

SOUTH DAKOTA WATER WELL COMPLETION REPORT

11-02

Location SW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec 28 Twp 12N Rg 4E

County

Butte

North

Please mark well
location with an "X"

W

E

Well Completion Date

7-22-151 Mile

Distance to nearest potential pollution source (Septic tank, abandoned well, feed lot, etc.)

? _____ ft. from _____ (identify source)

PROPOSED USE:

☒ Domestic/Stock ☐ Municipal ☐ Business ☐ Test Holes
☐ Irrigation ☐ Industrial ☐ Institutional ☐ Monitoring well

METHOD OF DRILLING:

Rotary air

CASING DATA: ☒ Steel ☐ Plastic ☐ Other

If other describe _____

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
40.5 LB/FT	10 3/4 IN	0 FT	40 FT	14 3/4 IN
23 LB/FT	7 IN	0 FT	1016 FT	9 7/8 IN
15.5 LB/FT	5 1/2 IN	1016 FT	3703 FT	7 7/8 IN

9.5# GROUTING DATA: 31/2 3690 3840 4 3/4

Grout Type	No. of Sacks	Grout Weight	From	To
x-lite	405	11.5 Lb/gal	0 Ft	1485 Ft
Class G	150	15.8 Lb/gal	1485 Ft	3547 Ft

Describe grouting procedure _____

SCREEN: ☒ Perforated pipe ☐ ManufacturedDiameter 5 1/2 inches Length 88 FeetMaterial steelSlot Size 0.128 Set From 3615 Feet to 3703 FeetOther information 3690 3840WAS A PACKER OR SEAL USED? ☒ Yes ☐ NoIf so, what material? Neoprene rubber

Describe packer(s) and location

3,547'

DISINFECTION: Was well disinfected upon completion?

☒ Yes, How? calciumLab sample sent to for
water quality analysis☐ No, Why Not? hydrochlorite

Mid Continent

Well Owner: Blair Brothers

Business Name: _____

Address: 19599 Bear Butte RdCity, State, Zip: Vale, SD 57788

WELL LOG:

DEPTH

FORMATION

FROM

TO

AttachedSTATIC WATER LEVEL 679 FEET

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ Inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced flow rate _____ GPM

Can well be completely shut in?

WELL TEST DATA:

☒ Pumped Describe: _____☐ Bailed☐ Other

Pumping Level Below Land Surface

960 Ft. After 24 Hrs. pumped 40 GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

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WATER RIGHTS
PROGRAMThis well was drilled under license # 604

And this report is true and accurate.

Drilling firm: Weston Engineering, Inc.

Signature of License Representative

Signature of Well Owner or Equitable Property Holder:

Date: _____

**LITHOLOGIC LOG FOR BLAIR BROTHERS
BUTTE COUNTY, SOUTH DAKOTA
SW SE SEC 28, T12N, R4 E**

DEPTH	GENERAL LITHOLOGY	SAMPLE DESCRIPTION	COMMENTS
0-4	Top Soil	Light brown	
PIERRE FORMATION			
4 - 510	Silty clay	multicolored silty calcareous clay - chips of pale and grayish yellow green silty clay with sand streaks. Yellowish gray to dusky yellow sandy clay with minor chips of v.f. grained dusky yellow sandstone	
510 - 995	Shale	Hard, platy olive black shale interbedded with siltstone. Minor chalky white calcareous clay-sized material	
995 - 1834	Siltstone	olive black siltstone containing abundant sand and clayey (Marl) interlayers.	
1834 - 1882	Shale	Olive black shale, occasionally iron stained with interbedded olive black marl, yellowish gray non-calcareous shale and light gray to yellowish gray calcareous siltstone	
TOP OF NIOBRARA FORMATION			
1882 - 1915	Chalk and shale Sandy Siltstone	Calcareous light gray shale. Abundant chalk siltstone containing v.f. sand, interbedded with marl. Abundant dusky yellow sand streaks: scarce dusky	
TOP OF CARLILE FORMATION			
1915 - 2190	Shale	Dusky blue, fissile, non calcareous shale with biotite flakes, pale-dark yellowish brown noncalcareous shale, streaks of v.f. sand; fine angular calcareous sand	
2190 - 2224	Shale	Grayish black non-calcareous shale with minor v.f. sand on bedding planes, small shell fragments and brownish black shale interbedded with pale brownish yellow limestone	
TOP OF GREENHORN LIMESTONE			
2224 - 2266	Limestone	Dark gray with rounded white calcareous grains. light gray sandy limestone with fine yellowish gray lime mudstone; Brownish black, slightly fissile shale	
TOP OF BELLE FOURCHE SHALE			
2266 - 2642	Shale	Brownish black, slightly fissile shale; abundant bentonite and minor yellowish brown calcareous shale	

TOP OF MOWRY SHALE

2642 - 2926	Shale	Brownish black, fossiliferous shale, pyrite and oxidized iron stains; interbedded with white arkosic/calcareous sandstone, calcite veining and yellowish brown micaceous shale.
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TOP OF MUDDY FORMATION

2926 - 2992	Interbedded shale and sandstone	Brownish black shale containing dolomite concretions, pyrite, calcite veining. Finely laminated brownish black and light olive gray shale with bentonite and calcite cemented v.f. sandstone
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TOP OF SKULL CREEK SHALE

2992 - 3340	Interbedded shale	Brownish black shale containing dolomite concretions, pyrite, calcite veining. Finely laminated brownish black and light olive gray shale with bentonite
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TOP OF DAKOTA SANDSTONE

3340 - 3515	Interbedded sandstone and shale	Fine grained, calcite cemented, light olive gray sandstone, with non-calcareous dark gray shale and olive black shale with iron staining in lower shales. Calcite cemented med sand size grains intermingled with pyrite.
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TOP OF FUSON SHALE

3515 - 3598	Shale interbedded	Dark gray calcareous-non-calcareous shale, with minor amounts of yellowish brown siltstone pyrite
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TOP OF LAKOTA SANDSTONE

3598 - 3614	Shale interbedded	Dark gray calcareous-non-calcareous shale, light gray fine grained sandstone, intermingled with clay
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3614 - 3634	Sandstone	Light olive gray v.f. to med. grained sub-angular to subrounded quartz sandstone. silica cemented sand friable. Minor white clay with black streaks.
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3634 - 3645	Shale interbedded	Dark gray calcareous-non-calcareous shale, light gray fine grained sandstone, intermingled with white clay with black streaks
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3645 - 3745	Sandstone	Light olive gray v.f. to med. grained sub-angular to subrounded quartz sandstone. silica cemented sand friable.
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3745 - 3775	Shale interbedded	Dark gray calcareous-non-calcareous shale, light gray fine grained sandstone, intermingled with white clay with black streaks
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3775 - 3800	Sandstone	Light olive gray v.f. to med. grained sub-angular to subrounded quartz sandstone. silica cemented sand friable. Minor white clay with black streaks.
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TOP OF MORRISON FORMATION

3800-3845	Shale	olive gray to light greenish waxy shale, white bentonite clay Dark gray calcareous-non-calcareous shale, light gray fine grained sandstone, intermingled with white clay with black streaks
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MIDCONTINENT
TESTING LABORATORIES, INC.

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Page 1 of 1

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 – www.thechemistrylab.com

**WATER RIGHTS
PROGRAM**

Sample Site: **Blair Two Top**
Sampled: 09/10/15 at 10:00 AM
by Bill Fulton
Sample Matrix: Water

Lab ID#: 20150910908
Received: 09/10/15 at 03:05 PM
by Dean Aurand
Account: 8066 - Weston Engineering Inc.

JERRY HUNT
WESTON ENGINEERING
PO BOX 260
UPTON, WY 82730

Parameter	Result	Units	DF	MDL	PQL	Method	Analyst/Date	
Physical Properties								
Electrical Conductivity	953	µmhos/cm	1	0.237	5.00	SM 2510B	JAM	09/11/15
Hardness	< 5.00	mg/L	1			SM 2340 B	SCR	09/14/15
pH	9.73	S.U.	1			SM 4500-H+ B	JAM	09/11/15
Total Dissolved Solids	513	mg/L	100ml	8.28	50.0	SM 2540 C	BAA	09/14/15
Non-Metallics								
Chloride (Cl-)	16.7	mg/L	1	0.193	0.500	SM 4500-Cl E	BLL	09/11/15
Nitrogen, Nitrate (NO3)	< 0.050	mg/L	1	0.010	0.050	SM 4500-NO3 F	BLL	09/11/15
Sulfate (SO4)	80.4	mg/L	4	2.72	4.00	SM 4500-SO4 E	BLL	09/11/15
Metals - Dissolved								
Calcium (Ca)	< 1.00	mg/L	1	0.038	1.00	SM 3111 B	GRT	09/11/15
Iron (Fe)	< 0.050	mg/L	10	0.002	0.050	EPA 200.8	TNA	09/15/15
Magnesium (Mg)	< 0.500	mg/L	1	0.025	0.500	SM 3111 B	GRT	09/11/15
Manganese (Mn)	< 0.010	mg/L	10	0.00026	0.010	EPA 200.8	TNA	09/15/15
Sodium (Na)	213	mg/L	8	1.18	4.00	SM 3111 B	GRT	09/11/15
Metals - Total								
Iron (Fe)	0.674	mg/L	10	0.002	0.050	EPA 200.8	TNA	09/22/15
Manganese (Mn)	0.017	mg/L	10	0.00026	0.010	EPA 200.8	TNA	09/22/15

Report Approved By:

Steve Pistau

Report Approved On: 9/22/2015 3:12:58 PM



MIDCONTINENT
TESTING LABORATORIES, INC.

Page 1 of 1

2381 South Plaza Drive P.O. Box 3388 Rapid City, SD 57709
(605) 348-0111 – www.thechemistrylab.com

Sample Site: **Blair Two Top**
Sampled: 09/10/15 at 10:00 AM
by Bill Fulton
Sample Matrix: Water

Lab ID#: 20150910855
Received: 09/10/15 at 03:05 PM
by Dean Aurand
Account: 8066 - Weston Engineering Inc.

JERRY HUNT
WESTON ENGINEERING
PO BOX 260
UPTON, WY 82730

Parameter	Result	Units	DF	Method	Analyst/Date	
Bacteria						
Fecal Coliform	Absent		1	SM 9223 P/A	JMH	09/10/15
Total Coliform	Absent		1	SM 9223 P/A	JMH	09/10/15

Report Approved By:

Steve Distau

Report Approved On: 9/11/2015 2:33:31 PM



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WATER RIGHTS
PROGRAM

1401 Highway 16 East
P.O. Box 260
Upton, Wyoming 82730

September 29, 2015

Water Rights Program
523 East Capitol
Pierre, South Dakota 57501-3181

RE: Completion Report – Blair Brothers Completion Report

Dear Mr. Buhler:

Enclosed please find the completion report and lithologic log for Blair Brothers.

Should you have any questions or concerns, please call our office.

Thank you for your attention to this matter.

Sincerely,

Julie Abbott, Secretary
Weston Engineering, Inc.