as possible. This rate may or may be yield of the well. Sustainable yield does not include the resevoir of the	
5	WELL CONSTRUCTION DETAILS:	7. WEL	L LOG:	DU	
J .			ı, Feet	Material: color/rock and type/descriptor (example: blue/shale/hard,	
	Dia. 5 in. from 0 ft. to 60 ft. Dia. 11/x in. from 0 ft. to 41 ft.	From	То	or brown/gravel/water, or brown/sand/heaving)	
	Dia	0	↓	topsnil/sardy	
	Casing:	1	5	light brown/clay/ sandy, 45%	
	Steel: Wall thickness Threaded Welded			gravel 1/16-1/9" Iron-staining	
	Steel: Wall thickness Threaded			Gu clay,	
	Dia ft. to ft.	5	17	yellowbrown day, 10% gravel	
	Plastic: Pressure Rating Ibs ⊠ Threaded □ Welded			1/4-1/2", well rounded clay	
	Plastic: Pressure Rating lbs. ☑ Threaded ☐ Welded Dia fr. to ft.			becomes more competent	
	Perforations/Slotted Pipe:			with depth	
	Type of perforator used	17	25	medium known/clay/dry and	
	Size of perforations/slots in. by in.			harder with depth, 50% avavel	
	no. of perforations/slots fromft. toft.			'la-'/2", well rounded	
	no. of perforations/slots from ft. to ft.	25	35	medium bround clay I very dry	
	Screens:			and hard (Qt)	
	Dia 4 Slot size 0.07 from 75 ft to 35 ft	35	60	dark aray shale dry and hard	
	Dia. 4 Slot size 0,02 from 25 ft. to 35 ft. Dia. Slot size from from ft. ft. to ft.			Bentonite stringers at 50-66'	
	Gravel Packed: 🗵 Yes 🗆 No			/ RECEIVE	
	Size of gravel 12-20 Sand				
	Gravel placed from 22 ft. to 45 ft.			OCT 3 0 200	
	Packer: ☐ Yes ⊠ No	☐ ADD	<u>I</u> ITIONAL S I	HEETS ATTACHED A B B B B B B B B B B B B B B B B B B	
	Type Depth(s)	8. DATI	E WELL C	OMPLETED: 9-3-6 M.B.M.G.	
	Grout: Material used Benton te Depth from ft. to2 ft. OR □ Continuous feed		ARKS: _		
6.	WELL TEST DATA: A well test is required for all wells. (See details on well log report cover.)			NTRACTOR'S CERTIFICATION:	
	 ✓ Static water level 37.28 ft. below top of casing or Closed-in artesian pressure psi. 	Montana knowled	a well cons Ige.	d and reported in this well log is in compliance with the struction standards. This report is true to the best of my	
	How was test flow measured:	Name, f	irm, or co	poration (print) 6621 (ndustr, 45	
	bucket/stopwatch, weir, flume, flowmeter, etc	Address	Box	1166 Williston NO 58801	
Ye	illowstone Controlled Groundwater Area - Water Temperature °F	Signature Dunell & Porceron			
	☐ AQUIFER TEST DATA FORM ATTACHED	Date _	10-7		
	Montana Bureau of Mines & Geology			MBMG ID#	

The University of Montana 1300 West Park Street Butte, MT 59701

MONTANA WELL LOG REPORT

Well ID# (15(+506-6

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

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For fields that are not applicable, enter NA. Optional fields have a grayed background. Record additional information in the REMARKS section. Test - 1 hour minimum Drawdown is the amount water level is lowered below static level. Name _ All depth measurements shall be from the top of the well casing. Mailing address Time of recovery is hours/minutes since pumping stopped. ≤ 1 gpm with drill stem set at 39 ft. for 0.5 hours 2. WELL LOCATION: List 1/4 from smallest to largest Time of recovery _____hrs/min. Recovery water level ____ ft. NE 1/4 SE 1/4 SW 1/4 SW 1/4, Section 15 OR Bailer test* Township 29 N/S Range 5 P/W County Roosevelt gpm with _____ ft. of drawdown after ____ hours Lot _____, Tract/Blk ____ Subdivision Name __ Time of recovery _____hrs/min. Recovery water level ____ ft. Well Address GPS \boxtimes Yes \square No Latitude 48 15 36.5 Longitude 105 0441.6**OR Pump test*** Depth pump set for test _____ ft. ____ ft. ____ ft. of drawdown after ____ hrs pumping Error as reported by GPS locator (± feet) Time of recovery _____ hrs/min. Recovery water level ____ ft. OR Flowing Artesian* 3. PROPOSED USE: □ Domestic ☐ Stock Irrigation gpm for ____ ☐ Public water supply ☑ Monitoring Well ☐ Other: ____hours Flow controlled by 4. TYPE OF WORK: *During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the resevoir of the Method: ☐ Cable ※ Rotary ☐ Other: 7. WELL LOG: 5. WELL CONSTRUCTION DETAILS: Material: Borehole: Depth. Feet color/rock and type/descriptor (example: blue/shale/hard, _in. from ______ ft. to ______ ft. to ______ Dia. То or brown/gravel/water, or brown/sand/heaving) Dia. brown/topspil/sandy Dia. _ in, from 8 light brown/ sand / fine arained Casing: 8 15 brown-aray/clay with sand. Steel: Wall thickness ☐ Threaded 6 in. from +3,3 ft. to 2500 aravel, 1/8-1/4" Dia. _ 15 _in. from ___ aray/clar/ competent aravel up to 1/2" in size (Qt) ibs. ⊠ Threaded □ Welded ft. to <u>37</u> ft. Plastic: Pressure Rating 74 aray / weathered shale ! Dia. _____4 ____in. from ___ pliable, dr (Kb) Perforations/Slotted Pipe: Type of perforator used Size of perforations/slots _____ in. by ____ ____ no. of perforations/slots from _____ ft. to ____ no. of perforations/slots from ft. to Screens: Xyes
 Material
 FVC

 Dia.
 4
 Slot size
 9.02
 from
 11
 ft. to
 27
 ft.

 Dia
 Slot size
 from
 ft. to
 ft.
 ft.
 Gravel Packed:

Yes Size of gravel 12-20 Sand Gravel placed from □ ADDITIONAL SHEETS ATTACHED 8. DATE WELL COMPLETED: 9-3-06 Depth(s) Grout: Material used Bent on te 9. REMARKS: Depth from <u>O</u> ft. to <u>14</u> ft. OR □ Continuous feed 6. WELL TEST DATA: 10. DRILLER/CONTRACTOR'S CERTIFICATION: A well test is required for all wells. (See details on well log report cover.) All work performed and reported in this well log is in compliance with the Static water level 8.70 ft. below top of casing or Montana well construction standards. This report is true to the best of my ☐ Closed-in artesian pressure _____psi. knowledge. Name, firm, or corporation (print) AGRI, Industre, es How was test flow measured: bucket/stopwatch, weir, flume, flowmeter, etc_ Yellowstone Controlled Groundwater Area - Water Temperature Signature □ AQUIFER TEST DATA FORM ATTACHED Montana Bureau of Mines & Geology MBMG ID#

Montana Bureau of Mines & Geology The University of Montana 1300 West Park Street Butte, MT 59701

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Form No. 603 R2-04

Well ID# <u>US65 06-7</u> This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

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For fields that are not applicable, enter NA. Optional fields have a gray	yed backgro	und. Re	cord additional information in the REMARKS section.
1. WELLOWNER: U.S. Geological Survey Mailing address 3162 Bozeman Ave Helena, MT 59601	Test - 1 Dra All Tin	hour mit wdown i depth me ne of rece test*	nimum s the amount water level is lowered below static level. easurements shall be from the top of the well casing. overy is hours/minutes since pumping stopped.
	1	12	gpm with drill stem set at 103 ft. for 1/5 hours
2. WELL LOCATION: List 1/4 from smallest to largest	Tin	ne of rec	overyhrs/min. Recovery water level ft.
<u>5W 1/4 5W 1/4 5W 1/4 NE 1/4, Section 06</u>		iler test'	
Township 27 10/S Range 51 16/W County ROOSEVEUT			m with ft. of drawdown after hours
Lot, Tract/Blk Subdivision Name	Tir	ne of rec	overyhrs/min. Recovery water level ft.
Well Address			
GPS ⊠Yes □ No		mp test	
Latitude 48 07 20 · Longitude 105 10 56 · 3	"	pui puiii anm n	o set for test ft. ump rate withft. of drawdown after hrs pumping
Error as reported by GPS locator (± feet)	Tir	_ gpiii p	overy hrs/min. Recovery RECEIVED
Horizontal datum ☑ NAD27 □ WGS84			
3. PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation			tesian*
☐ Public water supply ☑ Monitoring Well ☐ Other:			gpm for hours OCT 3 0 2006
4. TYPE OF WORK:	· ·		
⊠ New well □ Deepen existing well □ Abandon existing well	not be the	sustainabi	the discharge rate shall be as uniform as possible. This rate may or may le yield of the well. Sustainable yield does not include the save of the
Method: ☐ Cable ⊠ Rotary ☐ Other:	1	-	1-21.
5. WELL CONSTRUCTION DETAILS:	7. WELL		Material:
Borehole: 77/ 6 17/	Depth,		color/rock and type/descriptor (example: blue/shale/hard,
Borehole: 7 7/8 in. from 6 ft. to 126 ft. Dia. in. from ft. to ft. Dia. in. from ft. to ft.	From	То	or brown/gravel/water, or brown/sand/heaving)
Diain. from ft. to ft.	0	Z	topsoil
Casing:	2	10	yellow brown/sandy clay with
Steel: Wall thickness			aravel/subanaviar/1/211
Steel: Wall thickness Threaded Welded Dia in. from ft. to ft. Dia in. from ft. to ft.	10	30	modium brown/clay with gravel/1/2-3/4
Diain. from ft. to ft.	30	48	medium brown/clay with gravel/3/4-1"
Plastic: Pressure Rating lbs. ⊠Threaded ☐ Welded	48	84	aray brown/clay with arold 3/4-11/2!
Dia. $\frac{4}{1000}$ in. from $\frac{124}{1000}$ ft.			Elay becoming more from and
Perforations/Slotted Pipe:			percentage of arayel terroases with
Type of perforator used			disth.
Size of perforations/slots in. by in.		100	brown and God aravel well rounded
no. of perforations/slots from ft. to ft. no. of perforations/slots from ft. to ft.			1/4-3/4", grades from fine to
· ·			copyer with depth - (QW)
Screens: Yes No	100	105	aray brown/clay
Material PVC	105	114	Brown and red/bravel/well rounds
Dia. 4" Slot size 0.02 from 94 ft. to 114 ft. Dia. Slot size from ft. to ft.			LOOKE, (QW)
Gravel Packed: Yes No	114	126	dark gray/shalldry (Kb)
Sing of many 17 - 70 Can d			
Gravel placed from 91 ft. to 126 ft.			
Packer: ☐ Yes ☑ No	ADDI	TONAL CI	L HEETS ATTACHED
Type Depth(s)	1		
Grout: Material used Bentonite	1		
Depth from Oft. to 91 ft. OR □ Continuous feed	9. REMA	RKS: 🗜	rumping well for aquifir test
6. WELL TEST DATA:			
A well test is required for all wells. (See details on well log report cover.)			NTRACTOR'S CERTIFICATION:
☑ Static water level 62.92 ft. below top of casing or	All work p	performed	d and reported in this well log is in compliance with the struction standards. This report is true to the best of my
☐ Closed-in artesian pressurepsi.	knowledg		suddiction standards. This report is true to the best of my
How was test flow measured:			poration, (print) AGRS, ENOUSTRITS.
bucket/stopwatch, weir, flume, flowmeter, etc	Address	Box	1166 INL/15ton NO 59901
Yellowstone Controlled Groundwater Area - Water Temperature °F	Signature	30.	ered Romunon
AQUIFER TEST DATA FORM ATTACHED	1 ~ .	,,-"	100
	Date 1		
Montana Bureau of Mines & Geology The University of Montana			A A A A

ne University of Montana 1300 West Park Street Butte, MT 59701

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1300 West Park Street Butte, MT 59701

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

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For fields that are not applicable, enter NA. Optional fields have a grayed background. Record additional information in the REMARKS section. 1. WELL OWNER: U.S. Geological Test - 1 hour minimum Drawdown is the amount water level is lowered below static level. All depth measurements shall be from the top of the well casing. Time of recovery is hours/minutes since pumping stopped. Mailing address 15 gpm with drill stem set at 193 ft. for hours 2. WELL LOCATION: List 1/4 from smallest to largest Time of recovery _____hrs/min. Recovery water level ____ ft. SW 1/4 SW 1/4 SW 1/4 NE 1/4, Section _ OR Bailer test* Township 21 (N/S Range 51 (B/W County Poose Vett gpm with _____ ft. of drawdown after ____ hours Lot _____, Tract/Blk____ Subdivision Name_ Time of recovery hrs/min. Recovery water level ____ ft. Well Address OR Pump test* GPS ⊠Yes □ No Depth pump set for test _____ ft.
___ gpm pump rate with ____ ft. of drawdown after ____ hrs pumping Latitude 48 07 20,2 Longitude 105 10 55,6 Error as reported by GPS locator (* feet) _ Time of recovery ____ hrs/min. Recovery water level _ Horizontal datum ☑ NAD27 ☐ WGS84 RECEIVED OR Flowing Artesian* 3. PROPOSED USE: □ Domestic ☐ Stock □ Irrigation _ gpm for _____ __hours ☐ Public water supply ☑ Monitoring Well ☐ Other: Flow controlled by $\frac{0\,\text{CT}}{3}\,\frac{3}{0}\,\frac{2006}{0}$ *During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the reservoir of the 4. TYPE OF WORK: $oxed{oxed}$ New well $\oxed{\Box}$ Deepen existing well $\oxed{\Box}$ Abandon existing well Method: ☐ Cable ☒ Rotary ☐ Other: 7. WELL LOG: 5. WELL CONSTRUCTION DETAILS: Material: Borehole: 77/8_in. from Depth, Feet color/rock and type/descriptor (example: blue/shale/hard, in. from 6t. to 12 in. from ft. to in. from ft. to То From or brown/gravel/water, or brown/sand/heaving) Dia. Vellow brown/toxoil Dia. 2 10 veilow brown/sami clay with Casing: gravel/100 to 12"/subaranlar Steel: Wall thickness ☐ Threaded in. from +2.8 ft. to _______ ft. to _______ 10 medium brown/ clay with arayal/ 1/2-3/4" in size 30 48 medium brown/clay with lesser Plastic: Pressure Rating _ lbs. ⊠Threaded □ Welded $\frac{4}{100}$ in. from $\frac{1}{2}$ $\frac{1}{2}$ ft. to $\frac{124}{12}$ ft. aravel amounts than above Perforations/Slotted Pipe: aray brown/clay/becoming more Type of perforator used ___ in. by ____ Size of perforations/slots competent. appermost day contains ____ no. of perforations/slots from _____ ft. to ___ aravel 1/8-14" <u>amount</u> of aravel ___ no. of perforations/slots from ____ ft. to ____ Screens: X Yes rown + red | aravel / 1/2-3/4", grades from Material __ Fine to coarse with durth I well-4 Slot size 0 0 7 from 94 ft. to 114 ft.
Slot size from ft. to ft. Dia. ____ rounded 105 lpo aray brown/day Gravel Packed: ⊠ Yes 105 114 rown + red aravel/coarse/well-rounded/ Size of gravel 12-20 Sand 91 ft. to 127 ft. Gravel placed from ____ darkaray/shale/dry Packer: Yes No □ ADDITIONAL SHEETS ATTACHED Depth(s) 8. DATE WELL COMPLETED: 8-31-0 Grout: Material used Bentonite 9. REMARKS: observation well for aguifur Depth from ___ O __ ft. to __ Q ! __ ft. OR □ Continuous feed test 6. WELL TEST DATA: 10. DRILLER/CONTRACTOR'S CERTIFICATION: A well test is required for all wells. (See details on well log report cover.) All work performed and reported in this well log is in compliance with the \boxtimes Static water level 62,52 ft. below top of casing or Montana well construction standards. This report is true to the best of my ☐ Closed-in artesian pressure _____psi. knowledge. Name, firm, or corporation (print) #6 P5 Lwc How was test flow measured: bucket/stopwatch, weir, flume, flowmeter, etc Yellowstone Controlled Groundwater Area - Water Temperature □ AQUIFER TEST DATA FORM ATTACHED License no. Montana Bureau of Mines & Geology MBMG ID# The University of Montana

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For fields that are not applicable, enter NA. Optional fields have a gra	yed backgrou	nd. Re	cord additional information in the REMARKS section.
1. WELL OWNER: Name (1.5. Geological Survey) Mailing address 3162 Bozeman Ave Holena MT 59601	Test - 1 h Drav All d Time	nour mir vdown i epth me	
2. WELL LOCATION: List ¼ from smallest to largest		<u> 15</u>	gpm with drill stem set at 72 ft. for 0.75 hours
NW 14 NE 14 SW 14 NW 14, Section 06			overyhrs/min. Recovery water level ft.
Township 27 N/S Range 51 B/W County 1005 (Velt	OR Bail		m with ft. of drawdown after hours
Lot, Tract/Blk Subdivision Name Well Address	Time	e of rec	overyhrs/min. Recovery water level ft.
GPS ⊠Yes □No	OR Pun	•	o set for test ft.
Latitude 480729.1 Longitude 10511 23.7			ump rate withft. of drawdown after hrs pumping
Error as reported by GPS locator (± feet) Horizontal datum ⊠ NAD27 □ WGS84			overy hrs/min. Recovery water level ft.
3. PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation ☐ Public water supply ☒ Monitoring Well ☐ Other:			gpm forhours
4. TYPE OF WORK: ☑ New well ☐ Deepen existing well ☐ Abandon existing well Method: ☐ Cable ☑ Rotary ☐ Other:	*During the not be the well casing	well test sustainabl	the discharge rate shall be as uniform as possible. This rate may or may be yield of the well. Sustainable yield does not include the resevoir of the
5. WELL CONSTRUCTION DETAILS:	7. WELL		Material:
Borehole: 718 in. from 0 ft. to 80 ft.	Depth, F	eet To	color/rock and type/descriptor (example: blue/shale/hard
Dia.		7.	or brown/gravel/water, or brown/sand/heaving) >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
Diain. from ft. toft.		8	brown/sand/fine-arained
Casing: Steel: Wall thickness	8	20	dark brown/sand with very
Dia. b in. from +2.9 ft. to 2.1 ft. Dia. in. from ft. to ft.			dark gray/clay and 2500
Dia ft. to ft.	7.0	G,	gravel/14"
Plastic: Pressure Rating lbs. ☑ Threaded ☐ Welded Dia 4 in. from +2.5 ft. to 73 ft.	20	36	very tark gran/clan and gravel/1/4-1/2" grading to
Perforations/Slotted Pipe:			1/2-1" With death. Clan
Type of perforator used			decreases and sand increases
Size of perforations/slots in. by in.		4 4	with depth.
no. of perforations/slots from ft. to ft.		64	gravel (very coarse (Qal)
no. of perforations/slots from ft. to ft. Screens: Yes No	64	80	darkaray/shak. Becomes
Material DVC			hard at 75'. (Kb)
Dia. 4" Slot size 0.02 from 43 ft. to 63 ft. Dia. Slot size from from ft. to ft.			RECEIVED
Gravel Packed: ☑Yes □ No			OCT 2 A 2006
Size of gravel 12-20 sand Gravel placed from 40 ft. to 75 ft.			ULI 3 0 2006
Alahari di Alahari da			MARMA
Type Depth(s)	_		HEETS ATTACHED M.B.M.G.
Grout: Material used Bentonite Depth from O ft. to 40 ft. OR □ Continuous feed			COMPLETED: <u>8-29-06</u> Observation well for aquifer test
6. WELL TEST DATA: A well test is required for all wells. (See details on well log report cover.)			NTRACTOR'S CERTIFICATION: d and reported in this well log is in compliance with the
Static water level 17,60 ft. below top of casing or Closed-in artesian pressure psi.		vell con	struction standards. This report is true to the best of my
How was test flow measured: bucket/stopwatch, weir, flume, flowmeter, etc	Name, firr	T 16	rporation (print) ABRIIVOUSTRIP
Yellowstone Controlled Groundwater Area - Water Temperature°F AQUIFER TEST DATA FORM ATTACHED	Signature Date //		7-06 License no. 156
Montana Bureau of Mines & Geology			MBMG ID#
The University of Montana			111000



1300 West Park Street Butte, MT 59701

-230551

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For fields that are not applicable, enter NA. Optional fields have a gra-	yed background.	Record additional information in the REMARKS section.
1. WELLOWNER: Name U.S. Geological Survey	Test - 1 hour Drawdov	minimum wn is the amount water level is lowered below static level.
Mailing address 3162 Bozeman Avc		n measurements shall be from the top of the well casing. recovery is hours/minutes since pumping stopped.
Helina MT 59601	Air test	
	_10	gpm with drill stem set at 46 ft. for 1 hours
2. WELL LOCATION: List ¼ from smallest to largest NW ¼ NE ¼ SW ¼ NW ¼, Section Ob	Time of	recoveryhrs/min. Recovery water level ft.
Township 21 (R/S Range 51 (E/W County Roose velt	OR Bailer to	
Lot, Tract/Blk Subdivision Name		gpm with ft. of drawdown after hours
Well Address		recoveryhrs/min. Recovery water level ft.
GPS Yes \(\text{No}\)	OR Pump to	est* ump set for test ft.
Latitude 4807289 Longitude 10511245		m pump rate withft. of drawdown after hrs pumping
Error as reported by GPS locator (± feet) Horizontal datum ⊠ NAD27 □ WGS84		recovery hrs/min. Recovery water level ft.
3. PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation	OR Flowing	g Artesian*
☐ Public water supply Monitoring Well ☐ Other:		gpm forhours ntrolled by
4. TYPE OF WORK:	*During the well	test the discharge rate shall be as uniform as possible. This rate may or may
☑ New well □ Deepen existing well □ Abandon existing well Method: □ Cable ☑ Rotary □ Other:	not be the susta well casing.	inable yield of the well. Sustainable yield does not include the resevoir of the
	7. WELL LOG	
5. WELL CONSTRUCTION DETAILS: Borehole: 2,	Depth, Feet	Material: color/rock and type/descriptor (example: blue/shale/hard,
Borehole: 3/4 in. from 0 ft. to 60 ft. Dia. in. from ft. to ft. Dia. in. from ft. to ft.	From To	or brown/gravel/water, or brown/sand/heaving)
Dia	0 4	brown/topsoil
Casing:	4 21	
Steel: Wall thickness Threaded Welded	 	Sand/fine. Lianite Fragments tetween 10-11?
Steel: Wall thickness Threaded Welded Dia in. from ft. to ft. Dia in. from ft. to ft.	21 26	dark aray/sand/fine arained with
	21 25	Some day
Plastic: Pressure Rating lbs. ⊠ Threaded □ Welded Dia 4 in. from +2.5 ft. to46 ft.	Z6 35	Sand/fine attained with gravel/1/2"
Perforations/Slotted Pipe:	35 36	dark grav/gravel/coarse (1/2-1")" (6
Type of perforator used	36 60	darle araviday/hard (Kb)
Size of perforations/slots in. by in no. of perforations/slots from ft. to ft.		
no. of perforations/slots fromft. toft.		
Screens: Yes No		
Material PVC		RECEIVED
Dia. 4" Slot size 0.02 from 26 ft. to 36 ft. Dia. Slot size from from ft. to ft.		
Gravel Packed: ⊠Yes □ No		OC1 3 / 2006
Size of gravel 12-20 Sand		
Size of gravel 12-20 Sand 23 ft. to 60 ft.		M.B.M.G.
Packer: ☐ Yes	□ ADDITIONA	L SHEETS ATTACHED
Type Depth(s)		L COMPLETED: 8-Z8-06
Grout: Material used Promite	l I	: observation well for agriful
Depth from	test_	
6. WELL TEST DATA:	10. DRILLER/	CONTRACTOR'S CERTIFICATION:
A well test is required for all wells. (See details on well log report cover.) Static water level 17.45 ft. below top of casing or	All work perfor	med and reported in this well log is in compliance with the
Static water level 1175 ft. below top of casing or Closed-in artesian pressurepsi.	Montana well of knowledge.	construction standards. This report is true to the best of my
How was test flow measured:	1	corporation (print) ACRI INSUSTRICS.
bucket/stopwatch, weir, flume, flowmeter, etc	Address B O	
Yellowstone Controlled Groundwater Area - Water Temperature°F	Signature 3	DandalRamman
☐ AQUIFER TEST DATA FORM ATTACHED	Date //)	7 -0 6 License no. 156
Montana Bureau of Mines & Geology		MBMG ID#
The University of Montana		1200

1300 West Park Street Butte, MT 59701

AN SIZ UU BLAB MONTANA WELL LOG REPORT

Well ID# 1156506-11

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

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For fields that are not applicable, enter NA. Optional fields have a grayed background. Record additional information in the REMARKS section. 1. WELL OWNER: Test - 1 hour minimum Drawdown is the amount water level is lowered below static level. All depth measurements shall be from the top of the well casing. Mailing address Time of recovery is hours/minutes since pumping stopped. 60 gpm with drill stem set at 80 ft. for hours 2. WELL LOCATION: List 1/4 from smallest to largest Time of recovery _____hrs/min. Recovery water level ____ ft. NW 14 NE 14 SW 14 NW 14, Section 06 OR Bailer test* Township 21 (NYS Range 51 B/W County Koos Velt gpm with _____ ft. of drawdown after ____ hours Lot _____, Tract/Blk____ Subdivision Name hrs/min. Recovery water level ft. Time of recovery ____ Well Address OR Pump test* GPS ⊠Yes □ No Depth pump set for test _____ ft.
___ gpm pump rate with ____ ft. of drawdown after ___ hrs pumping Latitude 48 07 29.522 Longitude 105 11 24.081 Error as reported by GPS locator (± feet) Time of recovery ____ hrs/min. Recovery water level ____ ft. Horizontal datum ⊠NAD27 ☐ WGS84 OR Flowing Artesian* 3. PROPOSED USE: □ Domestic ☐ Stock ☐ Irrigation gpm for ___ ___ hours ☐ Public water supply

Monitoring Well ☐ Other: Flow controlled by _ 4. TYPE OF WORK: *During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the resevoir of the Method: ☐ Cable ☐ Rotary ☐ Other: 7. WELL LOG: 5. WELL CONSTRUCTION DETAILS: Material: Borehole: $\sqrt{3/4}$ Depth, Feet color/rock and type/descriptor (example: blue/shale/hard, in. from 0 ft. to 83
in. from ft. to ft. to ft. to ft. to To Dia. or brown/gravel/water, or brown/sand/heaving) Dia. 2 Dia. _ 2 medium brown/sand/fine arained Casing: 34 dark gray/clar with 5=1090 ____ □ Threaded □ Welded _in. from <u>+3.0</u> ft. to <u>2.0</u> ft. _in. from ____ ft. to ____ ft Steel: Wall thickness araver/ 1/16-3/2" 38 arave1/1/16-1/2" Plastic: Pressure Rating __ lbs. ☑ Threaded ☐ Welded 5 in from ± 2.6 ft. to 81 ft. 43 aray brown/ Santy clay 56 Perforations/Slotted Pipe: Type of perforator used _ 63 Size of perforations/slots _ in. by _____ __ no. of perforations/slots from _____ ft. to _ no. of perforations/slots from _____ ft. to ____ very fine arained
 Screens:

 ∑Yes

 □ No

 Material
 □ PC - WY@PPED

 Dia.
 □ Slot size
 from 43
 ft. to 68
 ft.

 Dia.
 □ Slot size
 from from ft.
 ft. to 68
 ft.
 Loose. Lianite seam in sand (Qa) dark grav Gravel Packed: ⊠Yes □ No Size of gravel 12-20 sand + natural gravel

Gravel placed from ______35 ft. to _____83 ft. ⊠ No ☐ ADDITIONAL SHEETS ATTACHED Depth(s) 8. DATE WELL COMPLETED: 9-6-06 Type Grout: Material used Bentonite 9. REMARKS: Dumping Well Depth from O ft. to 35 ft. OR □ Continuous feed 10. DRILLER/CONTRACTOR'S CERTIFICATION: A well test is required for all wells. (See details on well log report cover.) All work performed and reported in this well log is in compliance with the Static water level 17.11 ft. below top of casing or Montana well construction standards. This report is true to the best of my Closed-in artesian pressure _____psi. Name, firm, or corporation (print) AGRI Industry How was test flow measured: Address Box 1166 will is ton NO. 58861 bucket/stopwatch, weir, flume, flowmeter, etc. Yellowstone Controlled Groundwater Area - Water Temperature □ AQUIFER TEST DATA FORM ATTACHED

CAUTHA

Montana Bureau of Mines & Geology The University of Montana 1300 West Park Street Butte, MT 59701 MBMG ID#

230559

Form No. 603 R2-04

Well ID# <u>USGS09-1</u>

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filled with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filling of this report.

For fields that are not applicable, enter NA. Optional fields have a gra-	yed backg	round. Re	cord additional information in the REMARKS section.			
WELL OWNER: Name FORT PECK-TRIBES OEP	Į p	Test - 1 hour minimum Drawdown is the amount water level is lowered below static level. All depth measurements shall be from the top of the well casing				
Mailing address P.O. Box 1027		All depth measurements shall be from the top of the well casing. Time of recovery is hours/minutes since pumping stopped.				
POPLAR, MONTANA 59255	. A	ir test*				
WELL LOCATION: List ¼ from smallest to largest			gpm with drill stem set at 145 ft. for 0.5 hours			
4 GW 4 GW 4, Section 33	T	ime of rec	overyhrs/min. Recovery water level ft.			
Township 28 (D)S Range 51 (E)W County 12075 EVELT	OR B	ailer test				
Lot, Tract/Blk Subdivision Name		gp	m with ft. of drawdown after 0.25 hours			
Well Address	ł		overyhrs/min. Recovery water level ft.			
GPS ⊠Yes □No		ump test				
Latitude 48°07'44.00724'Longitude 105°09'02.58094W	1	epin puni anm n	p set for test ft. ump rate withft. of drawdown after hrs pumping			
Error as reported by GPS locator (± feet)			overy hrs/min. Recovery water level ft.			
		lowing Ar	· · · · · · · · · · · · · · · · · · ·			
PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation ☐ Public water supply ☒ Monitoring Well ☐ Other:		_	gpm forhours			
			T. T			
TYPE OF WORK: ☑ New well ☐ Deepen existing well ☐ Abandon existing well			illed by the discharge rate shall be as uniform as possible. This rate may or may be yield of the well. Sustainable yield does not include the resevoir of the			
Method: ☐ Cable ☐ Rotary ☐ Other:	well cas	ing.	- June - The train and desired by the state of the state			
WELL CONSTRUCTION DETAILS:	7. WEL		A Control of the Cont			
Parahalas	65.304	Feet	Material: color/rock and type/descriptor (example: blue/shale/hard,			
Dia. $\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Fram	To	or brown/gravel/water, or brown/sand/heaving)			
Dia	0	1	TORSOIL ;			
Casing:	1	25	CLAY WITH FALLD, OLIVE BROWN			
Steel: Wall thickness	25	gan yen	OCC. GEAVEL 1"-2"			
Steel: Wall thickness □ Threaded □ Welded Dia. 9 in. from (a.0) ft. to + 2.0 ft. Dia. in. from ft. to ft. ft. ft.		58	CLAY WITH FAND OLIVE PROWN.			
			MORE COMPETENT THAN APPONE SY			
Plastic: Pressure Rating lbs Threaded _ Welded Dia ft. to ft.	58	101	CLAY GRAYERMANION, GRAVEL 24			
	25	photos end	COMMON GILTY FAND LENGTS			
Perforations/Slotted Pipe:	101	115	GRAVEL, RED BROWN, 3/4"-7" CHRANG			
Type of perforator used in. by in.			SUPPOUNDED/ MOAL PRASMENTS (Q)			
no. of perforations/slots fromft. toft.	115	1.16	SAND, GRAY, FINE GRAINET			
no. of perforations/slots from ft. to ft.	116	121	GRAVEL, REDEROUN, 44"-2" PLEANS			
Screens: ⊠ Yes □ No		1	SUBBROUNDED/OR COPPLES 3"-5"(0			
Material PVC Dia. 4" Slot size 0.02 from 129 ft. to 139 ft.	121	176	CLAY, PLUE GRAY, COMPETENT			
Dia. Slot size from ft. to ft.	126	176	GRAVEL, RED REDWIN, 1/4"-3"			
Gravel Packed: ⊠ Yes □ No	1585	1 1100	SUBANGLIAR - SIBROLNIPED (QV			
Size of gravel 12-20 SAND	++0-	1-162	SHALE, TARK GRAY, DEY (Kb)			
Gravel placed from 107 ft. to 148 ft.		1				
Packer: Yes No NATURAL CUTTINGS	□ ADD	ITIONAL S	HEETS ATTACHED			
Type Depth(s)	8. DAT	E WELL (COMPLETED: 10/06/2009			
Grout: Material used <u>BENTONITE CHIPS</u> Depth from ☐ ft. to ☐ ft. OR ☐ Continuous feed	9. REN	IARKS: _				
. WELL TEST DATA:	10. DR	LLER/CO	NTRACTOR'S CERTIFICATION:			
A well test is required for all wells. (See details on well log report cover.)	All worl	performe	d and reported in this well log is in compliance with the			
Static water level <u>87.31</u> ft. below top of casing or			struction standards. This report is true to the best of my			
Closed-in artesian pressurepsi.	knowle	_	prporation (print)			
How was test flow measured: bucket/stopwatch, weir, flume, flowmeter, etc	1		iporation (pint)			
	1					
ellowstone Controlled Groundwater Area - Water Temperature °F AQUIFER TEST DATA FORM ATTACHED	1	ıre	License no.			



Site number: 27N51E06CCBA01

MONTANA WELL LOG REPORT

Form No. 603 R2-04

Well ID# <u>V66609-2</u>

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered.

This form is to be completed by the driller and filed with Mt. Sureau of Mines & Geology within 60 days of completion of the work.

Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

Well log information is stored in the Groundwater Information Center at the Montana Bureau of Mines and Geology (Butte) and water right information is stored in the Water Rights Bureau records (Helena).

For fields that are not applicable, enter NA. Optional fields have a grayed background. Record additional information in the REMARKS section. 1. WELL OWNER: Test - 1 hour minimum FORT PECK-TRIBES DEP Drawdown is the amount water level is lowered below static level. Name All depth measurements shall be from the top of the well casing. Mailing address **POX** 1027 Time of recovery is hours/minutes since pumping stopped. POPLAR MT 59255 3 gpm with drill stem set at 82 ft. for 0.715 hours 2. WELL LOCATION: List 1/4 from smallest to largest Time of recovery _____hrs/min. Recovery water level ft. 14 NW 14 SW 14 SW 14, Section 6 Township 27 Ws Range 51 (E)W County POOSEVELT gpm with _____ ft. of drawdown after _____ hours Lot _____, Tract/Blk____ Subdivision Name ___ Time of recovery _____hrs/min. Recovery water level ft. Well Address GPS Yes □ No OR Pump test* Latitude 4807'01,88406"N Longitude 105°11'32.41714"W Depth pump set for test __ _ ft. gpm pump rate with ____ft. of drawdown after___ hrs pumping Error as reported by GPS locator (± feet) Time of recovery _____ hrs/min. Recovery water level ft. Horizontal datum NAD27 ☐ WGS84 NAD83 OR Flowing Artesian* ☐ Domestic ☐ Irrigation ☐ Stock ☐ Public water supply

Monitoring Well ☐ Other: gpm for ___ Flow controlled by *During the well test the discharge rate shall be as uniform as possible. This rate may or may $\begin{tabular}{ll} X \end{tabular}$ New well $\end{tabular}$ Deepen existing well $\end{tabular}$ Abandon existing well not be the sustainable yield of the well. Sustainable yield does not include the resevoir of the well casing. 7. WELL LOG: 5. WELL CONSTRUCTION DETAILS: Material: Depth, Feet Borehole: color/rock and type/descriptor (example: blue/shale/hard, From Dia. Tà or brown/gravel/water, or brown/sand/heaving) -Dia. in. from ft. to ft. 1 TOPECAL. LIENT BROWN Dia. in. from ft. to 1 10 AND LIGHT BROWN, FINE CRAINED Casing: WELL SCRIFED, THRY ness Threaded Welded in. from 7.5 ft. to +2.5 Wall thickness Steel: Dia. 10 14 EAND, MEDIUM PROWN, FINE GRAINED Dia. in. from ____ SLIGHTLY COASSER THAN APOVE 1-1 SAND, DARK GRAY, MOIST Plastic: Pressure Rating lbs. ☐ Threaded ☐ Welded 1/4 GRAVEL AND SAND, PEO AND PROMISE 50% SERVEL 14"- 1", SURANGELLAR 21 Dia, _ in. from <u>+ 2.73</u> ft. to <u>85</u> ft. Perforations/Slotted Pipe: SUBPOUNDED (QJI Type of perforator used __ Size of perforations/slots 21 in. by ___ CLAY, DARK GRAY, COMPETENT/CXY in. ____ no. of perforations/slots from ____ ft. to GRAVEL 41/4" COALFRAGMENTS no. of perforations/slots from ___ ___ ft. to _ 1/2 GRAVEL, RED AND PROMIS 1/4"- "5" Screens: Yes □ No EURANGULAR-EURACUSTED/COM Material PVC FRAGMENTS AND PETRIPHED WASOLOG Dia. ____ Slot size <u>0.02</u> from <u>35</u> ft. to <u>75</u> ft. 55 61 SAND, GRAY, MEDIUM GRAINFD Slot size _____from _____ ft. to _____ ft. 120 SPAVEL PED AND PROVING. 1/4 Gravel Packed: ☐ Yes ☐ No Size of gravel 12-20 SAND SURALIGHUR - SURPOUNDED COAL FRAGMENTS (QAI) Gravel placed from 27 _ ft. to _ 74 85 SHALE, DARK GRAY, HARD, DRY (K) Packer: Yes No Type _ _ Depth(s) _ 8. DATE WELL COMPLETED: 10/7/2007 Grout: Material used BENTONITE CHIPS 9. REMARKS: Depth from 27 ft. to O ft. OR □ Continuous feed 10. DRILLER/CONTRACTOR'S CERTIFICATION: A well test is required for all wells. (See details on well log report cover.) All work performed and reported in this well log is in compliance with the Static water level 16,44 ft. below top of casing or Montana well construction standards. This report is true to the best of my ☐ Closed-in artesian pressure ___ knowledge. How was test flow measured: Name, firm, or corporation (print) bucket/stopwatch, weir, flume, flowmeter, etc_ Address Yellowstone Controlled Groundwater Area - Water Temperature Signature___ ☐ AQUIFER TEST DATA FORM ATTACHED Date License no. Montana Bureau of Mines & Geology MBMG ID#



Site number: 28N51E32CAAA01

MONTANA WELL LOG REPORI

Form No. 603 R2-04

Well ID# <u>US6509-3</u>

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

For fields that are not applicable, enter NA. Optional fields have a gray	yed backgr	ound. Re	cord additional information in the REMARKS section.		
1. WELL OWNER: Name FORT PECK TRIBES OFP Mailing address P.O. BOX 1027	Test - 1 hour minimum Drawdown is the amount water level is lowered below static level. All depth measurements shall be from the top of the well casing.				
	Time of recovery is hours/minutes since pumping stopped.				
POPLAR_IMT 59255	A	ir test*	11/1/2011		
2. WELL LOCATION: List 1/4 from smallest to largest			gpm with drill stem set at 146 ft. for 0.75 hours		
14 NE 14 NE 14 SW 14, Section 32		me or reco	overyhrs/min. Recovery water level ft.		
Township 28 (N)S Range 51(E)W County POOSEVELT		ailer test*			
Lot, Tract/Blk Subdivision Name			m with ft. of drawdown after hours		
Well Address	П	me of reco	overyhrs/min. Recovery water level ft.		
GPS □Yes □No	OR P	ump test*			
Latitude 48°C8' (19.63705" N Longitude 105' 09'42, 62780" W	D ₁	epth pump	set for test ft.		
Error as reported by GPS locator (± feet)			ump rate withft. of drawdown after hrs pumping		
Horizontal datum □ NAD27 □ WGS84 NAD83	Ti	me of reco	overy hrs/min. Recovery water level ft.		
3. PROPOSED USE: Domestic Stock Irrigation	OR FI	owing Ar	tesian*		
□ Public water supply ☑ Monitoring Well □ Other:			gpm forhours		
4. TYPE OF WORK:	FI	ow control	lled by		
⊠ New well □ Deepen existing well □ Abandon existing well		ne sustainable	the discharge rate shall be as uniform as possible. This rate may or may a yield of the well. Sustainable yield does not include the resevoir of the		
Method: ☐ Cable ☒ Rotary ☐ Other:	7. WEL	•			
5. WELL CONSTRUCTION DETAILS:			Material:		
Borehole:	11.33EXSVIII	Feet	color/rock and type/descriptor (example: blue/shale/hard,		
Dia. 10 in from 0 ft. to 100 ft. Dia. 2 in from 100 ft. to 149 ft.	From	To	or brown/gravel/water, or brown/sand/heaving)		
Dia. in from ft, to ft.	0	_1	TOPEOIL		
Casing:		2	SAND, SILTY, LIGHT BROWN,		
Steel: Wall thickness Threaded Welded	- 3,		THE EIRAINED, COC GRAVEL "		
Steel: Wall thickness □ Threaded □ Welded Dia. □ in. from 10.9 ft. to + 2.1 ft. Dia. in. from ft. to ft.	2	9	CLAY, MEDIUM BROWN, OCC. GRAVE L'S'		
Diain. from it. toit.	9	55	CLAY OLIVE BROWN MORE COMPETENT		
Plastic: Pressure Rating Ibs. ☐ Threaded ☐ Welded			THAN APOVE, IPON STAINING, OCC.		
Plastic: Pressure Ratinglbs. ☐ Threaded ☐ Welded Dia4in. from#1, 8ft. to149ft.			GRAVEL 3/4"-1", COAL FRAGMENTS FRESEN		
Perforations/Slotted Pipe:	55	95	CLAY, DARK GRAY BROWN, SAME AS		
Type of perforator used			APONE, FINE GIRALNED SAND		
Size of perforations/slots in. by in.			LENSE AT 61'		
no. of perforations/slots fromft. toft.	95	177	GRAVEL, BED AND BOOMN, 3/4"-6"		
no. of perforations/slots from ft. to ft.	- A-A-A		SUBANGULAR WELL ROUNDED (OW)		
Screens: X Yes No	111	113	CLAY, GRAY, COMPETENT		
Material PVC	113	136	GRAVEL, REDIAND FROMN, 44"-6"		
Dia			SAME AS ABOVE (OW)		
	136		SHALE, GRAY, WEATHERED, (Kb)		
Gravel Packed: Yes □ No Size of gravel 12-20 GAND	439	149	SHALE, DARILGIRAY, HARD (Kb)		
Gravel placed from 124 ft. to 149 ft.					
- NATIVE CATTINGS		<u> </u>			
Type Depth(s)	,		HEETS ATTACHED		
Grout: Material used BENTONITE CHIPS	1		OMPLETED: 10/09/2009		
Depth from ft. to ft. OR Continuous feed	9. REM	ARKS: _			
6. WELL TEST DATA:	10 000	I EDIAA:	NTRACTOR'S CERTIFICATION:		
A well test is required for all wells. (See details on well log report cover.)			d and reported in this well log is in compliance with the		
🗴 Static water level <u>43.00</u> ft. below top of casing or			struction standards. This report is true to the best of my		
☐ Closed-in artesian pressurepsi.	knowled				
How was test flow measured:	Name, i	irm, or co	rporation (print)		
bucket/stopwatch, weir, flume, flowmeter, etc					
Yellowstone Controlled Groundwater Area - Water Temperature°F	E.				
☐ AQUIFER TEST DATA FORM ATTACHED	Date	· -	License no.		
Montana Bureau of Mines & Geology	L Date _		LICERSE NO.		



Form No. 603 R2-04

Well ID# <u>USGS09-4</u>

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the drifler and illed with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filling of this report.

	For fields that are not applicable, enter NA. Optional fields have a gray	ed backgr	ound. Re	ecord additional information in the REMARKS section.		
1. WELL OWNER: Name FORT PECK TRIPES OFP Malling address P.O. BOX 1027			Test - 1 hour minimum Drawdown is the amount water level is lowered below static level. All depth measurements shall be from the top of the well casing. Time of recovery is hours/minutes since pumping stopped.			
2. V	POPLAK-, MONTANA 59255 WELL LOCATION: List ¼ from smallest to largest ¼ SW ¼ SW ¼, Section 4	_		gpm with drill stem set at <u>98</u> ft. for <u>0</u> ,5 hours coveryhrs/min. Recovery water level ft.		
L	Fownship 27 Nys Range 51 FW County PCOSEVELT Tract/Blk Subdivision Name Nell Address	Τī	me of rec	om with ft. of drawdown after hours coveryhrs/min. Recovery water level ft.		
Ł	SPS	D:	gpm p	p set for test ft. pump rate withft. of drawdown after hrs pumping covery hrs/min. Recovery water level ft.		
3, F	PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation ☐ Public water supply ☒'Monitoring Well ☐ Other:			gpm for hours		
4. TYPE OF WORK: ⊠ New well □ Deepen existing well □ Abandon existing well Method: □ Cable □ Rotary □ Other:			the well test ne sustainab ing.	olled by		
5. V	NELL CONSTRUCTION DETAILS:		7. WELL LOG: Depth, Feet Material:			
В	Sorehole: Dia. 40 in. from 0 ft. to 95 ft.	From	To	color/rock and type/descriptor (example: blue/shale/hard, or brown/gravel/water, or brown/sand/heaving)		
	Dia. 8 in. from 95 ft. to 126 ft.	0	2	TOPSOIL		
	Diain. from ft. to ft.	2	15	CLAY, MEDIUM BROWN, OCC. GRAVE, "A"-5"		
-	asing: Steel: Wall thickness □ Threaded □ Welded	17.000		INCREASING MOISTURE W DEPTH, STIFF		
	Steel: Wall thickness Threaded Welded Dia in. from	15	25	CLAY, GIRAY PRONN, CCC. GRAVEL 4"-6"		
	Diain. fromft. toft.	25	4=7	LLAY YELLOW FROWN, OCC. GRAVET "4"-C."		
F	Plastic: Pressure Ratinglbs. ☐ Threaded ☐ Welded ☐ Dia4"in. from+1,5ft. to126ft.	2.5	- 51:4:	TIPON STAINING COAL FRASMENIS ISTITIFE		
		47	76			
	Perforations/Slotted Pipe: Type of perforator used			PRAGMENT 1/0/-3"		
5	Size of perforations/slots in. by in.	76	90	GRAVEL AND SANE RED, BROWN AND WHITE		
	no. of perforations/slots from ft. to ft.			14"-4"SUBANGULNIZ-SUBJECTINETO		
	no, of perforations/slots fromft. toft.	90	95	GRAVEL, PED AND EROWN, 3/4"-4", JURAN SULAP		
S	Screens: ⊠ Yes □ No Material <u>PVC</u>	most.	1000	WELL POUNDED, 40% COAL FRAGMENTS 36 4"		
	Dia. 4 Slot size 0.02 from 106 ft. to 116 ft.	35	100	GRAPIL RED AND FROM, 1/4"-4" SUBANGULAR		
	Dia. 4 Slot size 0.02 from 106 ft. to 116 ft. Dia. Slot size from ft. to ft.	10000	101	WELL FOLLNESS, SM. LOOL FRAGMENTS		
G	Bravel Packed: ⊠Yes □ No	101	115	GRAVEL AND SAND REDAND BROWN GRAVEL		
	Size of gravel 12-20 SAND Gravel placed from103ft. to126ft.	-1,5,4		144"-3" SUBDING-WELL BOUNDED DEGRAY FAND		
	- LINTURAL CULTURES	115	120	GLINE DARKGRAY HARD, THIN		
				SHEETS ATTACHED BENTONITE SCAM 125, WEATHFRE		
G	Type Depth(s) <u>600 103</u> Grout: Material used <u>PFNTONITE CHIPS</u> Depth from <u>0</u> ft. to <u>60</u> ft. OR □ Continuous feed			COMPLETED: 10/14/2009 115-116.		
[WELL TEST DATA: A well test is required for all wells. (See details on well log report cover.) Static water level 52.51 ft. below top of casing or Closed-in artesian pressurepsi.	All work Montan knowled	performe a well cou dge.	ONTRACTOR'S CERTIFICATION: ed and reported in this well log is in compliance with the instruction standards. This report is true to the best of my		
	How was test flow measured:			orporation (print)		
	bucket/stopwatch, weir, flume, flowmeter, etc					
	lowstone Controlled Groundwater Area - Water Temperature °F AQUIFER TEST DATA FORM ATTACHED			License no.		
	Montana Bureau of Mines & Geology	I Date		License no MBMG ID#		
- A TM/	ANNOUNCE OF THE PROPERTY OF TH			111 E 121 A 1441)		



MONTANA WELL LOG REPORT Site number: 27N51E09BBBB01

Form No. 603 R2-04

Well ID# <u>USGS09-5</u>

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered.

This form is to be completed by the driller and filed with Mt. Bureau of Mines & Geology within 60 days of completion of the work.

Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filing of this report.

For fields that are not applicable, enter NA. Optional fields have a gri			
Name FORT PECK TRIBES OFF		- 1 hour mi Drawdown	inimum is the amount water level is lowered below static level
Mailing address P.O. BOX 1027	1 7	neasurements shall be from the top of the well casing. covery is hours/minutes since pumping stopped.	
POPLAR-IMT 50201	1	\ir test*	to the state of th
			gpm with drill stem set atft. for 0.5 hours
2. WELL LOCATION: List 1/4 from smallest to largest	T	ime of rec	covery hrs/min. Recovery water level ft.
	1	Bailer test	
Township 27 NS Range 51 BW County POOSE VELT	3		om with ft. of drawdown after hours
Lot, Tract/Blk Subdivision Name	1 7	ime of rec	coveryhrs/min. Recovery water level ft.
Well Address OPS ☐ No	1	ump test	
Latitude 48°06'48, 43379" N Longitude 105°09'02, 55/646" W		epth pum	p set for test ft.
Error as reported by GPS locator (± feet)		gpm p	oump rate withft. of drawdown after hrs pumping
Horizontal datum □ NAD27 □ WGS84 NAD63	1	ime of rec	covery hrs/min. Recovery water level ft.
. PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation	ı	lowing A	
Public water supply Monitoring Well Other:			gpm forhours
TYPE OF WORK:	l F	low contro	olled by
New well ☐ Deepen existing well ☐ Abandon existing well	*During	the well test	the discharge rate shall be as uniform as possible. This rate may or may le yield of the well. Sustainable yield does not include the resevoir of the
Method: ☐ Cable ☒ Rotary ☐ Other:	well car		re professional and well. Sustainable yield does not include the resevoir of the
WELL CONSTRUCTION DETAILS:	7. WEL	LLOG:	
Borehole:	Depti	ı, Feet	Material:
Dia. <u>10</u> in. from <u>0</u> ft. to <u>78</u> ft,	From	70	color/rock and type/descriptor (example: blue/shale/hard, or brown/gravel/water, or brown/sand/heaving)
Dia. in. from ft. to ft. Dia. in. from ft. to ft.	0	2	TOPSOIL, MEDIUM BROWN
	2	15	CLAY, OLIVE EROUN, IRON STAINING, CCC.
Casing: Steel: Wall thickness			GRAVEL = 1/8"
Steel: Well thickness Threaded Dia in. from ft. to ft. to ft. to ft. to ft.	15	32	SAND, DARK GRAY, FINE GRANTED, LOCK
Diain. from ft. to ft.	32	55	GRAVELAND SOND, BROWN AND WHIT
			VA "- A" SUBANGULAR, METAMORPY
Plastic: Pressure Rating lbs. □ Threaded □ Welded Dia ft. to ft.			ROCKS PRESENT (MILL)"
Perforations/Slotted Pipe:	55	56	CLAY, GRAY, SOFT
Type of perforator used	56	55	GRAVELANDSAND, BROWN AND WHITE
Size of perforations/slots in. by in.			3/4"- 4", SUBANGLILAR, COAL PRAGA
no. of perforations/slots from ft. to ft.			UP TO 2", METAMORPHY ROOMS DE
no. of perforations/slots fromft. toft.	50	62	CLAY, GIRAY, VERY STIFF
Screens: Yes No	62	63	SAND, DARK GRAY, FINE GRAY, NED
Material PVC Dia. 411 Slot size 0.02 from 58 ft. to 68 ft.	(63	67	GRAVEL AND SAND, RED AND PROWN
Dia Slot size from ft. to ft. Dia Slot size from ft. to ft.			GRAVEL 144-41, SUBROUNDED TO
Gravel Packed: 🖾 Yes 🗆 No	<u> </u>		WELL ROUNDED QUARTETTE PRESE
Size of gravel 12-20 SAND			LACK OF METAMORPHIC ROCKS (OR
Gravel placed from 55 ft to 78 ft	(07	TB	- Control of the second
Packer: Tyes TNO NATURAL CUITINGS	- C 455	UTIONAL	SEDM' FROM 42'- 74' (Kb)
Type Depth(s)	□ ADE	HUNALS	HEETS ATTACHED
Grout: Material used PENTONITE CHIPS	1		COMPLETED: 10/12/2009
Depth fromO_ft. toft. OR □ Continuous feed	9. REN	IARKS: _	
WELL TEST DATA:	***************************************	W	
A well test is required for all wells. (See details on well log report cover.)			NTRACTOR'S CERTIFICATION:
Transmission to required for all Wells. (See details bit Well log (about cover.)	All Work		d and reported in this well log is in compliance with the struction standards. This report is true to the best of my
			sudduon standards. This report is true to the best of my
X Static water level 11, 28 ft. below top of casing or	knowled		
		-	rporation (print)
Static water level <u>41, 28</u> ft. below top of casing or Closed-in artesian pressurepsi.	Name,	firm, or co	rporation (print)
★ Static water level <u>41.28</u> ft. below top of casing or Closed-in artesian pressure psi. How was test flow measured:	Name, Address	firm, or co	
X Static water level <u>41, 22</u> ft. below top of casing or Closed-in artesian pressurepsi. How was test flow measured: bucket/stopwatch, weir, flume, flowmeter, etc	Name, Address Signatu	firm, or co s	



Form No. 603 R2-04

Well ID# USG500-6

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered. This form is to be completed by the driller and filled with Mt. Bureau of Mines & Geology within 60 days of completion of the work. Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filling of this report.

For lieids that are not applicable, enter NA. Optional fields have a gra	yed backg	round, R	ecord additional information in the REMARKS section		
1. WELL OWNER: Name FORT PECK TRIBES OFF	Test -	1 hour m	ninimum		
	I A	Drawdown is the amount water level is lowered below static level, All depth measurements shall be from the top of the well casing.			
Mailing address P.O. Box 1027	T	ime of red	covery is hours/minutes since pumping stopped.		
POPLAR MONTANA 59255	A	ir test*			
2. WELL LOCATION: List 1/2 from smallest to largest		50	gpm with drill stem set atft. for 0.5 hours		
	1		coveryhrs/min. Recovery water level ft.		
Township 28(N)S Range 51 (EW County POSEVELT	1	ailer test			
Lot, Tract/Blk Subdivision Name	-	gp	om with ft. of drawdown after hours		
Well Address GPS ☐ Yes ☐ No			coveryhrs/min. Recovery water level ft.		
GPS ☐ Yes ☐ No Latitude <u>18°10′19,78584″ N</u> Longitude <u>105°10′01,70009</u> °w		ump test	p set for test ft.		
Error as reported by GPS locator (± feet)			pump rate withft. of drawdown after hrs pumping		
Horizontal datum □ NAD27 □ WGS84 NAD23	17	me of rec	covery hrs/min. Recovery water level ft.		
ADODOGED HOE	I		rtesian*		
Public water supply ☒ Monitoring Well ☐ Other:	1	_	gpm forhours		
I. TYPE OF WORK:	F	low contro	olled by		
New well □ Deepen existing well □ Abandon existing well	*During not be to	the well test he sustainah	the discharge rate shall be as uniform as possible. This rate may or may be yield of the well. Sustainable yield does not include the resevoir of the		
Method: ☐ Cable ☒ Rotary ☐ Other:	well cas	ing.	The second of the second of the second of the		
5. WELL CONSTRUCTION DETAILS:	7. WEL		Moderate		
Borehole:	Depth		Material: color/rock and type/descriptor (example: blue/shale/hard,		
Dia	From	To	or brown/gravel/water, or brown/sand/heaving)		
Dia. C in. from C ft. to ft. Dia. In. from ft. to ft. Dia. In. from ft. to ft.	0	2	TOPSOIL		
Casing:	- JA	5	CLAY, SILTY, LIGHT BROWN, MOIST.		
Steel: Wall thickness Threaded Welded	声	15	VERY SONET		
Steel: Wall thickness Threaded Welded Dia in. from ft. to ft. Dia in. from ft. to ft.		20	CLAY, MEDIUM PROWN, MORE		
			COMPETENT THAN ABOVE DERCEN		
Plastic: Pressure Rating fbs. ☐ Threaded ☐ Welded Dia4in. from1.6 ft. to58 ft.	15	16	THEREASYS WITH DEPTH MOIST		
Perforations/Slotted Pipe:			COMPETENT THAN ABOVE, WET		
Type of perforator used	16	25	GRAVEL PED AND PROUNT, 2/4"- 6		
Size of perforations/slots in, by in.			SUBANGULAR - WELL ROUNDED		
no. of perforations/slots from ft. to ft.			QUARTRITE TRESENT (QAI)		
no. of perforations/slots fromft. toft.	25	35	GRAVEL, ESPONALAND WHITE 2/4"-10		
Screens: ⊠ Yes □ No Material _ ?VC			SUBANGUIONES - SUBTEDUNDED		
Dia. 4 Slot size 0.02 from 39 ft to 48 4	124	La property	METAMORPIC POCKS PRESENT (ON		
Dia. 4 Slot size 0.02 from 38 ft. to 48 ft. Dia. Slot size	35	47	GRAVELAND SAND RED AND BROWN		
Gravel Packed: ⊠ Yes □ No			GRAVIL, 1/4"-6", SUBANGULAR-WIT		
Size of gravel 12-205AND			POUNDED QUARTETT/FINE GRAIN		
Gravel placed from	44	ACS	GRAY SAND (OUI)		
Packer: Yes No NATURAL CUTTINGE		TIONALS	SHALE, GRAY WEATHERED STIFF (
Type Depth(s) 20/- 33/	8. DATE	WELLC	OMPLETED: 10/13/2009 HARD (Kb)		
Grout: Material used BENTONITE CHIPS		ARKS:			
Depth from Off. to 20 ft. OR Continuous feed					
WELL TEST DATA:	10. DRII	LER/CO	NTRACTOR'S CERTIFICATION:		
A well test is required for all wells. (See details on well log report cover.)	All work	performed	d and reported in this well log is in compliance with the		
 Static water level <u>15,775</u> ft. below top of casing or □ Closed-in artesian pressurepsi. 	Montana	well cons	struction standards. This report is true to the best of my		
How was test flow measured:	knowled	_	and and the second		
bucket/stopwatch, weir, flume, flowmeter, etc			rporation (print)		
	Address				
ellowstone Controlled Groundwater Area - Water Temperature °F GROUIFER TEST DATA FORM ATTACHED	Signatur	e	License no		



Site number: 28N51E21CCBB02

MONTANA WELL LOG REPORT

Form No. 603 R2-04

Well ID# USGS09-7

This log reports the activities of a licensed Montana well driller and serves as the official record of work done within the borehole and casing and describes the amount of water encountered.

This form is to be completed by the driller and filled with Mt. Bureau of Mines & Geology within 60 days of completion of the work.

Acquiring Water Rights is the well owner's responsibility and is not accomplished by the filling of this report.

For fields that are not applicable, enter NA. Optional fields have a gra-	yed backgr	ound. Re	cord additional information in the REMARKS section.	
1. WELL OWNER: Name FORT PECK TRIBES OFP Mailing address P.O. POX 1027	Test - 1 hour minimum Drawdown is the amount water level is lowered below static level. All depth measurements shall be from the top of the well casing. Time of recovery is hours/minutes since pumping stopped.			
POPLAR, MONTANA 59255	Air test*			
2. WELL LOCATION: List 1/4 from smallest to largest	Time of recoveryhrs/min. Recovery water levelft.			
4 NW & SW 14 Section 21				
Township Range S1 (E)W County 2005 (E)T	OR Bailer test*			
Lot, Tract/Blk Subdivision Name	gpm with ft. of drawdown after hours			
Well Address	Time of recoveryhrs/min. Recovery water level ft.			
GPS 🗆 Yes 🗀 No	OR Pump test*			
Latitude 46°09'58.20188"N Longitude 105°09'03,19020"W	Depth pump set for test ft.			
Error as reported by GPS locator (± feet)	gpm pump rate withtt. of drawdown after hrs pumping			
Horizontal datum □ NAD27 □ WGS84 NAD83	Time of recovery hrs/min. Recovery water level ft.			
3. PROPOSED USE: ☐ Domestic ☐ Stock ☐ Irrigation	OR Flowing Artesian*			
☐ Public water supply 🎽 Monitoring Well ☐ Other:	gpm for hours			
4. TYPE OF WORK:	Flow controlled by			
A. TIPE OF WORK: ☐ New well ☐ Deepen existing well ☐ Abandon existing well Method: ☐ Cable ☒ Rotary ☐ Other:	*During the well test the discharge rate shall be as uniform as possible. This rate may or may not be the sustainable yield of the well. Sustainable yield does not include the resevoir of the well casing.			
	7. WELL LOG:			
5. WELL CONSTRUCTION DETAILS: Borehole:	Depth	, Feet	Material:	
Dia () in. from O ft. to ()1 ft.	From	To	color/rock and type/descriptor (example: blue/shale/hard, or brown/gravei/water, or brown/sand/heaving)	
Dia. Sin. from (01 ft. to 111 ft.	0	1	TORAL	
Diain. from ft. to ft.	2	22	SAND, LIGHT BROWN, VERY FINE	
Casing:			GRAINED, MOIST AT 10', OCC 1/4"	
Steel: Wall thickness Threaded Welded			GRAVEL FROM 10-11'	
Dia	11	20	CLAY, MEDILIM BROWN, OCC. GRANT	
	al/ola	200	1/4"-1", IRON STAINING MEDIUM STEF	
Plastic: Pressure Rating lbs. ☐ Threaded ☐ Welded Dia ft. to ft.	20	(01	CLAY, OLIVE GRAY, OTC. GRAVEL 14-1"	
Dia. 4 in. from ft. to 44 ft.		101	120H STAINING, VERY STIFF	
Perforations/Slotted Pipe:	61.	76	GRAVEL REDAND PRONN 1/4"-4"	
Type of perforator used in. by in.	1732	10	SUBANGULAR-WELL POUNDED.	
Size of perforations/siots in. by in.			COALFRAGIMENTS UP TO 3"	
no. of perforations/slots from ft. to ft. no. of perforations/slots from ft. to ft.	776	444		
Screens: 🖄 Yes 🗆 No				
Material PVC	177	100		
Dia. 4" Slot size 0.02 from 91 ft. to 101 ft.			SUBANGULAR-WELL POUNDED.	
Dia Slot size from ft. to ft.	2.44	1 - 1	GRAVEL 2"-4" FROM 97-100	
Gravel Packed: ⊠ Yes □ No	100		SUME DACK GRAY, SOFT, WEATH THE	
Size of group! 12-20 SAND	101	111	SHALE, DARK GRAY, HARD	
Gravel placed from 65 ft. to 111 ft.		promisen actions		
Packer: Tyes TNo NATURAL CUTTINGS	AMM	TICSIAL SI	HEETS ATTACHED	
Type Depth(s)	1			
Grout: Material used BENTON ITE CHIPS	1	8. DATE WELL COMPLETED: <u>40/15/2009</u>		
Depth fromft. toft. OR Continuous feed	9. REMARKS:			
6. WELL TEST DATA:	All work performed and reported in this well log is in comprance with the			
A well test is required for all wells. (See details on well log report cover.)				
Static water level 54,79 ft. below top of casing or		Montana well construction standards. This report is true to the best of my		
☐ Closed-in artesian pressurepsi,	1	knowledge.		
How was test flow measured:	Name, firm, or corporation (print)			
bucket/stopwatch, weir, flume, flowmeter, etc	Address			
Yellowstone Controlled Groundwater Area - Water Temperature°F	Signature			
□ AQUIFER TEST DATA FORM ATTACHED			License no.	
Montana Bureau of Mines & Geology			MBMG ID#	

