Table 8. Unkpapa Water Level Measurements in Elevation Above Sea Level

Hydro I.D. or Hydro Code	690	693	703	704
Formation	Unkpapa	Unkpapa	Unkpapa	Unkpapa
Subsurface (SS) or Free-Flowing (FF)	FF	FF	SS	FF
Depth (ft)	623	930	525	955
Screened Interval (ft)	621–631	910–930	475–525	915–955
Targeted Measurement Frequency	Once	Once	Once	Once
Measuring Point	top of well casing	top of well casing	top of well casing	top of well casing
Distance from Measuring Point to Ground				2
Approximate Land Elevation from topographic map (ft)			3,877	3,599
Calculated Measuring Point Elevation (ft)	3,699.2	3,627.3	3,877	3,599
Date	ft above mean sea level			
5/14/08	3,728.3	3,763.0		
5/21/08			3,767.0	
5/28/08	3,729.8			
5/30/08				3,715.5
6/24/08			3,767.6	
Mean	3,729	3,763	3,767	3,716

Task 6. Review the Water Rights, Well Completion, and Water Quality for the Well North of Kennobbie's Ranch to Determine Aquifer

Well 4, a stock well located in SESE Sec. 15, T7S, R1E, was brought into question as to which aquifer the well is completed in. A well log indicates this well was originally drilled as on oil exploration well (API# 5093) into the Minnelusa Formation to a depth of 2,264 feet. This log (Figure 9) also indicates the well was plugged and abandoned. RESPEC was not able to find any water rights or well completion information describing how this well was completed as a water well. However, information in Table 2.5.2-1 of the TVA EIS report describes this well (D-19) as being 2,264 feet deep, coinciding with the original drilling depth into the Minnelusa, and with a water level of 3,580 feet elevation.

Table 9. Wells for Possible Inclusion in Water Level Measurement Plan (Page 1 of 3)

Aquifer	Well	Free Flowing or Subsurface	Reason for not Measuring Originally	Could be Measured With Minimal Additional Effort	Other Comments
Fall River	7	Unknown	Domestic can not measure without pulling pump	Yes	There is a .las file for this well, so it must be possible to measure
Fall River	8	FF	Domestic can not measure without pulling pump and shutting in for period of time	Maybe	Requires further investigation to determine feasibility
Fall River	17	SS	Stock well would need pump pulled and to stop being use to stabilized	Maybe	Requires further investigation to determine feasibility
Fall River	18	FF	Domestic can not measure without pulling pump and shutting in for period of time	Maybe	Requires further investigation to determine feasibility
Fall River	20	Unknown	Domestic can not measure without pulling pump and shutting in for period of time	Maybe	Requires further investigation to determine feasibility
Lakota	1	FF	Could not be sealed for psi measurement because of leaks caused by corrosion and age	No	Could only be measured if well casing is repaired
Lakota	2	FF	Could not be sealed for psi measurement because of leaks caused by corrosion and age	No	Could only be measured if well casing is repaired
Lakota	13	Unknown	Domestic can not measure without pulling pump; well is no longer used as resident moved	Maybe	Requires further investigation to determine feasibility

Table 9. Wells for Possible Inclusion in Water Level Measurement Plan (Page 2 of 3)

Aquifer	Well	Free Flowing or Subsurface	Reason for not Measuring Originally	Could be Measured With Minimal Additional Effort	Other Comments
Lakota	14	SS	Difficult surface access	Maybe	Requires further investigation to determine feasibility
Lakota	16	SS	difficult surface access because of fittings, domestic well would have to be shut in for period	Maybe	Requires further investigation to determine feasibility
Lakota	42	Unknown	Domestic could not measure without pulling pump. Well has been revamped and completed in the Fall River Formation (?)	Yes	We are not sure when or to what formation this well is now completed in.
Lakota	51	FF	Surface casing in poor condition, leaking	No	This well is not measurable under the present condition
Lakota	96	FF	Domestic can not measure without pulling pump and shutting in for period of time	Maybe	Requires further investigation to determine feasibility
Lakota	115	FF	Domestic can not measure without pulling pump and shutting in for period of time; also not measured because of location north of Dewey Fault	Maybe	Requires further investigation to determine feasibility
Lakota	147	SS	Not measured because of location north of Dewey Fault	Yes	This is a 1-inch piezometer that could easily be measured
Lakota	510	FF	Difficult access, would require shut	Maybe	Requires further investigation to determine feasibility

Table 9. Wells for Possible Inclusion in Water Level Measurement Plan (Page 3 of 3)

Aquifer	Well	Free Flowing or Subsurface	Reason for not Measuring Originally	Could be Measured With Minimal Additional Effort	Other Comments
Lakota	620	SS	Stock well would need pump pulled and to stop being use to stabilized	Maybe	This well has a good potential for measurement
Lakota	696	FF	Could not be measured at time of potentiometric map generation because of poor or cracked valve fittings. Valves were replaced and RESPEC has record of six measurements from 9/22/08 to 2/22/09	Yes, and it has been	
Lakota	697	FF	This well was inadvertently left off potentiometric maps. It has been measured 12 times between 3/30/08 and 2/24/09.	Yes, and it has been	
Lakota	7002	FF	Because of the age of this well, it is believed that pressurizing may cause a line to rupture	No	Could only be measured if well casing is repaired

This well was sampled three times in 1979 by TVA and once by RESPEC in 2008. Data results are presented in Table 10. In comparison to nearby Well 7 and Well 7002, this well has nearly twice the value of chemical conductivity and sulfates. Conductivity and sulfate values observed at this well are dissimilar from other Inyan Kara wells in the area as well, but values are more compatible with expected water quality for the Minnelusa Aquifer. A detailed statistical comparison of water quality was not conducted at this time.

Based on the available information, it is now reasonable to believe Well 4 may be completed in the Minnelusa Aquifer. It is recommended to try to log this well with a borehole televiewer to confirm the completion of this well.

If you have any further questions or need further explanation of these items, please do not hesitate to contact me.

CMH:llf

— DRAFT —

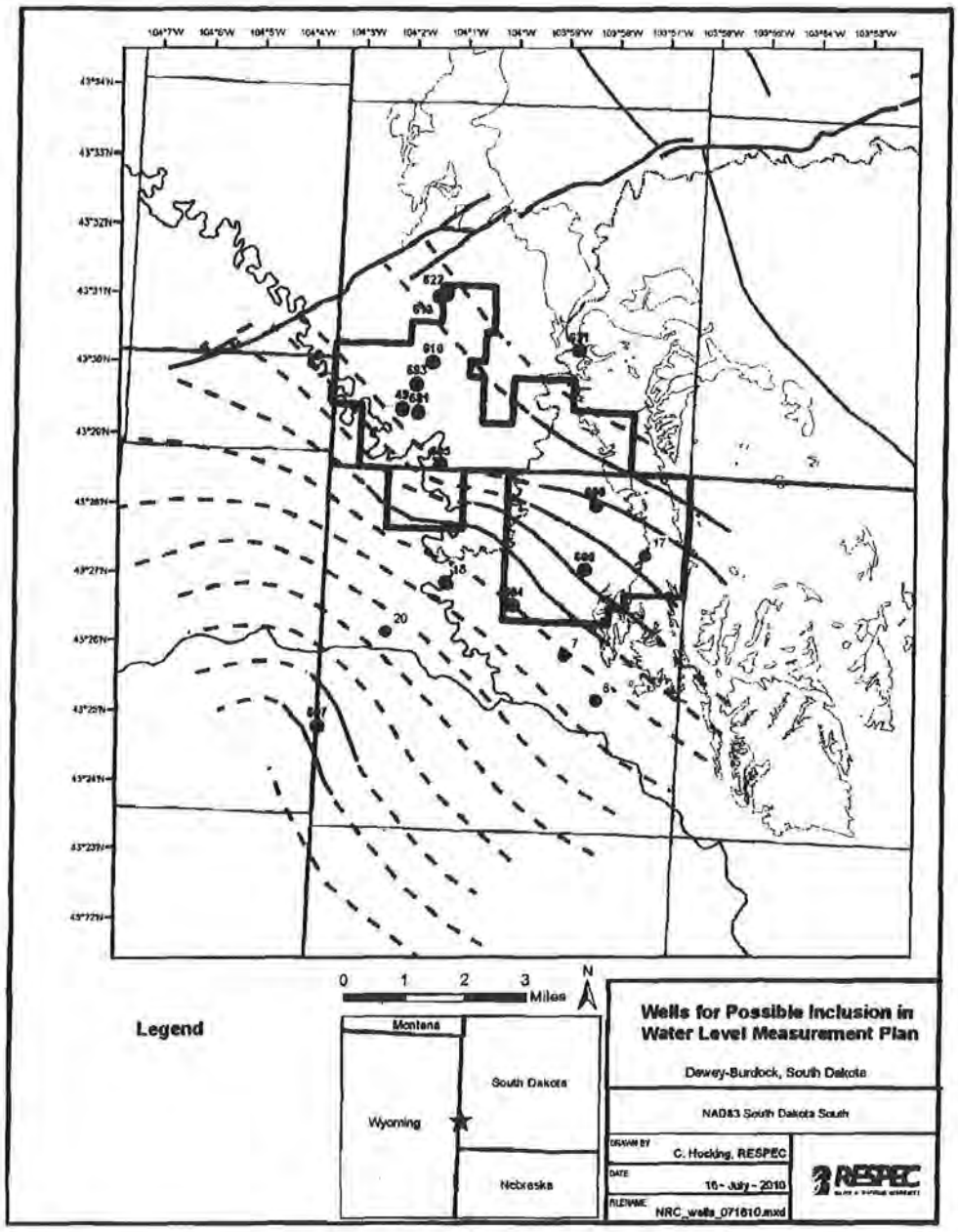


Figure 7. Fall River Aquifer Wells for Possible Inclusion in the Water Level Measurement Plan. Black dots are wells in the current monitoring plan while blue dots are wells not currently included.

— DRAFT —

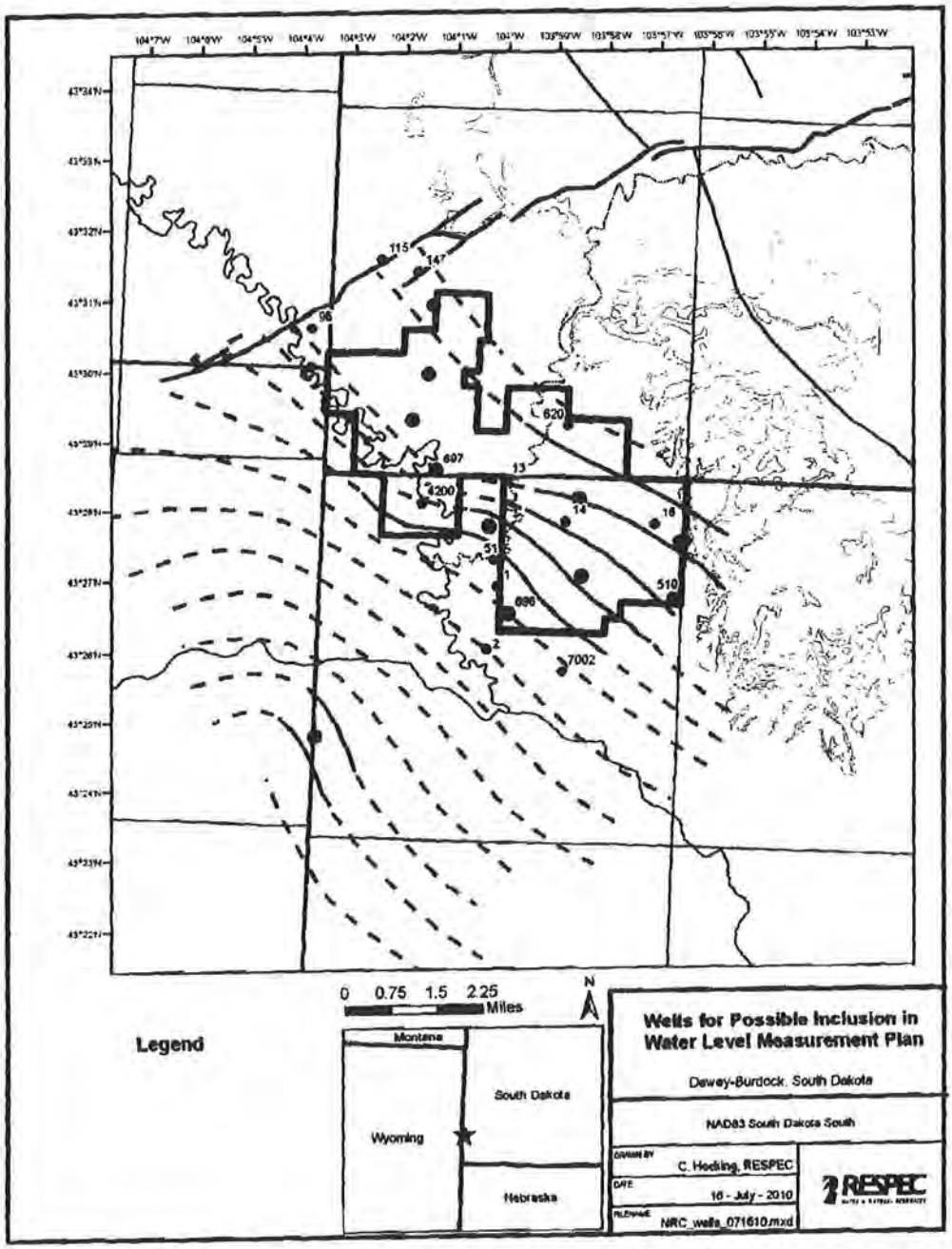
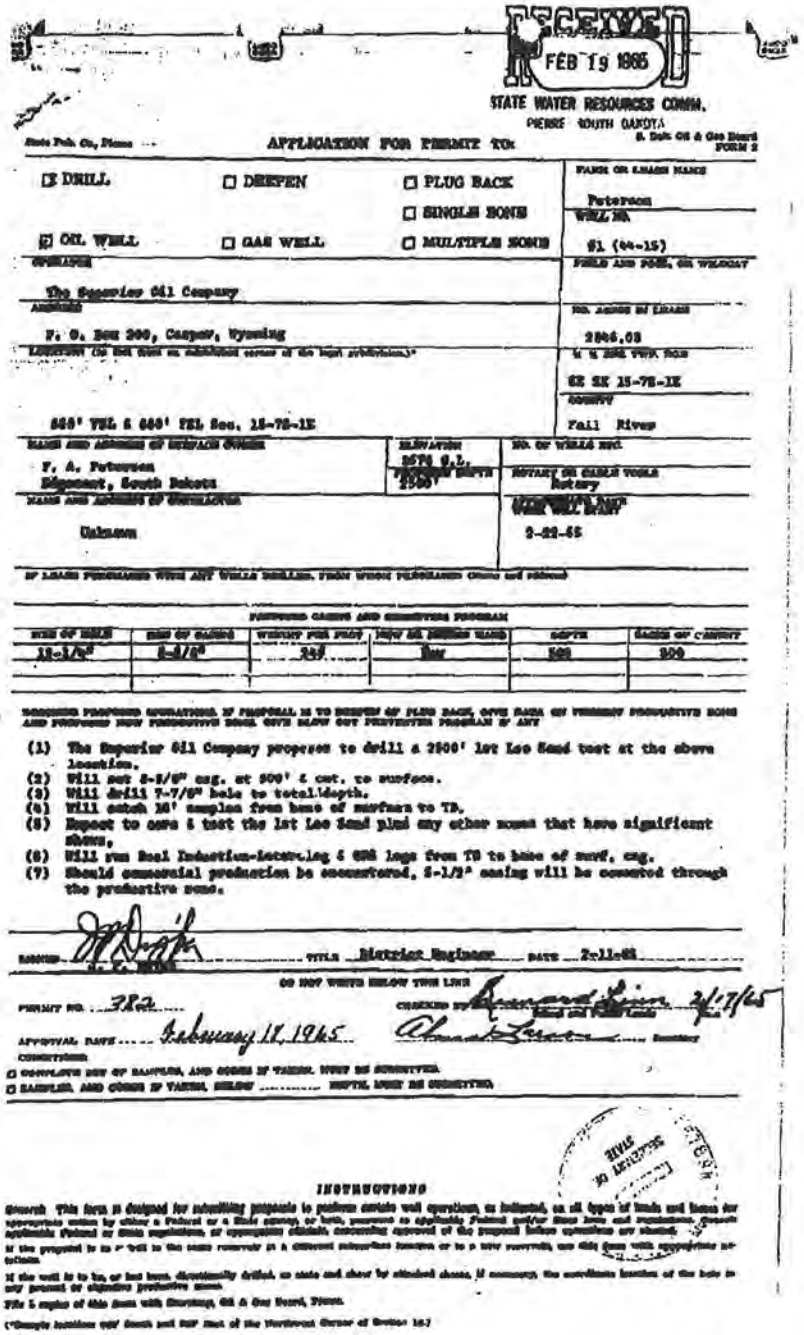


Figure 8. Lakota Aquifer Wells for Possible Inclusion in the Water Level Measurement Plan. Black dots are wells in the current monitoring plan while blue dots are wells not currently included.

— DRAFT —



RECEIVED
FEB 19 1965
STATE WATER RESOURCES COMM.
PIERRE SOUTH DAKOTA

APPLICATION FOR PERMIT TO:

☒ DRILL ☐ DEEPEN ☐ PLUG BACK ☐ SINGLE ZONE ☐ MULTIPLE ZONE

☒ OIL WELL ☐ GAS WELL

Peterson
#1 (44-15)

The Superior Oil Company

P. O. Box 200, Casper, Wyoming

2646.08

660' FEL & 660' FEL Sec. 15-7S-1E

SE SE 15-7S-1E

Fall River

F. A. Peterson
Edgemont, South Dakota

3671 G.L.
3500'

Rotary

Unknown

2-22-65

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	NEW OR USED	DEPTH	SACKS OF CEMENT
12-1/4"	8-5/8"	24#	New	400	300

(1) The Superior Oil Company proposes to drill a 2500' 1st Lee Sand test at the above location.
(2) Will set 8-5/8" csg. at 300' & cmt. to surface.
(3) Will drill 7-7/8" hole to total depth.
(4) Will catch 10' samples from base of surface to TD.
(5) Expect to core & test the 1st Lee Sand plus any other zones that have significant shows.
(6) Will run Dual Induction-Laterolog & GR Logs from TD to base of surf. csg.
(7) Should commercial production be encountered, 5-1/2" casing will be cemented through the productive zone.

SIGNED F. A. Peterson TITLE District Engineer DATE 2-11-65

DO NOT WRITE BELOW THIS LINE

PERMIT NO. 382 CHECKED BY Raymond Lien 2/17/65

APPROVAL DATE February 18, 1965 Chas. Larson

CONDITIONS:

☐ COMPLETION DRY OF SAMPLES, AND CORES IF TAKEN, MUST BE SUBMITTED.
☐ SAMPLES AND CORES IF TAKEN, BELOW ..... MUST BE SUBMITTED.

STATE OF SOUTH DAKOTA

INSTRUCTIONS

General: This form is designed for submitting proposals to perform certain well operations, as indicated, on all types of lands and leases for appropriate action by either a Federal or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Consult applicable Federal or State regulations or appropriate official concerning approval of the proposed before operations are started.

If the proposal is to re-drill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations.

If the well is to be, or has been, directionally drilled, so state and show by attached sketch. If necessary, the surveyed location of the hole at any present or objective productive zones.

File 5 copies of this form with Secretary, Oil & Gas Board, Pierre.

("Surface location 660' South and 660' East of the Northwest Corner of Section 14.")

Figure 9. Well Completion Report for Well I.D. #4 (Page 1 of 3).

— DRAFT —

9-063 (December 1949)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

SCHEDULED

WELL LOG

No. D 7-[illegible]

Other Nos [illegible]

State [illegible] County Fall River Subarea

Owner [illegible] Oil Company Lease #1 Peterson [illegible]

Location SEE SPECIAL LOG FILE FOR MORE INFORMATION [illegible]

Drilled by [illegible] Address

Date [illegible] Casing diam. plugged & abandoned Land-surf. alt. 3553' [illegible] 3576

Source of data [illegible]

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation		Material	Thickness (feet)	Depth (feet)
		Dakota		175
	?	Skull Creek		
	[illegible]	Fuson		
		Lakota		371
	[illegible]	Morrison		
	[illegible]	Sundance		791
	[illegible]	Spearfish		
	[illegible]	Minnekahta		1516
	[illegible]	Opeche		1557
	[illegible]	Minnelusa		1623
		Red Marker		2103
	2214	TD		

[illegible]

Record by Date Sheet of

51753
GPO [illegible]

Figure 9. Well Completion Report for Well I.D. #4 (Page 2 of 3).

— DRAFT —

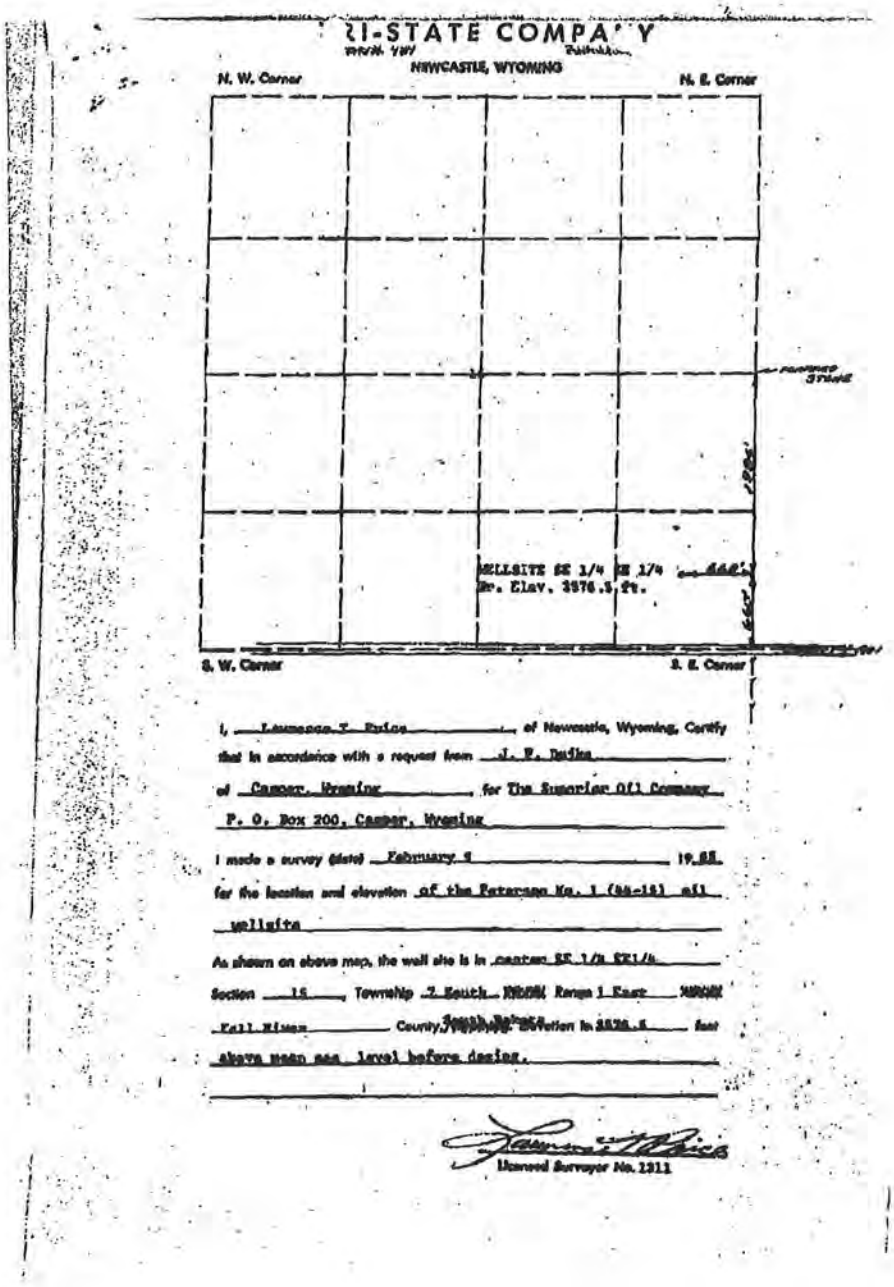


Figure 9. Well Completion Report for Well I.D. #4 (Page 3 of 3).

— DRAFT —

Table 10. Water Quality Data for Well 4 (Page 1 of 4)

	1979-06-15	1979-08-15	1979-09-12	2008-02-12
ALKALIN	80		181	88
ANIONS				53.3
As	0.01		0.01	
B	1		1	
BALANCE	-57.3		-54.9	-2.6
BICARB	73		220	107
B-TDS				1.02
Ca	349		477	
CARB	12		0	5
CATIONS				50.6
Cl	28		26	26
Cond, Field	4,550		4,500	
CONDUCT Lab				4,400
C-SOLIDS				3,600
D-Ag				0.005
D-Al				0.1
D-As				0.001
D-B				0.7
D-Ba				0.1
D-Ca				241
D-Cd				0.005
D-Cr				0.05
D-Cu				0.01
D-Fe				0.03
D-GALPHA				3.5
D-GBETA				14.4
D-GGAMMA				20

— DRAFT —

Table 10. Water Quality Data for Well 4 (Page 2 of 4)

	1979-06-15	1979-08-15	1979-09-12	2008-02-12
D-Hg				0.001
D-K				7.8
D-Mg				87
D-Mn				0.07
D-Mo				0.1
D-Na				716
D-Ni				0.05
DO				
D-Pb				0.001
D-Pb210				1
D-Po210				2.7
D-Ra226				1.1
D-Se				0.001
D-SeIV				0.001
D-SeVI				0.001
D-Si				10.2
D-SOLIDS	4,733		4,117	3,700
D-Th				0.005
D-Th230				0.2
D-U				0.0004
D-V				0.1
D-Zn				0.01
F				0.4
Fe	1.68		1.59	
F-pH				7.83
hardness	1,459		1,392	
K	15		14	

Table 10. Water Quality Data for Well 4 (Page 3 of 4)

	1979-06-15	1979-08-15	1979-09-12	2008-02-12
L-pH	8		7.7	7.94
Mg	143		49	
Mn	0.12		0.08	
N	0.64		0.22	
Na	920		743	
NH3				0.8
NO2				0.1
NO3				0.1
ORP				120
Pb	0.05		0.05	
PO4	0.01		0.01	
SAR				10
Se	0.01		0.01	
SiO2	9.4		8.6	
SO4	3,230		2,700	2,440
S-Pb210				1
S-Po210				1
S-Ra226				0.7
S-Th230				0.2
S-U				0.0003
T-Ag				0.005
T-As				0.001
T-B				0.6
T-Ba				0.1
T-Be				0.001
T-Cd				0.005
T-Cr				0.05

Table 10. Water Quality Data for Well 4 (Page 4 of 4)

	1979-06-15	1979-08-15	1979-09-12	2008-02-12
T-Cu				0.01
TEMP				11.92
T-Fe				1.32
T-Hg				0.001
T-Mn				0.06
T-Mo				0.02
T-Ni				0.05
T-Pb				0.001
T-Pb210				
T-Po210				
T-Ra222				908
T-Ra226		0.11		
T-Sb				0.003
T-Se				0.002
T-Sr				5.7
TSS	6		5.2	
T-Th230				
T-Tl				0.001
T-U		28		0.0005
TURB				0
T-Zn				0.01
V	0.05		0.05	
Zn	0.01		0.01	

— DRAFT —

This page intentionally left blank

SOURCE G

DOMESTIC AND LIVESTOCK WELLS MONITORED DURING FEBRUARY 1982 DEWEY PUMP TEST

(Letter from Gary Cummings, Silver King Mines, Inc., to Peter Martin, Tennessee Valley Authority, April 12, 1982)

This page intentionally left blank

POWERTECH (USA) INC.

D19 820414 007

Silver King Mines, Inc.
P.O. Box 49
Edgemont, South Dakota 57735

Butt
add

April 12, 1982

Peter W. Martin
Technical Engineer
Edgemont Project
Tennessee Valley Authority
P. O. Box 2957
Casper, Wyoming 82602

RE: GWC; 223,82

Dear Pete:

Enclosed you will find the information relating to domestic and livestock wells that were monitored during the Dewey Pump Test.

If you have any questions, please call.

Very truly yours,

SILVER KING MINES, INC.

Gary W. Cummings
Resident Manager

GWC:dlg
Enclosure
cc: R. M. Caywood
D. H. Marks
R. H. Davidson
Mark Boggs

					610	609			40	4002					40U Recompletion?
WELL NUMBERS	119	103	104	39	BPZ 20 FR	BPZ 20 LAK	D-7		40U	40L	102	13	41	48	BY-1 FR
DATE	FT	GPM	FT	FT	FT	FT	FT		GPM	PSI	GPM	FT	GPM	PSI	PSI
2-16-82	PUMP TEST STARTED														
2-17-82	-	-	-	26.89	Froze	4.88	4.54		-	-	-	-	-	-	-
2-18-82	10.73	.72	9.40	26.93	Froze	14.35	Froze at 4.54		-	-	-	-	-	-	-
2-19-82	-	-	-	26.83	3.91	20.18	4.61		-	-	-	-	-	-	-
2-19-82	-	-	-	-	4:00 PM 3.88	4:00 PM 22.44	-		-	-	-	-	-	-	-
2-20-81	10.69	.75	9.63	26.93	8:20 AM 3.96	8:20 AM 27.59	4.61		-	-	-	-	-	-	-
2-21-82	-	-	-	26.94	1:10 PM 3.95	1:10 PM 35.90	4.83		-	-	-	-	-	-	-
2-22-82	-	-	-	26.84	1:00 PM 3.89	1:00 PM 42.30	4.62		-	-	-	-	-	Stopped Flowing	-
2-23-82	-	-	-	-	3.91	10:30 AM 47.90	-		8:15 AM 1.48 GPM	-	10.80	-	-	-	-
2-23-82	-	-	-	-	-	-	-		2:30 PM .70 GPM	-	-	-	-	-	-
2-24-82	10.77	.70	9.62	Windmill Running	4.70	12:00 noon 54.32	4.78		Dribbles	-	10.90	-	-	-	-
2-25-82	-	-	-	28.43	5.00	10:40 AM 59.64	4.74		Drips	-	10.80	7.10	11.40	-	-
2-26-82	10.70	.72	9.53	-	4.73	12:18 PM 65.20	4.78		No Water	-	10.80	7.35	11.50	-	-
2-27-82	-	-	-	-	-	9:35 AM 69.35	-		-	-	-	-	-	-	-
2-27-82	-	-	-	-	-	3:20 PM 70.81	-		-	-	-	-	-	-	-
2-28-82	-	-	-	-	4.85	10:30 AM 71.00	4.67		-	-	-	-	-	-	-
3-1-82	10.62	.75	9.46	-	4.79	12:30 PM 67.91	4.56		-	-	10.90	5.74	11.48	-	-
3-1-82	-	-	-	-	4.88	1:08 PM 64.82	4.56		-	-	10.90	-	-	-	-
3-3-82	-	-	-	-	5.07	11:50 AM 62.10	4.59		.80	-	10.80	-	-	-	-
3-4-82	10.47	.72	9.52	-	5.29	12:10 PM 59.46	4.70		.80	-	10.80	6.37	11.20	-	-
3-5-82	-	-	-	-	5.49	2:25 PM 56.76	4.75		.92	-	-	-	-	13.54'	-
3-6-82	-	-	-	-	-	11:34 AM 54.89	-		-	-	-	-	-	11.05'	-
3-7-82	-	-	-	-	-	52.60	-		-	-	-	-	-	8.25'	-
3-8-82	10.70	.75	9.48	-	6.00	50.28	4.58		.80	-	10.80	6.63	-	5.54	-
3-10-82	10.42	-	-	-	6.98	46.37	4.58		.50	-	-	-	-	0.80	-
3-11-82	-	-	-	-	-	-	-		Dry	16 GPM 12 PSI	-	-	-	Flow 5 GPM	1.6 GPM 25 PSI
3-12-82	10.18	.77	9.41	-	6.49	42.98	4.61		-	-	9.80	6.86	10.80	Flow 8 GPM	
3-15-82	-	-	-	-	6.73	38.42	4.85		-	14 PSI	-	-	-	Flow 15 GPM	25.8 PSI
3-17-82	-	-	-	-	7.15	36.05	4.99		-	PSI 14.45	-	-	-	5.45 PSI	25.5 PSI
3-19-82	10.50	.72	9.40	-	7.21	2:00 PM 33.48	4.91		-	PSI 15.20	10.6	6.66	-	6.75	25.0
3-22-82	-	-	-	-	7.65	Noon 30.58	5.49		-	PSI 14.75	-	-	-	8.00	25.0
3-24-82	-	-	-	-	7.81	1:00 PM 28.60	4.54		-	PSI 15.75	-	-	-	-	25.25
3-26-82	10.72	.70	9.43	-	7.95	11:45 26.73	4.47		-	PSI 17.25	8.8'	9.50	10.5	9.80	25.0
3-30-82	-	-	-	-	7.92	23.38	-		-	PSI 18.40	-	-	-	-	25.0 PSI

626

625

WELL NUMBERS	BP2 LA 22	BP2 FA 22	99	96	106	107	115	147	148	38	49	109	110	111	117
DATE	FT	FT	GPM	GPM	GPM	FT	GPM	FT	FT	GPM	GPM	FT	FT	FT	FT
2-16-82	PUMP TEST STARTED														
2-17-82	70.62	74.92	-	4.00	1.80	1.23	1.15	13.06	-	1.80	2.50	60.35	83.95	8.08	29.78
2-18-82	70.69	74.89	Well in use 1.50	4.00	1.75	1.25	1.15	13.06	-	1.75	Leaks 2.43	60.02	83.68	8.21	29.87
2-19-82	70.63	74.88	-	4.00	1.80	1.27	1.15	13.06	-	1.80	2.38	59.89	83.63	8.13	29.83
2-19-82															
2-20-82	70.74	74.96	1.55	4.00	1.75	1.26	1.15	13.05	-	1.80	2.42	Well in use 60.22	83.65	8.21	29.90
2-21-82	70.75	74.95	-	4.00	1.80	1.55	1.17	13.08	-	1.80	2.35	Well in use 60.60	83.86	8.26	29.94
2-22-82	70.71	74.91	-	9:00 AM 3.90	1.80	1.30	1.17	13.10	-	1.80	2.40	60.32	83.78	8.17	29.89
2-23-82	-	-	-	3.90	-	-	-	-	-	-	2.40	-	-	-	-
2-24-82	70.92	75.10	1.55	3.90	1.80	1.45	1.10	13.35	Water at Surface	1.80	2.40	60.35	83.96	8.33	29.95
2-25-82	70.92	75.09	-	3.90	1.80	1.42	1.10	13.68	Water at Surface	1.80	2.35	60.20	83.94	8.32	30.02
2-26-82	70.87	74.95	1.60	3.90	1.80	1.48	1.15	14.12	Water at Surface	1.80	2.35	Well in use 60.32	83.91	8.25	29.95
2-28-82	70.98	75.00	-	3.70	1.80	1.35	1.20	15.44	0.10'	-	2.35	60.57	84.21	8.29	30.00
3-01-82	70.75	74.87	1.60	3.95	1.80	1.24	1.20	16.32	.60	1.80	2.35	60.15	83.95	8.23	Pump on
3-02-82	70.82	74.85	-	3.95	1.80	1.23	-	17.09	.90	-	2.30	59.83	84.19	8.15	29.77
3-03-82	70.80	74.81	-	3.95	1.80	1.25	1.17	17.93	1.22	-	2.32	59.89	84.27	8.17	29.80
3-04-82	70.84	74.95	1.57	3.95	1.80	1.36	1.20	18.72	1.47	1.80	2.35	59.99	84.31	8.25	29.82
3-05-82	70.97	75.05	-	3.95	1.80	1.42	1.15	19.48	1.74	-	2.32	60.05	84.40	8.30	29.95
3-6-82	-	-	-	-	-	-	-	20.21	-	-	-	-	-	-	-
3-07-82	-	-	-	-	-	-	-	20.85	-	-	-	-	-	-	-
3-08-82	70.99	75.06	1.60	3.95	1.80	1.27	1.20	21.38	1.89	1.80	Leaks 2.35	60.00	84.49	8.31	30.35
3-10-82	70.91	74.98	-	3.75	1.80	1.23	No flow	22.35	1.73	-	-	60.00	84.51	8.16	29.90
3-11-82															
3-12-82	70.78	74.88	1.60	3.95	1.80	1.28	1.10	22.98	1.52	1.80	2.20	60.21	84.60	8.20	29.73
3-15-82	70.51	74.51	-	3.90	1.80	1.52	1.00	23.61	1.43	-	2.25	59.79	84.36	8.11	-
3-17-82	-	-	-	-	-	1.67	.85	23.86	1.41	-	Leaks 2.18	-	-	-	-
3-19-82	70.63	74.67	1.57	3.85	1.80	1.57	Well in use	24.02	1.22	1.80	2.20	59.75	84.40	8.15	
3-22-82	-	-	-	-	-	1.80	1.10	24.05	1.15	-	2.18	-	-	-	-
3-24-82	-	-	-	-	-	1.23	1.12	24.04	.80	-	-	-	-	-	-
3-26-82	70.96	75.00	1.55	3.90	1.80	1.14	1.25	24.06	.76	1.70	2.25	60.02	84.77	8.40	29.92
3-30-82	-	-	-	-	-	-	-	24.02	.13	-	-	-	-	-	-

This page intentionally left blank

SOURCE H

WYOMING WATER RIGHT 183561

This page intentionally left blank

POWERTECH (USA) INC.

FORM U.W.-1 Hydro ID 5002
Rev. 7/99
FILING FEE SCHEDULE ON REVERSE SIDE

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E CHEYENNE, WYOMING 82002
(307) 777-6163

APPLICATION FOR PERMIT TO APPROPRIATE GROUND WATER

APPLICATION FOR WELLS AND SPRINGS

Note: Only springs flowing 25 gallons per minute or less, where the proposed use is domestic and /or stock watering, will be considered as ground water appropriations.

Temporary Filing No. U.W. 403211

FOR OFFICE USE ONLY

PERMIT NO. U.W. 183561
WATER DIVISION NO. 2 DISTRICT 1
U.W. DISTRICT Newcastle

NOTE: Do not fold this form. Use typewriter or print neatly with black ink.
ALL ITEMS MUST BE COMPLETED BEFORE APPLICATION IS ACCEPTABLE

S603508J
50.00
6/18/07

NAME AND NUMBER OF WELL or SPRING Putnam 21

1. Name of applicant(s) Putnam & Putnam, LLP Phone: (605)662-7448
2. Address of applicant(s) 778 Cedar St. Dewey SD 57735
(MAILING ADDRESS) (CITY) (STATE) (ZIP)
3. Name & address of agent to receive correspondence and notices John A. Putnam
778 Cedar St. Dewey SD 57735 Phone: (605)662-7448
(MAILING ADDRESS) (CITY) (STATE) (ZIP)

4. Use to which the water will be applied:

[ ]	Domestic:	Use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totaling one acre or less. Number of houses served?____.
X	Stock Watering:	Normal livestock use at four tanks or less within one mile of well or spring. Stockwatering pipelines and commercial feedlots are a miscellaneous use. Number of stock tanks? 1. per call 7/19/07
—	Irrigation:	Watering of commercially grown crops (large-scale lawn watering of golf courses, cemeteries, recreation areas, etc., is miscellaneous use).
—	Municipal:	Use of water in incorporated Towns and Cities. Note 1: use of water in unincorporated towns, subdivisions, improvement districts, mobile home parks, etc. is classified as miscellaneous use. Note 2: a permit may be required by the Wyoming Department of Environmental Quality (WDEQ) if the well will be classified as a public water supply under the WDEQ's rules and regulations.
—	Industrial:	Long term use of water for the manufacture of a product or production of oil/gas or other minerals (oil field water flood operations, power plant water supply, etc.). (Describe in REMARKS)
X	Miscellaneous: per call 7/19/07	Any use of water not defined under previous definitions such as stock water pipelines, subdivisions, mine dewatering, mineral/oil exploration drilling, potable supplies in office, etc Describe in Remarks Note: a permit may be required by the WDEQ if the well will be classified as a public water supply under the WDEQ's rules and regulations.
—	Coalbed Methane	Water produced in the production of coal bed methane gas. Note: wells used in the production coal bed methane will require a permit from the Wyoming Oil and Gas Conservation Commission.
—	Monitor, Observation	Note: a WDEQ permit may be required Test Well. (Describe in REMARKS)

5. Location of the well or spring: (NOTE: Quarter-quarter (40 acre subdivision) MUST be shown. EXAMPLE: SE 1/4 NW 1/4 of Sec. 12, Township 14 North, Range 68 West.)
Niobrara County, SW 1/4 SW 1/4 of Sec. 28, T. 41 N., R. 60 W. of the 6th P.M. (W.R.M.), Wyoming. If located in a platted subdivision, also provide Lot/Tract ___ Block ___ of the ___ Subdivision (or Add'n) of ___. Resurvey Location: Tract ___, (or Lot) ___

6. Estimated depth of the well or spring is 600 feet. Estimated production interval is Unknown ft. to ___ ft.

7. (a) MAXIMUM instantaneous flow of water to be developed and beneficially used: 10 gallons per minute. NOTE: If for domestic and / or stock use, this application will be processed for a maximum of 25 gallons per minute. For a spring, after approval of this application, some type of artificial diversion or improvement must be constructed to qualify for a water right.

(b) MAXIMUM volumetric quantity of water to be developed and beneficially used per calendar year: 5 per call 7/19/07
Circle appropriate units: (Gallons) (Acre Feet) A four person family utilizes approximately one (1) acre-foot of water per year or 325,000 gallons.

8. Mark the point(s) or area(s) of use in the tabulation box below.

TABULATION BOX

TWP	RNG	SEC	NE¼				NW¼				SW¼				SE¼				TOTAL
			NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	NE¼	NW¼	SW¼	SE¼	
41	60	28											X						1 Stock Tank

SEE REVERSE SIDE

Permit No. U.W. 183561 Book No. 1329 Page No. 61

POWERTECH (USA) INC.

9. If [illegible]:
   a. Describe MAXIMUM acreage to be irrigated in each 40 acre subdivision in the tabulation box above.
   b. Land will be irrigated from this well only
   c. Land is irrigated from existing water right(s) with water from this well to be additional supply. Describe existing water right(s) under REMARKS.

10. If for irrigation use, describe method of irrigation, i.e. center pivot sprinkler, flood, etc. ____________

11. The well or spring is to be constructed on lands owned by Putnam [illegible], L.L.P
(The granting of a permit does not constitute the granting of right-of-way. If any easement or right-of-way is necessary in connection with this application, it should be understood that the responsibility is the applicant's. A copy of the agreement should accompany this application, if the land is privately owned and the owner is not the co-applicant.)

12. The water is to be used on lands owned by Putnam & [illegible], LLP
(If the landowner is not the applicant, a copy of the agreement relating to the usage of appropriated water on the land should be submitted to this office. If the landowner is included as co-applicant on the application, this procedure need not be followed.) NOTE: Water rights attach to the area(s) and/or point(s) of use.

REMARKS: Existing well is not currently [illegible] [illegible]. Well was drilled 1936

Under penalties of perjury, I declare that I have examined this application and to the best of my knowledge and belief it is true, correct and complete.

[signature] Signature of Applicant or Authorized Agent — Date [illegible], 20 [illegible]

THE LEGALLY REQUIRED FILING FEE MUST ACCOMPANY THIS APPLICATION

DOMESTIC AND/OR STOCK WATERING USES (Domestic use is defined as use of water in 3 single family dwellings or less, noncommercial watering of lawns and gardens totalling one acre or less.)	$25.00
IRRIGATION, MUNICIPAL, INDUSTRIAL, MISCELLANEOUS, COAL BED METHANE	$50.00
MONITOR (For water level measurements or chemical quality sampling) or TEST WELL	No Fee

IF WELL WILL SERVE MULTIPLE USES, SUBMIT ONLY ONE (THE HIGHER) FILING FEE.

THIS SECTION IS NOT TO BE FILLED IN BY APPLICANT

THE STATE OF WYOMING)
) ss
STATE ENGINEER'S OFFICE)

This instrument was received and filed for record on the 12th day of June, A.D. 20 07, at 9:18 o'clock A.M.

Permit No. U.W. 132551 — [signature] for State Engineer

THIS IS TO CERTIFY that I have examined the foregoing application and do hereby grant the same subject to the following limitations and conditions.

This application is approved subject to the condition that the proposed use shall not interfere with any existing rights to ground water from the same source of supply and is subject to regulation and correlation with surface water rights, if the ground and surface waters are interconnected. The use of water hereunder is subject to the further provisions of Chapter 169, Session Laws of Wyoming, 1957, and any subsequent amendments thereto.

Granting of a permit does not guarantee the right to have the water level or artesian pressure in the well maintained at any specific level. The well should be constructed to a depth adequate to allow for the maximum development and beneficial use of ground water in the source of supply.

If the well is a flowing artesian well, it shall be so constructed and equipped that the flow may be shut off when not in use without loss of water into sub-surface formations or at the land surface.

Coal Bed Methane wells have Additional Conditions and Limitations on attachment sheet.

This permit and accompanying notices serve to register an existing well and establish a valid water right for the same. Time limit for Completion of Construction and Completion of Beneficial Use is waived.

~~Approval of this application may be considered as authorization to proceed with construction of the proposed well or spring. A Statement of Completion will be filed within thirty (30) days of completion of construction, including pump installation.~~

~~Completion of construction and completion of the beneficial use of water for the purposes specified in item 4 of this application will be made by December 31, 20__.~~

The amount of appropriation shall be limited to the quantity to which permittee is entitled as determined at time of proof of application of water to beneficial use.

Witness my hand this 29th day of October, A.D. 20 07

Cheryl Verplancke for PATRICK T. TYRRELL, State Engineer

October 16, 2007 - Statement of Completion on 1936 received.
Beneficial Use assumed as of date of completion.

FORM U.W.6
Rev. 1/07

STATE OF WYOMING

OFFICE OF THE STATE ENGINEER
HERSCHLER BLDG., 4-E
CHEYENNE, WYOMING 82002

(307) 777-6163

STATEMENT OF COMPLETION AND DESCRIPTION OF WELL OR SPRING

NOTE: Do not fold this form. Use typewriter or print neatly with black pen.

PERMIT NO. U.W. 183561 NAME OF WELL/SPRING Putnam 21

1. NAME OF OWNER PUTNAM & PUTNAM, LLP
2. ADDRESS 778 CEDAR ST
   Please check if address has changed from that shown on permit
   City DEWEY State SD Zip Code 57735 Phone No 605-662-7448
3. USE OF WATER ☐ Domestic ☒ Stock Watering Irrigation ☐ Municipal ☐ Industrial ☐ Miscellaneous ☐ Monitor or Test ☐ Coal Bed Methane Explain proposed use (Example: One single family dwelling)
   1 stock tank
4. LOCATION OF WELL/SPRING SW 1/4 SW 1/4 of Section 28 T. 41 N.,R. 60 W., of the 6th P.M. (or W.R.M.)
   Subdivision Name _____ Lot _____ Block _____
   Resurvey Location Tract _____ or Lot _____ Datum ☐ NAD27 ☐ NAD83
   Geographic Coordinates: Latitude _____ N Longitude _____ W (degrees, minutes, seconds)
   UTM: Zone 13 Northing 4816460 Easting 574367 (meters) per GIS 10/23/07
   State Plane Coordinates: Zone _____ Northing _____ Easting _____ (feet)
   Land surface elevation (ft. above mean sea level) _____ Datum ☐ NAVD29 NAVD88
   Source ☐ GPS ☐ Map ☐ Survey ☐ Unkown ☐ Other ☐ Altimeter (for elevation only) H
5. TYPE OF CONSTRUCTION ☒ Drilled _____ Dug Driven ☐ Other
   Describe _____
6. CONSTRUCTION Total depth of well/spring 639 ft.
   Depth of static water level 0 - FLOWS ft. (below land surface) Casing height 2 ft. above ground
   a. Diameter of borehole (bit size) 5 inches
   b. Casing schedule ☒ New ☐ Used Joint type ☐ Threaded ☐ Glued ☐ Welded
   _____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
   _____ diameter from _____ ft. to _____ ft. Material _____ Gage _____
   c. Cemented/grouted interval, from _____ ft. to _____ ft.
   Amount of cement/grout used _____ (example: 10 sacks) type _____ (example: bentonite pellets)
   d. Type of completion ☐ Customized perforations Open hole ☐ Factory screen
   Type of perforator used _____
   Size of perforations _____ inches by _____ inches.
   Number of perforations and depths where perforated
   _____ perforations from _____ ft. to _____ ft.
   _____ perforations from _____ ft. to _____ ft.
   Open hole from _____ ft. to _____ ft.
   Well screen details
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   Diameter _____ slot size _____ set from _____ ft. to _____ ft.
   e. Well development method _____ How long was well developed? _____
   f. Was a filter/gravel pack installed? Yes ☐ No Size of sand/gravel _____
   Filter/gravel pack installed from _____ ft. to _____ ft.
   g. Was surface casing used? ☐ Yes ☐ No Was it cemented in place? ☐ Yes ☐ No
   Surface casing installed from _____ ft. to _____ ft.
7. NAME AND ADDRESS OF DRILLING COMPANY UNKNOWN
8. DATE OF COMPLETION OF WELL (including pump installation) OR SPRING (first used) 1936
9. PUMP INFORMATION Manufacturer NONE Type _____
   Source of power _____ Horsepower _____ Depth of pump setting or intake _____ ft.
   Amount of water being pumped _____ gal./min.* (For springs or flowing wells, see item 10)
   Total volumetric quantity used per calendar year.* 5 AF/yr per 6.60.5 H
   *If these amounts exceed permitted amount an enlargement is required.
10. FLOWING WELL OR SPRING (Owner is responsible for control of flowing well)
    If artesian flow or spring, yield is 5 gal./min. *Surface pressure is _____ lb./sq.inch, or _____ feet of water.
    The flow is controlled by ☐ Valve ☐ Cap ☐ Plug
    Does well leak around casing? ☐ Yes ☒ No

Permit No. U.W. 183561 Book No. 1329 Page No. 61

SEE REVERSE SIDE

POWERTECH (USA) INC.

Hydro ID 5003

11 IF SPRING, HOW WAS IT CONSTRUCTED? (Some method of artificial diversion, i.e., spring box, cribbing, etc., is necessary to qualify for a water right)

12. PUMP TEST Was a pump test conducted? Yes No
If so, by whom
Yield gal./min. with ft. drawdown after hours
Yield gal./min. with ft. drawdown after hours

13 LOG OF WELL Total depth drilled 639 ft
Depth of completed well ft Diameter of well inches
Depth to first water bearing formation ft
Depth to principal water bearing formation Top ft. to Bottom ft.

DRILL CUTTINGS DESCRIPTION

From Feet	To Feet	Rock Type or Description	Formation	Water Bearing? (Yes or no)
Surface		Not Available		

14. DOES A GEOPHYSICAL LOG ACCOMPANY THIS FORM? Yes X No

15 QUALITY OF WATER INFORMATION

Does a chemical and/or bacteriological water quality analysis accompany this form? Yes No
It is recommended that chemical and bacteriologic water quality analyses be performed and that the report(s) be filed with the records of this well (contact Department of Agriculture, Analytical Lab Services, Laramie, 742-2984).
If not, do you consider the water as Good Acceptable Poor Unusable

REMARKS

Under penalties of perjury, I declare that I have examined this form and to the best of my knowledge and belief it is true, correct, and complete.

John A. Tuthill for Tuthill & Tuthill, LLP — 10.15.07 — 20
Signature of Owner or Authorized Agent — Date

FOR STATE ENGINEER'S USE ONLY

Permit No. U.W. 182361

Date of Receipt OCT 15 .20

Date of Priority June 12 .20 07

Date of Approval 10 29 .20 07

Cheryl Vuylsteke
for State Engineer

SOURCE I

ADDITIONAL WATER WELLS IN EDGEMONT PROJECT AREA

(Silver King Mines, Inc., Interoffice Correspondence, Keith Andersen to R.M. Caywood, August 3, 1979)

This page intentionally left blank

POWERTECH (USA) INC.

INTEROFFICE CORRESPONDENCE

Company Silver King Mines, Inc. Date August 3, 1979

To: R. M. Caywood

From: Keith E. Andersen Subject: Quarterly Burdock Area Water Levels

Attached are quarterly measurements of Burdock Area water well flow rates and water levels. Wells numbered 135 - 143 are new wells or wells added to our monitoring program by request. Wells numbered 200 - 216 are probable Sundance wells located east of the Burdock Area.

In an effort to obtain all possible information, several measurements of questionable accuracy were made as noted below.

Well No.	Problem
2	Leaking around casing
4	Leaking around casing
7S	Measuring point changes
13	Pipeline use affects flow
33	Measuring point changes
35	Measured inside cylinder drop pipe
36	Leaking around pipeline fittings
37	Measured inside cylinder drop pipe
40	Two wells at different elevations piped together
41	Pump had been operating
42	Leaking around pipeline fittings
52	Measuring point changed
53	Measured through cylinder drop pipe
56	Casing broken out
98	Casing leaking
113	Measured inside cylinder drop pipe
114	Measured inside cylinder drop pipe

Water quality data on these wells is not yet complete.

Keith E. Andersen

Keith E. Andersen, Chief Engineer

Additional Water Wells In Edgemont Project Area

Well No.	Location
135	T 8 S, R 2 E, Sec. 1 bd
136	T 8 S, R 2 E, Sec. 5 bb
137	T 7 S, R 2 E, Sec. 17 bd
138	T 6 S, R 1 E, Sec. 18 a
139	T 41 N, R 60 W, Sec. 18 dd
140	T 9 S, R 3 E, Sec. 19 bc
141	T 10 S, R 3 E, Sec. 20 aa
142	T 7 S, R 2 E, Sec. 35 bd
143	T 8 S, R 1 E, Sec. 30 dc
200	T 7 S, R 2 E, Sec. 13 ca
201	T 7 S, R 2 E, Sec. 13 ca
202	T 7 S, R 2 E, Sec. 13 ca
203	T 7 S, R 2 E, Sec. 12 cd
204	T 7 S, R 2 E, Sec. 12 cb
205	T 7 S, R 2 E, Sec. 12 ac
206	T 7 S, R 2 E, Sec. 12 ac
207	T 7 S, R 2 E, Sec. 12 aa
208	T 7 S, R 2 E, Sec. 2 bc
209	T 7 S, R 2 E, Sec. 3 da
210	T 7 S, R 2 E, Sec. 2 bd
211	T 7 S, R 2 E, Sec. 12 ba
212	T 8 S, R 3 E, Sec. 8 db
213	T 7 S, R 3 E, Sec. 20 dc
214	T 7 S, R 3 E, Sec. 18 cd
215	T 6 S, R 2 E, Sec. 27 dd
216	T 6 S, R 2 E, Sec. 22 aa
144	T9S, R3E, Sec. 21
145	T8S, R2E, Sec 3 dc
146	T9S, R2E, Sec 21 bc

Additional Water Wells In Edgemont Project Area

No.	Owner	Use	Depth	Probable Aqulfer	Remarks
135	Mike Ringer	D,S	360	Lakota	Drilled 1977 - Submersible Pump
136	Ed Dodson	D,S		Spring	Source Uncertain
137	USFS	S			Windmill
138	John Carlson	D	100	Fall River	Drilled 1977, flows, Jet Pump
139	Gerald Darrow	S	620	Lakota	Drilled 1978, flows 20 gpm
140	Ken Barker	D,S			
141	Howard Henderson	S		Spring	Source Uncertain
142	Jack Standen	D,S	280	Fall River	Submersible Pump
143	Jeff Schultz	D,S	1,640	Fall River	Drilled 1962, Submersible Pump @ 440
200	George Hey	D,S	108	Sundance	Water Level 52.7', Submersible Pump
201	George Hey	S	110	Sundance	Pump Jack
202	George Hey	S	200	Sundance	Water Level 16.7'
203	Donald Spencer	D,S	200	Sundance	Submersible Pump at 160
204	Donald Spencer	U	170	Sundance	
205	Mason Miller	U	108	Sundance	Water Level 24.5
206	Mason Miller	D,S	200	Sundance	Water Level 18.4, Jet Pump
207	Mason Miller	D,S			Submersible Pump, Pipeline
208	Mason Miller	S	179	Sundance	Pump Jack
209	Donald Spencer	U	247	Sundance	Water Level 145.2
210	George Hey	S	125	Sundance	Pump Jack
211	Donald Spencer	S	161	Sundance	Pump Jack - Water Level 8.14
212	Carl Reutter	S	2,204		Flows 1.5 gpm, old oil test
213	George Hey	S	100	Sundance	Submersible Pump, Water Level 34.1
214	George Hey	S	270	Sundance	Water Level 391
215	Claude Smith	S	900		Water Level 60.7, Submersible Pump, Pipeline
216	Claude Smith	U			Water Level 217.9
144		S.O			Water Level 368.4'

This page intentionally left blank

SOURCE J

FOREST SERVICE WELLS AND SPRINGS

(Letter from Keith Andersen, Silver King Mines, Inc., to John Hatch, South Dakota Water Rights Commission, January 12, 1979)

This page intentionally left blank

FOREST SERVICE WELLS AND SPRINGS

This list of wells and springs located on U. S. Forest Service land was obtained from the Forest Service office in Newcastle, Wyo. These wells and springs will be visited and an attempt made to determine the aquifer from which they produce. The water on Forest Service land is used by ranches for stock water during the summer months and to supply water for wild life.

Name	Location			
Bennett Canyon Well	T7S, R2E,	SW¼,	Sec. 7	#114
Driftwood Canyon Well		NW¼,	Sec. 16	no match > 2 km
Heck Well		NW¼,	Sec. 17	#137 > 2 km
Spencer Well		NE¼,	Sec. 7	no match
Bennett # 2 Well		SW¼,	Sec. 6	#113
Hey Well	T7S, R3E,	SW¼,	Sec. 18	> 2 km
Roderick Spring	T7S, R2E,	SE¼,	Sec. 18	
North Roderick Spring		NE¼,	Sec. 17	
North Long Mountain Spring	T7S, R3E,	NW¼,	Sec. 32	
South Long Mountain Spring		NW¼,	Sec. 32	
Dewey Well	T6S, R1E,	SW¼,	Sec. 5	#120 > 2 km
Cook Well		NW¼,	Sec. 9	no match > 2 km
Pass Creek Well		NE¼,	Sec. 22	#632 > 2 km
Lower Turkey Spring	T5S, R1E,	SW¼,	Sec. 32	
Turkey Spring		NE¼,	Sec. 32	
Tailend Reservoir Spring			Sec. 15	
Bowl Spring	T5S, R1E,	NE¼,	Sec. 29	
Bosley Spring		SE¼,	Sec. 17	
Barrel Spring		NW¼,	Sec. 7	
Sheepwagon Spring	T4S, R1E,	SW¼,	Sec. 32	
Lower Dugout Spring		NW¼,	Sec. 29	
Dugout Spring		NE¼,	Sec. 19	
North Spring			Sec. 6	
South Spring			Sec. 6	
Carr Spring	T42N, R60W,	SE¼,	Sec. 4	
Mix Spring	T43N, R60W,	NW¼,	Sec. 28	
Pipeline Spring			Sec. 21	
Pollard Spring		NE¼,	Sec. 9	

This page intentionally left blank

SOURCE K

HYDROGEOLOGIC INVESTIGATIONS AT PROPOSED URANIUM MINE NEAR DEWEY, SOUTH DAKOTA

(Report No. WR28-2-520-128, J. Mark Boggs, Tennessee Valley Authority, October 1983)

SEE APPENDIX I FOR THIS SOURCE REPORT

This page intentionally left blank

SOURCE L

COORDINATES, ELEVATIONS AND WATER LEVELS FOR BURDOCK PIEZOMETERS

(Letter from Keith Andersen, Silver King Mines, Inc., to John Hatch, South Dakota Water Rights Commission, January 12, 1979)

This page intentionally left blank

Coordinates (SKM Grid) and Elevations for Burdock Area Observation Wells

Well	Aquifer	Coordinates		Measuring Point Elevation	Height of Measuring Point Above Ground Level
Original Nine Wells	**Installed Fall 1976 (Abandoned five Fall 1978)**				
B-1 FR 672	K_f	90,856 E	188,869 N	3622.07	- 1.0 ft.
B-2 Aban	K_1	90,808 E	188,859 N	3621.08	0
B-3 FR ?	K_f	93,532 E	190,992 N	3701.16	2.0 ft.
B-3 Aban	K_1	93,583 E	191.005 N	3701.63	1.6 ft.
B-4 Aban	K_1	95,531 E	190,551 N	3679.45	2.58 ft.
B-5 637 Aban	K_1	97,944 E	191,909 N	3731.04	1.9 ft.
B-6 FR 659	K_f	91,925 E	192,493 N	3642.64	0
B-6 660 Aban	K_1	91,874 E	192,472 N	3644.12	0
B-8 661	K_1	100,952 E	193,839 N	3788.58	2.0 ft.
Burdock Well	K_f, K_1 668	91,081 E	189,167 N	3624.16 = GL Elevation	
Four Additional Wells	**Installed August 1977**				
B-7 FR 665	K_f	93,303 E	190,402 N	3671.24	1.75 ft.
B-7 666	K_1	93,279 E	190,373 N	3671.1	2.08 ft.
B-9 FR 646	K_f	91,389 E	187,658 N	3605.42	3.0 ft.
B-9 658	K_1	91,389 E	187,658 N	3605.42	2.6 ft.
Seven Replacement Wells	**Installed Fall 1978**				
B-2 LAK 674	K_f	90,776 E	188,900 N	3621.11	1.3 ft.
B-2 FU 673	K_{1f}	90,767 E	188,841 N	3619.96	0
B-10 FR 671	K_f	91,221 E	189,275 N	3631.19	1.4 ft.
B-10 FU 670	K_{1f}	91,265 E	189,344 N	3630.31	1.6 ft.
B-10 LAK 669	K_1	91,206 E	189,317 N	3631.24	1.6 ft.
B-11 FR 664	K_f	90,805 E	189,721 N	3623.94	0
B-11 LAK 663	K_1	90,843 E	189,739 N	3624.82	1.0 ft.

Source: Letter from Keith Andersen, Silver King Mines, Inc., to John Hatch, South Dakota Water Rights Commission, January 12, 1979

Revised Coordinates and Elevations for Burdock Piezometers

Well	Coordinates		Measuring Point Elevation	Height of Measuring Point to Ground Level
1-1 FR	90,856.22 E	188,868.81 N	3622.07	-1.0
1-2 LAK	90,775.65 E	188,899.89 N	3621.11	1.3 ft.
1-2 Fuson	90,767.34 E	188,841.37 N	3619.96	0'
1-3 FR	93,531.56 E	190,991.69 N	3701.16	2 ft.
1-4	95,530.98 E	190,550.99 N	3679.45	2.58 ft.
1-6 FR	91,924.72 E	192,492.25 N	3642.64	0'
1-6	91,874.49 E	192,471.83 N	3644.12	0'
1-7	93,279.33 E	190,372.99 N	3671.10	2.08 ft.
1-7 FR	93,303.13 E	190,401.62 N	3671.24	1.75 ft.
1-9	91,388.52 E	187,657.99 N	3605.42	3 ft.
1-10 FR	91,220.54 E	189,274.64	3631.19	1.4 ft.
1-10 LAK	91,205.62	189,317.02	3631.24	1.6 ft.
1-10 Fuson	91,265.09	189,343.85	3630.31	1.6 ft.
1-11 LAK	90,842.73	189,738.78	3624.82	1 ft.
1-11 FR	90,805.19	189,720.73	3623.94	0'
Sundance Well	662 5,840.49 E	189,370.12 N	3647.84	3 ft.
Burdock Well	91,081.12	189,167.42	3624.16 = GL Elevation	

Water Level Measurements for Burdock Piezometers

All pressure measurements on 9-21 are 2-2.75 psi lower than previous measurement - gauge may not have been accurate.

B-1	7-20-78	14.25 psi	
	9-21-78	12.25 psi	
	10-13-78	8.80 psi	Burdock well flowing
B-2	7-20-78	16.0 psi	Abandoned 11-10-78
	9-21-78	13.25 psi	
B-3	7-20-78	35.9'	
	8-4-78	36.3'	
	airlifted on 8-4		Abandoned 11-10-78
	8-21-78	36.5	
	9-21-78	36.8	
B-3 FR	7-20-78	37.5	
	8-4-78	37.7	
	airlifted on 8-4		
	8-21-78	37.3	
	9-21-78	37.6	
	10-13-78	38.7	Burdock well flowing
	11-22-78	38.8	
B-4	7-20-78	11.5'	Water Level in Annulus 11.8'
	9-21-78	12.1'	
	10-13-78	13.6	Burdock well flowing
	11-21-78	13.9	Abandoned 12-5-78

Source: Letter from Keith Andersen, Silver King Mines, Inc., to John Hatch, South Dakota Water Rights Commission, January 12, 1979

(Continued - Page 2)

B-5	7-20-78	48.8	
	9-21-78	49.4	
	10-13-78	49.7	Burdock well flowing
	11-21-78	50.0	Abandoned - 12-5-78
B-6	7-20-78	10.3 psi	
	9-21-78	8.25 psi	
	10-13-78	7.75 psi	Burdock well flowing Abandoned 12-5-78
B-6 FR	7-20-78	7.75 psi	
	9-21-78	5.5 psi	
	10-13-78	5.5 psi	Burdock well flowing
B-7	7-20-78	8.9'	
	7-26-78	9.0'	Airlifted
	8-4-78	9.3'	
	8-7-78	9.2'	
	8-21-78	9.2'	Airlifted
	9-21-78	9.3'	Airlifted
	10-13-78	12.6	Burdock well flowing
	11-21-78	11.5	
B-7 FR	7-20-78	17.6'	
	7-26-78	17.4	Airlifted
	8-4-78	12.5'	
	8-8-78	12.4'	
	8-21-78	12.3'	Airlifted
	9-21-78	12.6'	Airlifted
	10-12-78	13.75	Burdock well flowing
	11-21-78	15.5	
B-8	7-20-78	96.25'	
	8-4-78	97.5'	Airlifted
	8-21-78	97.3'	
	9-21-78	97.9'	
B-9	7-20-78	19.2 psi	
	9-21-78	17.0 psi	
	10-13-78	15.0 psi	Burdock well flowing
B-9 FR	7-20-78	17.9 psi	
	9-21-78	16.0 psi	
	10-13-78	15.25 psi	Burdock wel

BPZ 14 #602
BPZ 15 FR #601
BPZ 16 #643
BPZ 17FR #644
BPZ 18 #608
BPZ 19 FR #607
BPZ 20 #609
BPZ 21 FR #610
BPZ 22 #626
BPZ 23 FR #625

Outlying Piezometer Wells

Locations:

BPZ 14 & 15 FR	T8S, R2E, sec 23	NE/4	NW/4	NW/4
BPZ 16 & 17 FR	T7S, R2E, sec 30	SW/4	SE/4	SE/4
BPZ 18 & 19 FR	T40N, R60W, sec 27	SE/4	SE/4	NW/4
BPZ 20 & 21 FR	T6S, R1E, sec 29	SW/4	NW/4	NE/4
BPZ 22 & 23 FR	T41N, R60W, sec 9	SW/4	SE/4	SE/4

Source: Letter from Keith Andersen, Silver King Mines, Inc., to John Hatch, South Dakota Water Rights Commission, January 12, 1979

POWERTECH (USA) INC.

(Continued - Page 3)

Water Levels:

BPZ 14	7-20-78	130.5'	
	8-7-78	130.2'	Airlifted
	8-22-78	136'	Airlifted
	9-21-78	136.5'	
	10-13-78	136.6	
	11-21-78	135.9	
BPZ-15 FR	7-20-78	59.5'	
	8-7-78	51.5'	Airlifted
	8-9-78	47.7'	
	8-22-78	47.5	Airlifted
	9-21-78	47.7'	Airlifted
	10-13-78	47.8	
	11-21-78	47.5	
BPZ-16	7-20-78	7.0 psi	shut in on this date
	8-9-78		Airlifted
	9-21-78	9.0 psi	
	10-13-78	9.0 psi	
BPZ-17	7-20-78	20.6'	
	8-9-78	20.6'	Airlifted
	8-22-78	21.8'	
	9-21-78	21.9'	
	10-13-78	21.9'	
	11-21-78	22.0'	
BPZ-18	8-7-78	17.5'	
	9-21-78	17.7'	
	10-16-78	17.7	Airlifted
	11-20-78	20.3"	
BPZ-19 FR	8-7-78	21.8'	Airlifted
	8-22-78	18.3'	Airlifted
	9-21-78	18.7'	Airlifted
	10-16-78	21.1	
	11-21-78	19.8	
BPZ-20	7-20-78	4.8'	
	7-31-78	4.75'	Airlifted - much mud
	8-3-78	172.7'	
	8-21-78	83'	Airlifted
	9-20-78	73.3'	Airlifted
	10-12-78	108.5	Airlifted
	11-21-78	89.9	

Source: Letter from Keith Andersen, Silver King Mines, Inc., to John Hatch, South Dakota Water Rights Commission, January 12, 1979

POWERTECH (USA) INC.

(Continued-Page 4)

BPZ-21 FR	7-31-78	Slight Flow	Airlifted
	8-3-78	15'	
	8-8-78	11.5'	
	8-21-78	6.3'	Airlifted
	9-20-78	7.5'	Airlifted
	10-12-78	9.3	
	11-21-78	8.7	
BPZ-22	7-20-78	65.9'	
	7-31-78	64.5'	Airlifted - much mud
	8-3-78	153.9'	
	8-21-78	89.3'	Airlifted
	9-20-78	76.1'	Airlifted
	10-12-78	85.1'	Airlifted
	11-21-78	70.5'	
BPZ-23 FR	7-20-78	73.2'	
	7-31-78	70'	Airlifted
	8-3-78	72.7'	
	8-21-78	70.3'	Airlifted
	9-20-78	68.6'	Airlifted
	10-12-78	73.8	
	11-21-78	73.3	

Depth of Screen:

BPZ-14	588-630	
BPZ-15 FR	336-378	
BPZ-16	252-294	
BPZ-17 FR	84-126	
BPZ-18	798-882	attempted to set 42' dc
BPZ-19 FR	672-714	
BPZ-20	903-966	
BPZ-21FR	630-672	
BPZ-22	588-630	not pressure grouted
BPZ-23 FR	420-462	

BPZ 14 #602
BPZ 15 FR #601
BPZ 16 #643
BPZ 17FR #644
BPZ 18 #608
BPZ 19 FR #607
BPZ 20 #609
BPZ 21 FR #610
BPZ 22 #626
BPZ 23 FR #625

All wells constructed of 1" blk iron pipe with torch slot screen. Grout pumped down annulus to desired depth with 1" plastic pipe.

Source: Letter from Keith Andersen, Silver King Mines, Inc., to John Hatch, South Dakota Water Rights Commission, January 12, 1979

This page intentionally left blank

SOURCE M

CONSTRUCTION AND LOCATION DATA FOR DEWEY PUMP TEST WELLS

(in letter from Keith Andersen, Silver King Mines, Inc., to Steve Stampfli, Office of Surface Mining, South Dakota Department of Water and Natural Resources, March 3, 1982)

This page intentionally left blank

WELL #	611 DEWEY TEST WELL	613 D-1 FR	614 D-1 Fu	615 D-1 LK	612 D-2 LK	436 D-3 FR	657 D-3 LK	623 D-4 FR	622 D-4 LK	616 D-5 LK	617 D-6 LK	624 D-7 FR
Hole Number	DWT-99	DWM-51	54	46	47	49	48	52	50	55	56	DXM-1
Date Drilled	10-17-81	7-21-81	9-04-81	7-07-81	7-09-81	7-16-81	7-14-81	7-23-81	7-20-81	9-09-81	9-11-81	7-30-81
Date Completed	10-17-81	8-14-81	9-14-81	8-13-81	8-14-81	8-18-81	8-18-81	8-17-81	8-17-81	9-15-81	9-15-81	7-30-81
Depth Cased	694	504	609	712	692	505	715	503	714	735	715	120
Depth Completed	801	580	620	800	800	590	800	580	780	835	810	120
X-Coord.	80798	80923	80982	80972	80710	80385	80416	81564	81618	81126	80004	76979
Y-Coord.	214898	215036	215035	214972	215068	215595	215658	215330	215281	214090	214495	219008
Collar Elev.	3736.2	3737.3	3741.1	3741.4	3728.5	3738.0	3744.3	3753.5	3751.4	3747.7	3723.3	3723.9
"r"		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
SWL (12-3-81)	34.16	26.23	32.16	39.68	26.56	21.03	42.37	34.22	49.68	45.86	21.42	Surface

Source: Letter from Keith Andersen, Silver King Mines, Inc., to Steve Stamgfli, Office of Surface Mining, South Dakota Department of Water and Natural Resources, March 3, 1982

This page intentionally left blank

SOURCE N

BURDOCK MINE AREA HYDROLOGY STATUS REPORT

(Silver King Mines, Inc. Interoffice Correspondence from Keith Andersen to R.M. Caywood, December 18, 1978, provided in a letter from Keith Andersen to John Hatch, South Dakota Water Rights Commission, January 12, 1979)

This page intentionally left blank

POWERTECH (USA) INC.

INTEROFFICE CORRESPONDENCE

Company Silver King Mines, Inc. Date December 18, 1978

To: R. M. Caywood

From: Keith E. Andersen Subject: Burdock Mine Area Hydrology Status Report

Uranium ore in economically recoverable quantities has been discovered northwest of Edgemont, South Dakota, near Burdock on lands leased by the Tennessee Valley Authority. The ore is located in the Lakota Formation. Tentative plans call for conventional underground mining techniques which will require dewatering the ore zone during the mining operation. The Lakota Formation and the overlying Fall River Formation are the two principal aquifers supplying domestic water for area ranches. In view of this information, it was apparent that extensive hydrologic investigations would be required in planning the proposed mine.

An attempt has been made to identify all wells and springs having their source in the Fall River or Lakota Formation within approximately a 25 mile radius of the proposed mine. Appended are lists of these wells. The list entitled "Water Wells in the Edgemont Project Area" includes those wells felt most likely to be affected by proposed mine dewatering because of their proximity to the mine and their topographic location along the Cheyenne River Basin. Information on these wells was obtained from personal visits to the wells and with the well owners, Silver King Mines, Inc. files, South Dakota Geological Survey Report #109 "Ground Water Resources of the Western Half of Fall River County, SD" by Jack Keene, and from USGS Hydrologic Atlas "Water Resources of the Powder River Basin and Adjacent Areas, Northeastern Wyoming" by Hodson, Pearl, and Druse. Since completion of this listing in May, 1977, selected wells from this list have been monitered on a quarterly basis. Information on other wells within 25 miles of the proposed mine is as shown on the listings.

In addition to monitering selected existing wells several observation wells have been installed to moniter water levels in the Fall River and Lakota aquifers. Initially nine observation wells were constructed in the Burdock area during the fall of 1976 to moniter water level drawdown during the February, 1977, pump test. Four more wells were installed during August, 1977, to provide additional information for the November, 1977, pump test. To provide additional information on area water levels ten wells were installed during the summer of 1978 at selected locations throughout the project area. Finally, when it appeared that some of the original nine wells were not providing reliable data, five of these wells were cemented off and abandoned and seven replacement wells drilled during the fall of 1978. Information on all of the observation wells is appended.

A test well was constructed during January, 1977, for the purpose of conducting pump tests and potentially for dewatering use. This well was pumped during the February, 1977, and November, 1977, pump tests.

The well was allowed to free flow after completion until February 11, 1977, the starting date for the first pump test. This flow resulted in pre-pump test drawdown as shown in the attached data. The well was pumped from both aquifers for 337 hours at an average discharge of 261 gpm. The water level in the well stabalized at 433 feet of drawdown after 280 hours. Data from observation well B-2 indicated the static head on the well before it was allowed to flow was about +30 feet. Using a total drawdown of 463 feet the specific capacity of the well was estimated at 0.56 gpm/ft..

Coefficients of transmissibility and storage were estimated from the observation well drawdown data using the time-drawdown graphical solution to the Theis non-equilibrium well formula. It was necessary to estimate the pumping rate from the Fall River and Lakota for this analysis. The Fall River pumping rate was estimated at 100 gpm and the Lakota at 161 gpm. Using these figures, the transmissivity and storage coefficient of the Lakota were estimated at 1600 gpd/ft. and 5.5×10^{-5}, respectively, and at 860 gpd/ft. and 4×10^{-5} for the Fall River.

Since approximately one-half of the domestic wells in the area produce from the Fall River aquifer and since it would be possible to sink a shaft through the Fall River with minimal disturbance to water levels, another pump test was planned to determine if the Fall River and Lakota were hydraulically connected. Four additional observation wells were installed in preparation for this test.

Following the February, 1977, pump test the well was shut in and not allowed to flow at the surface. Water was able to communicate between the aquifers since the well screen was open to both aquifers. During the week of October 25, 1977, the Fall River aquifer was isolated and shut in with a pneumatic packer. The Lakota was allowed to free flow until the pump test, November 14, again resulted in pre-pump test drawdown.

The pump test began at 10:00 a.m. on November 14, and continued until November 17. By the morning of November 17, it appeared that sufficient data had been obtained to determine whether or not leaky aquifer conditions existed in the Burdock area and the initial phase of the test was terminated at 11:30 a.m.. The average pumping rate for this period was 193 gpm. Assuming that the water levels in piezometers B-1 FR and B-2 were the same as the Fall River and Lakota water levels in the well before the pump was installed, the total Lakota drawdown at the end of the initial phase was 267 feet and the total Fall River drawdown was 49 feet. At 11:30 a.m. the pumping rate was increased to 225 gpm in an attempt to provide additional data on the apparent specific capacity of the well and on the rate of drawdown in the Fall River with respect to the head differential between the Fall River and Lakota water levels.

After two hours additional pumping at 225 gpm the Lakota drawdown was 298 feet and the Fall River drawdown was 50 feet. At 1:30 p.m. the pumping rate was increased to 250 gpm. For the next hour the pumping rate fluctuated considerably because the pipeline from the well head to the holding reservoir was not capable of handling the increased flow. The pipeline broke and was repaired several times causing a varying pumping head and varying pumping rate. The pumping rate was cut back to 230 gpm at 3:00 p.m.. The pneumatic packer, which had been set at 200 psi, was pressured to 250 psi at 3:15 p.m. to see what effect this might have on the rate of drawdown in the Fall River. The pump was shutoff at 4:15 p.m. and water level recovery rates monitered.

Time-drawdown data from this pump test indicated a complex hydrologic system in this area, with the effects of both leakage and boundary conditions influencing ground water flow. Early time data indicated a transmissivity of about 1600 gpd/ft. and storage coefficient of about 7.5×10^{-5} for the Lakota, which agreed reasonably well with the values calculated for the first test. Attempts at more detailed analysis of the data were not successful.

Because of the difficulty in analyzing the drawdown data it began to appear that some of the data might be unreliable. To investigate this possibility, cemoton logs were run on wells B-2, B-3, B-4, and B-5. These logs showed the cement grout was not properly placed to isolate the Fall River and Lakota in these wells. These four wells and well B-6 have been abandoned and replaced with seven new wells. Sonic bond logs were run on the new wells, which showed the wells to be properly grouted.

At this time two additional pump tests are planned in the Burdock Area to obtain more reliable hydrologic data on the Lakota and Fall River aquifers. A three-five day test pumping from the Lakota is tentatively scheduled for early January, 1979, followed by a three-five day test pumping from the Fall River.

Keith E. Andersen

Keith E. Andersen, Chief Engineer

This page intentionally left blank

SOURCE O

ANALYSIS OF AQUIFER TESTS CONDUCTED AT THE PROPSED BURDOCK URANIUM MINE SITE, BURDOCK, SOUTH DAKOTA

(Report No. WR28-1-520-109, J. M. Boggs and A.M. Jenkins, Tennessee Valley Authority, May 1980)

SEE APPENDIX I FOR THIS SOURCE REPORT

This page intentionally left blank

SOURCE P

HYDRO ID 704 RECOMPLETION

(Email from Len Eakin, Powertech (USA) Inc., to Mike Beshore, Powertech (USA) Inc., May 9, 2011)

This page intentionally left blank

POWERTECH (USA) INC.

Elizabeth Scheinost

From: Leonard Eakin [leakin@powertechuranium.com]
Sent: Monday, May 09, 2011 4:44 PM
To: Michael Beshore; Frank Lichnovsky; leakin@powertechuranium.com
Cc: escheinost@powertechuranium.com
Subject: re: Putnam Water Well 704
Attachments: _Certification_.htm

For DB08-5-1 the Unkpapa completion date was 4/29/2008. The Unkpapa was cemented off on 1/28/2009 and the Lakota was perf'd by Goodwell on 2/4/2009.

From: "Michael Beshore" <mbeshore@powertechuranium.com>
Sent: Monday, May 09, 2011 4:35 PM
To: "Frank Lichnovsky" <flichnovsky@powertechuranium.com>, leakin@powertechuranium.com
Subject: Putnam Water Well 704

Gents, Could Lisa and myself be provided the following information on well 704. This was the Putnam well that was originally drilled to the Unkpapa, and then cemented up to the Lakota.

Please Provide:
Date Drilled to Unkpapa and the Date Cemented up to the Lakota.

This may have occurred on the same day, but need to make certain so we know what water quality samples are from what.

Thanks, Mike

POWERTECH (USA) INC.

Michael D. Beshore, P.G.
Senior Environmental Coordinator

Powertech (USA) Inc.
P.O. Box 1066
8305 6th Street
Wellington, CO 80549
(970) 282-7777 office
(970) 556-5988 cell
Email: mbeshore@powertechuranium.com
Website: www.powertechuranium.com

This page intentionally left blank

SOURCE Q

SOUTH DAKOTA WATER RIGHT 380-2

This page intentionally left blank

380-2

No.

Office of State Engineer
DOCUMENT FILE

Darrel Hawthorne
Custer
Ground Water Supply
Well No. 2.
NW. ¼ NW. ¼ Sec. 17-6 S-1E
Custer County

Map No. 409-2

No. 380-2
Division No. 2
Fall River District

PERMIT
to appropriate water from
Ground Water Supply
Custer County, South Dakota.

Name of applicant
Darrel Hawthorne
Name of diversion works Golden
Cliff Irrigation Project well No. 2
Date of first receipt at office of State
Engineer June 29 1951
Returned to applicant for Correction
19
Corrected application received
19
Date of water right
June 29 1951
Recorded in Book 3 Page 4
One-fifth of work to be completed
Sept. 12 1952
Whole work to be completed
Sept. 12 1953
Final proof of use of water
Sept. 12 1953
Approved Sept. 1st 1951

DEAN E. LOUCKS State Engineer.

Form 26—Application for Permit to Appropriate Water—Original   Ground Water

NO. 380-2

Water Division No. 2   Fall River
(Blanks to be Filled by the State Engineer)

RECEIVED
District # : PM.
JUN
OFFICE OF STATE ENGINEER
PIERRE, S. DAK.

APPLICATION FOR PERMIT

To Appropriate Water within the State of South Dakota

(NOTE—Draw a line through items not applicable.)

trans
12-27-76

1. Name of applicant ~~Darrel Hawthorne~~ Henry C. Hollenbeck

Postoffice address ~~Savage~~ Star Route, Edgemont 57735, County Custer, State S.Dak.

I. If a corporation None

(a) Name of same

(b) Date and place of incorporation

(c) Amount of capital stock

(d) Amount paid in

(e) Names and address of directors:

(NOTE—A certified copy of articles of incorporation must accompany the application.)

II. Method of accomplishing the work and financial resources of the applicant:

(a) Method of accomplishing work (Whether by contract, employment of others, or by direct labor) Direct labor

(b) Cash on hand, $ 3000.00   (c) Treasury stock, $ None

(d) Bonds to be issued, $ None   (e) Other resources, $

2. Name of well Golden Cliff Irrigation Project Well No. 2

3. Quantity of water claimed 800 gal. per min.

4. Source of water supply (estimated depth) 376

5. Location of well (subdivision) NW 1/4, NE 1/4, Sec. 17, T. 6 S., R. 1 E.

6. Annual periods during which water is to be used April 1 to Oct. 1

7. To be used for:

I. ~~Irrigation~~ or domestic use: Gravity, ~~overhead sprinkling~~ or combination system?

(a) Number of acres to be irrigated 126.49 acres.

(b) Legal subdivisions to be irrigated See List Attached

(NOTE—A list of lands to be irrigated, giving each subdivision and fraction with acreage thereof, should be written here, or may be appended as a part of this application. Same must also be shown on accompanying map.)

(c) Statement as to domestic use (giving location, etc.) None

II. Stockwatering, mining, milling, power, fish culture, fire protection and public recreation:

(a) Nature of use None

(b) Amount of power to be generated .... horse power.

(c) Location of plant

(d) Method of developing power

(e) Point where return water will be diverted to stream

8. Estimated cost of works:

(a) Head gates, $..... (b) Pumping plant, $ 2000.00

(c) Flaming, $..... (d) Canal-earth, $..... Rock, $.....

(e) Other structures Pipe 5000 ft.....$ 4000.00..... Total, $ 6000.00.....

9. Description of works:

(a) Head gate: Width ..... feet; height ..... feet;

Material .....

(b) Log of well:

(To be completed when well is drilled)

FEET FROM TO	LOG OF WELL	
0 - 40	Shale and Top Soil	
40 - 90	Dakota Sand	
90 - 96	Fuson Formation	
96 - 370	Lakota Sand	
370 - 37	Morrison Formation	

(c) Measuring device Pressure Gauge and Nozzle Size .....

(d) Canal: Total length None miles.

LOCATION BELOW HEADGATE	DEPTH	BOTTOM WIDTH	WIDTH AT WATER LINE	GRADE PER MILE
At ..... Mile	..... feet	..... feet	..... feet	..... feet
At ..... Mile	..... feet	..... feet	..... feet	..... feet
At ..... Mile	..... feet	..... feet	..... feet	..... feet
At ..... Mile	..... feet	..... feet	..... feet	..... feet
At ..... Mile	..... feet	..... feet	..... feet	..... feet
At ..... Mile	..... feet	..... feet	..... feet	..... feet

(Give dimensions where reductions in size are made.)

(e) Was water tested for irrigation purpose?

Result: Excellent .....

10. Time required for completion of work 2 years.

11. Time required for complete application of water to the proposed beneficial use 1½ years.

12. Choice of newspaper for publication of notice of intention to appropriate Custer Chronicle, Custer, S.Dak. .....

STATE OF SOUTH DAKOTA }
County of Custer } ss.

I, Darrel Hawthorne, being first duly sworn on my oath depose and say: That my relation to the above described, undertaking is that of owner, that I have read the above and foregoing statement, and examined the map accompanying the same, and that I know of my own personal knowledge that the matters herein stated and shown are true.

Signed Darrel Hawthorne

Subscribed and sworn to before me this 22 day of June, 19 31

Edna F. Richardson
Notary Public (or other qualified officer.)

Application No. 380-2 Received by State Engineer:

STATE OF SOUTH DAKOTA }
County of Hughes } ss.

Pierre, South Dakota, Sept. 12, 1951 19

This is to certify that the foregoing application was received at this office at 4:00 o'clock P. m. upon the 29th day of June, 19 51 and that after examination it was found to comply with the South Dakota water laws, was published in accordance with the provisions thereof and consideration given to any and all information presented found to comply with the South Dakota water laws, was published in accordance with the provisions thereof and consideration given to any and all information presented.

NO PROTESTS HAVE BEEN RECEIVED.

DEAN A. LOUCKS State Engineer.

Number of permit 380-2

Date of first receipt of application June 29, 1951

Date of return to applicant for correction , 19

Date of receipt of corrected application , 19

Date from which applicant may claim right June 29, 19 51

Approved Sept. 12, 19 51. Recorded in Book 5 Page 4

This is to certify that I have examined the foregoing application for a permit to appropriate water of the State of South Dakota, and I hereby grant the same as stated herein, subject, however, to the following limitations and conditions:

1st. The equivalent of at least one-fifth, of the work above specified is to be completed on or before Sept. 12, 1952.

2nd. The whole of said work is to be completed on or before Sept. 12, 1953.

3rd. The limit of time for proof of beneficial use of water appropriated in accordance herewith is Sept. 12, 19 53.

4th. The water appropriated shall be used for the purpose of Providing irrigation

5th. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be injuriously affected by this appropriation.

6th. The amount of the appropriation herein granted shall not exceed 800 gallons per minute; neither shall it exceed the capacity of the above described system of diversion works, nor the least amount of water that experience may hereafter indicate as necessary for the production of crops in the exercise of the best husbandry; and further, said appropriation must be limited to not more than one-seventieth (1/70) of one cubic foot of water per second of time for each acre of land to which water is actually and beneficially applied for irrigation on or before Sept. 12, 1953; said water to be used during the following described annual period:

April 1 to October 1, Inclusive

Witness my hand this 12th day of Sept., 19 51.

DEAN A. LOUCKS State Engineer.

Certificate of Construction issued SEPTEMBER 9, 19 77

Water License issued SEPTEMBER 9, 19 77

Location of Lands to be Irrigated by the Golden Cliff Irrigation Well No. 2.

Location	Sec.	Twp.	Rge.	Acres
NW¼ NW¼	17	6 S.,	1 E.,	34.40
NE¼ NW¼	17	6 S.,	1 E.,	5.07
SW¼ NW¼	17.	6 S.,	1 E.,	35.25
SE¼ NW¼	17	6 S.,	1 E.,	38.30
NE¼ NE¼	18	6 S.,	1 E.,	10.46
	Total,			156.48

DISCHARGE OF ONE SPRINKLER HEAD - TWO NOZZLES - 7/32 & 1/4 "

Pressure in Pounds	Discharge in GPM.
25	14.8
30	16.2
35	17.6
40	18.9
45	20.1
50	21.3
55	22.4
60	23.4

Form 10

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 380-2

(1) WHEREAS, On the 29th day of June A. D. 19 51

Darrel Hawthorne

made Water Right Application No. 380-2 for a permit to use 1.78 cubic feet per second of the waters of artesian ground water

County of Custer, State of South Dakota, for irrigation purposes; and

(2) WHEREAS, On the 12th day of September A. D. 19 51

Permit No. 380-2, with a date of priority of June 29, 1951

was issued to said applicant ____ for the diversion of said water, and provided for the completion of construction of the water supply system therein described on or before the 12th day of September A. D. 19 52 and for the application to beneficial use of said water on or before the 12th day of September A. D. 19 53

and, whereas, on the 25th day of November, 1975, the Permit was transferred to Henry C. Hollenbeck

and:

(3) WHEREAS, It is hereby certified that the applicant has complied with the provisions of the laws of the State of South Dakota relating to completion of the construction of the water supply system and is entitled to divert .85 cubic feet per second of water for beneficial use and,

(4) WHEREAS, It is hereby certified that the applicant has complied with the provisions of the laws of the State of South Dakota relating to the application of water to beneficial use of the following extent.

for irrigating 60 acres in the E½ NW¼, Section 17, T6S, R1E

(5) NOW, THEREFORE, By the virtue of the authority vested in us by the laws of the State of South Dakota, We hereby grant and confirm to Henry C. Hollenbeck of Edgemont the holder and owner of said permit No. 380-2 a water right, dating from June 29, 1951 to use of .85 cubic feet per second of the waters of artesian ground water in the County of Custer and State of South Dakota, or so much thereof as may be necessary for the purposes hereinbelow mentioned, to be diverted at a point in the center of NW¼, Section 17, T6S, R1E and conduct to and upon 60 acres in the E½ NW¼, Section 17, T6S, R1E for the purpose of Irrigation

Subject to any limitations listed in Water Right Permit No. 380-2 and subject to the laws of the State of South Dakota.

WITNESS, My hand and seal of our office at Pierre, South Dakota this 9th day of September A. D. Nineteen Hundred and Seventy-seven

WATER RIGHTS COMMISSION

By: John Hatch

Chief Engineer, Executive Officer

JOHN HATCH

Form 15.

Permit No. 300-2

Water Diversion No. 2 Fall River Water District

CERTIFICATE OF CONSTRUCTION

This is to Certify, That Henry C. Hollenbank

the holder of Permit No. 300-2, issued upon Application No. 300-2, bearing date of priority of June 29, 1931 authorizing the diversion of 1.78 cu. ft per second of the waters of artesian ground waterCounty of Custer, State of South Dakota at a point in the center of the NW¼, Section 17, T6S, R1E

, for irrigation purposes, has complied with the provisions of the laws of the State of South Dakota relating to proof of completion of the works of diversion set out and described in said Permit; that said works are found in satisfactory condition for diverting and conveying to the place of intended use 1.78 cu. ft. per second of water.

Date September 9, 1977

By: WATER RIGHTS COMMISSION

John Hatch

JOHN HATCH, Chief Engineer

9--Notice of Intenti to appropriate Water Nos. 379-2 & 380-2

(First Publication _____, 19___)

APPROPRIATION OF WATER

Office of State Engineer,

Pierre, S. Dak., July 10, 1951

Notice is hereby given that Darrel Hawthorne whose postoffice address is Dewey, South Dakota, has made applications in accordance with the provisions of the water laws of South Dakota for permits to appropriate for beneficial use as follows:

1000 gallons of water per minute of time from ground water supply through the Golden Cliff Irrigation Project, Well No. 1, the point of diversion of which is to be located in the NW¼ of the SW¼ of Section 6, Twp. 65., Range 1E.. 800 gallons of water per minute of time from ground water supply through the Golden Cliff Irrigation Project, Well No. 2, the point of diversion of which is to be located in the NW¼ of the NW¼ of Section 17, Twp. 65., Range 1E. Said water to be used for the purpose of providing irrigation on the following described lands: NW¼ Sec. 17, NE¼ NE¼ Sec. 18, NW¼ Sec. 6, W½ NE¼ Sec. 6, NW¼ SW¼ Sec 6, E½ SW¼ Sec. 6, W½ SE¼ Sec. 6, NE¼ NW¼ Sec. 7, and NW¼ NE¼ Sec. 7. T. 65., R. 1E.

This application will be taken up by the State Engineer at his office at Pierre for consideration upon the 21st day of August 1951, at 10:00 A.M. All persons who believe that their prior rights would be injuriously affected, or that the allowance of the permit would be detrimental to the public welfare shall file such protest with the State Engineer in writing prior to the above date and may appear on the day above mentioned in person for the purpose of discussing further, the information presented.

Appropriate action will be taken by the State Engineer after suitable time has elapsed for the consideration of any or all information presented.

NCSimt
Enc.
cc: Richardson

DEAN W. LOUCKS
State Engineer

Hydro ID 710
Form 12.

Permit No. 380-2

Water Division 2 Fall River Water District

REPORT OF EXAMINATION OF WORKS
AND/OR APPLICATION OF WATER TO BENEFICIAL USE

TO: Water Resource Commission, State Office Building No. 2, Pierre, South Dakota 57501

I have this day made a thorough examination of the water use system constructed by Darrel Hawthorne of Custer, SD holder of Permit No. 380-2, bearing date of priority of June 29, 1951 authorizing the diversion of 1.78 cu. ft. per second of the waters of ground water for irrigation purposes, in Custer County.

I have to report on the condition of the same as follows:

The Water Use System consists of,

A. Works used to divert the water:

376 foot flowing artesian well, steel cased; fill's storage dam, 15 foot high, 30 foot wide at the base and 50 foot in length on the west side and 60 foot in length on the south side.

B. Works used to transport water to place of use,

Approx. 800 feet of natural ditch

C. Works used to apply water to beneficial use.

Flood irrigates by spreading

The system is in the following condition: Fair

The point of diversion is located Center of NW¼, Sec. 17, T6S., R1E., B.H.M.

The works are capable of diverting and conveying to the place of use 1.78 cu. ft. per second of water which is to be used for irrigation

Water has been put to beneficial use to the maximum extent as follows: E½ of NW¼ of Sec. 17, T6S., R1E., B.H.M.

comprising a total of 60 acres of land.

Henry C. Hollenbeck
Star Rt.
Edgemont, SD 57735

Date 8-25-75

Thomas A. Gardner
(Signature)
THOMAS A GARDNER
Water Resources Engineer

Form 20. No. 380-2

NOTICE OF TRANSFER OF WATER PERMIT

TO: WATER RIGHTS COMMISSION
State Office Building No. 2
Pierre, South Dakota 57501

Date _____

This is to notify you that title to the lands described as follows:
E½ NW¼ of Sec. 17, T6S., R1E., B.H.M.

formerly owned by Darrel Hawthorne

has been transferred to Henry C. Hollenbeck

together with any rights to the beneficial use of water thereon as evidenced by Water Right Permit No. 380-2 as provided for in Section 61.0127 of the 1960 Supplement to the South Dakota Code of 1939.

You are therefore hereby requested to file this "Notice of Transfer of Water Permit" in its appropriate file at the Office of Water Resource Commission as evidence of the change of ownership.

WATER RIGHTS COMMISSION

A fee of one dollar is hereto attached to cover filing fees as required under Section 61.0159 of the 1960 Supplement to the South Dakota Code of 1939.

STATE OF SOUTH DAKOTA)
) ss.
County of _____)

I, Henry C. Hollenbeck being first duly sworn on my oath depose and say: That my relation to the above described undertaking is that of Owner, that I have read the above foregoing statement, and I know of my own personal knowledge that the information herein stated is true.

Henry C. Hollenbeck
(Signed)

Subscribed and sworn to before me this 24th day of Nov, 19 75

Geraldine B. Beard
(Notary Public)

This page intentionally left blank

SOURCE R

AN EARLIER NAME FOR HYDRO ID 710

(Letter from R.M. Caywood, Silver King Mines, Inc., to Clinton C. Smythe, Tennessee Valley Authority, May 12, 1980)

This page intentionally left blank

POWERTECH (USA) INC.

KEA

Silver King Mines, Inc.
P.O. Box 49
Edgemont, South Dakota 57735

May 12, 1980

Clinton C. Smythe
Project Manager
Edgemont Project
Tennessee Valley Authority
P. O. Box 2957
Casper, Wyoming 82602

RE: CAY; 143,80

Dear Clint:

Attached are water levels and flow rates for Burdock Area water wells measured during the April, 1980 quarterly well check. Please note the addition of Wells #149 and 150.

Well No.	Location	Well Owner
149	T 6 S, R 1 E, Sec. 17 bb	H. C. Hollenbeck
150	T 6 S, R 1 E, Sec. 6 aa	H. C. Hollenbeck

Very truly yours,

SILVER KING MINES, INC.

R. M. Caywood
Resident Manager

KEA:dlg
Enclosure
cc: David C. Arnold
C. Richard Dodson(encl)
R. J. Mullin "
J. M. Boggs "
R. L. Doty "
J. T. Watson "

QUARTERLY WELL CHECK

April, 1980

Well No.	Date Read	Water Level/gpm	Change Since Last Report	Remarks
136	4-17-80	3.60'	down .10'	
139	4-25-80	23.00 gpm	None	
141	5-1-80	.60 gpm	None	
147	5-1-80	10.90'	Down .75'	
148	5-1-80	flows	Well still flows, bu dropped about 8".	MP elevation has been
149	4-29-80	19.20'	first measurement	
150	4-29-80	70.70'	first measurement	
200	4-30-80	52.02'	up 1.00'	
202	4-30-80	16.34'	up .12'	
204	4-28-80	37.12'	down .29'	
205	4-30-80	24.48'	down .37'	
206	4-30-80	18.49'	down .33'	
209	4-30-80	145.75	down 1.11'	
212	4-28-80	2.75 gpm	None	
213	4-28-80	32.97'	down .42'	
214	4-28-80	80.40'	down .40'	
216	4-30-80	220.37	down 1.37'	

SOURCE S

POWERTECH FIELD NOTES JULY 12 AND 16, 2012

This page intentionally left blank

POWERTECH (USA) INC.

DAILY ACTIVITY LOG

DEWEY-BURDOCK
POWERTECH (USA) INC. URANIUM PROJECT

PROJECT/ACTIVITY: ALLUVIAL COMPLIANCE WELLS **DATE:** 7-12-2012

LOCATION: DEWEY-BURDOCK PROJECT **PAGE:** 1 **OF** 1

TIME	WELL	WL (FT)	REF.	STICKUP (FT)	WELL TD (FT)	REF.	SCREENED INTERVAL FROM LOG (FT BGS)	DATE WELL COMPLETED
0900	BC-3	11.77	TOC	2.29	-	-	10-25	7-10-12
0920	BC-1	15.04	TOC	2.50	-	-	14-29	7-10-12
0930	BC-2	~ 3½	BGS	2.43	28.03	TOC	15.25	7-10-12

BAILED 20 GAL USING NEW, CLEAN DISPOSABLE BAILER (EON PRODUCTS). GOOD RECHARGE TO APPROX 16' BELOW TOC WHILE BAILING. SLOWER RECHARGE 7.32' BELOW TOC AFTER BAILING, BUT STILL STABILIZING. WATER V. SILTY, GRAY, ODORLESS SEE STABILIZED WL READING @ 1430 BELOW.

1130	DC-1	22.91	TOC	2.73	27.60	TOC	15-25	7-11-12
1140	DC-2	14.01	TOC	2.84	32.94	TOC	11-31	7-11-12
1200	DC-3	DRY	-	2.26	25.10	TOC	12-22	7-11-12
1208	DC-4	19.94	TOC	2.15	25.09	TOC	13-23	7-11-12

1230 LUNCH

1330 TO BC-2

1430 BC-2 5.82 TOC

1500 TO OFFICE. ALL WATER LEVELS, STICKUPS AND WELL DEPTHS MEASURED USING IN SITU INC. ELECTRIC WATER LEVEL TAPE. # 21228 OWNED BY POWERTECH.

PERSONNEL ON SITE:	WEATHER CONDITIONS:
LISA SCHEINOST FRANK LICHNOVSKY	SUNNY HOT 85-90 °F WIND VARIABLE 0-5 MPH
SITE VISITORS:	**TELEPHONE CALLS:**
NONE	NONE

RECORDED BY (PRINTED): LISA SCHEINOST **CHECKED BY:** F.L.

SIGNATURE: Lisa Scheinost **DATE:** 7-16-12

POWERTECH (USA) INC.

DAILY ACTIVITY LOG

DEWEY-BURDOCK
POWERTECH (USA) INC. URANIUM PROJECT

PROJECT/ACTIVITY: Alluvial Well Development **DATE:** 7/16-2012

LOCATION: Dewey-Burdock Project Area **PAGE:** 1 **OF** 1

1134 BC-3 WL = 12.10' TD = 27.56' silty bottom
Vol = 2.5 gal notched top of casing

1148 BC-1 WL = 15.11' TD = 32.08' silty bottom
Vol = 2.8 gal notched top of casing

1159 BC-2 WL = 5.87' TD = 28.03'
Vol = 3.6 gal notched top of casing

1233 DC-1 WL = 22.79' TD = 27.60'
Vol = 0.8 gal notched top of casing

1243 DC-2 WL = 14.00' TD = 32.94'
Vol = 3.1 gal notched top of casing

1248 Lunch

1331 DC-3 DRY

1343 DC-4 WL = 19.88' TD = 25.09
Vol = 0.8 gal notched top of casing

1402 Begin bailing DC-4, water v. murky, reddish brown; Allen to DC-1 & DC-2
1641 32 gal removed from DC-4; Still v. murky; bail rate = 0.21 gpm; WL @ end = 20'

1648 DC-1 WL not recharged completely; Allen bailed well dry after 2 1/2 gal; water was clear; WL after 1 hr = 25.40'

DC-2 V. good recharge; 30 gal removed; water v. murky; gray; WL @ end of bailing 14.10'

1700 Off-site to office.

L.S. 7-16-12

Notes:
1) Used Scott Environmental electric w/ tape Slope Indicator Co. Seattle, WA
2) All msmts below top of casing
3) no odor any of wells

PERSONNEL ON SITE:	WEATHER CONDITIONS:
Allen Scott Lisa Scheinost	Sunny hot 90-100°F
SITE VISITORS:	**TELEPHONE CALLS:**
None	Mark Hallenbeck - not air lifting BC-2 tomorrow

RECORDED BY (PRINTED): Lisa Scheinost **CHECKED BY:**

SIGNATURE: Lisa Scheinost **DATE:**

SOURCE T

AET WELL COMPLETION REPORT JULY 2012

This page intentionally left blank

POWERTECH (USA) INC.
AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
· ENVIRONMENTAL
· GEOTECHNICAL
· MATERIALS
· FORENSICS

July 18, 2012

Mr. Frank Lichnovsky
Powertech (USA), Inc.
PO Box 812
Edgemont, SD 57735

Subject: Well Completion Reports
Powertech Inc.
Sites NW of Edgemont, South Dakota
AET No. 17-01493

Dear Frank:

Please find the attached boring location maps, well construction logs, and South Dakota well completion reports for seven monitoring wells drilled on July 9 – 11, 2012. If you have any questions regarding the attached reports, please call our office at (605) 388-0029.

Respectfully,

Kristen R. Yates

Kristen R. Yates, EI, CPRR
Geotechnical Project Manager

attachments

cc. Mr. Ken Buhler - SDDENR

January 2013

B.T-4

Appendix B Source T

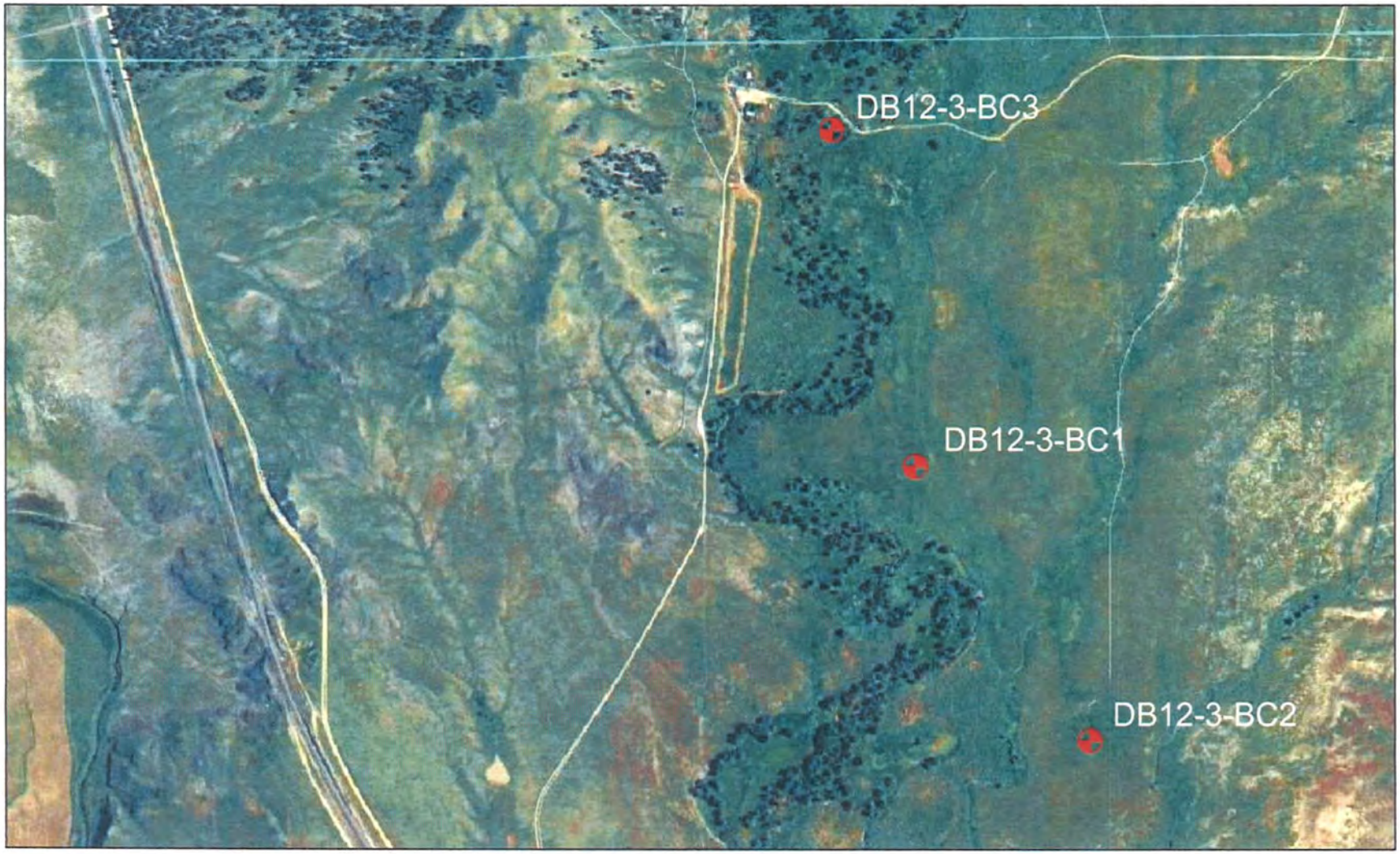
AMERICAN ENGINEERING TESTING, INC.

PROJECT: POWERTECH – DEWEY BURDOCK SITES NEAR EDGEMONT, SOUTH DAKOTA		PROJECT NO. 17–01493
SUBJECT: BORING LOCATION MAP – DC SITES		DATE: JULY 16, 2012
SCALE: 1 INCH = 1,000 FEET	DRAWN BY: KY	REVIEWED BY: RNT

January 2013

B.T-5

Appendix B Source T



N

POWERTECH (USA) INC.

SCALE (FEET)

0 1,000

AMERICAN ENGINEERING TESTING, INC.

PROJECT: POWERTECH – DEWEY BURDOCK SITES NEAR EDGEMONT, SOUTH DAKOTA		PROJECT NO. 17–01493
SUBJECT: BORING LOCATION MAP – BC SITES		DATE: JULY 16, 2012
SCALE: 1 INCH = 1,000 FEET	DRAWN BY: KY	REVIEWED BY: RNT

POWERTECH (USA) INC.
TESTING, INC.

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01493	**BORING/WELL NUMBER**	DB12-30-DC1
PROJECT NAME	Powertech	**DATE DRILLED**	7/10/12
LOCATION	Near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2" PVC Flush Thread, Sch. 40
DRILLING METHOD	3.25" HSA	**SCREEN TYPE**	2" PVC Flush Thread, Sch. 40, 0.010 slot
SAMPLING METHOD	Auger Cuttings	**PACKING TYPE**	12-20 Silica Sand
GROUND ELEVATION	3646 (provided by PWE from topo map)	**GROUT TYPE**	Bentonite/Cement
TOP OF CASING		**DEPTH TO WATER**	20.00
LOGGED BY	FL	**GROUND WATER ELEVATION**	
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	GW LEVEL	BORING ABANDONED
			AUGER 1		1–9	CL		**SANDY CLAY** light brown to tan		Portland Cement
					10					Bentonite Seal
					10–17	CL		**SANDY CLAY** brown		
					18					12-20 Silica Sand
					18–22	SP		**SAND & GRAVEL** light brown to brown		2" PVC, 0.010 Slot Screen
					23	CH		**SHALE** black		
					24			Bottom of Boring		

AET_ENVI 17-01493.GPJ AET WITH PID INFO 9/14/12

POWERTECH (USA) INC.
TESTING, INC.

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01493	**BORING/WELL NUMBER**	DB12-30-DC2
PROJECT NAME	Powertech	**DATE DRILLED**	7/10/12
LOCATION	Near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2" PVC Flush Thread, Sch. 40
DRILLING METHOD	3.25" HSA	**SCREEN TYPE**	2" PVC Flush Thread, Sch. 40, 0.010 slot
SAMPLING METHOD	Auger Cuttings	**PACKING TYPE**	12-20 Silica Sand
GROUND ELEVATION	3612 (provided by PWE from topo map)	**GROUT TYPE**	Bentonite/Cement
TOP OF CASING		**DEPTH TO WATER**	11.00
LOGGED BY	FL	**GROUND WATER ELEVATION**	
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	GW LEVEL
			AUGER 1		1–8	CL		**SANDY CLAY** light brown	
					9				
					10	CL		**CLAY** brown	
					11–30	SP		**SAND & GRAVEL** brown wet at 20'	
					31				
					32	CH		**SHALE** black	
					33			Bottom of Boring	

BORING ABANDONED

- Portland Cement
- Bentonite Seal
- 12-20 Silica Sand
- 2" PVC, 0.010 Slot Screen

AET_ENVI 17-01493.GPJ AET WITH PID INFO 9/14/12

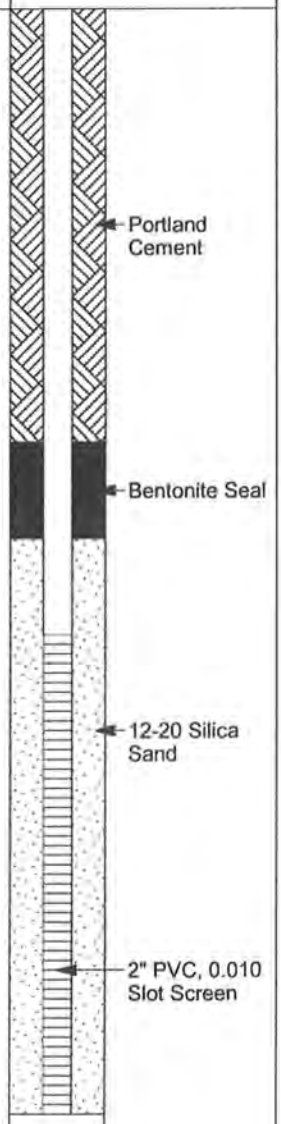
POWERTECH (USA) INC.
TESTING, INC.

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01493	**BORING/WELL NUMBER**	DB12-31-DC3
PROJECT NAME	Powertech	**DATE DRILLED**	7/10/12
LOCATION	Near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2" PVC Flush Thread, Sch. 40
DRILLING METHOD	3.25" HSA	**SCREEN TYPE**	2" PVC Flush Thread, Sch. 40, 0.010 slot
SAMPLING METHOD	Auger Cuttings	**PACKING TYPE**	12-20 Silica Sand
GROUND ELEVATION	3618 (provided by PWE from topo map)	**GROUT TYPE**	Bentonite/Cement
TOP OF CASING		**DEPTH TO WATER**	DRY
LOGGED BY	FL	**GROUND WATER ELEVATION**	
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	GW LEVEL
			AUGER 1		1–8	CL		**SANDY CLAY** light brown	
					8–17	CL		**SILTY CLAY** brown	
					17–21	SP		**SAND & GRAVEL** brown	
					21–23	CH		**SHALE** black	
					23			Bottom of Boring	

BORING ABANDONED



AET_ENVI 17-01493.GPJ AET WITH PID INFO 9/14/12

POWERTECH (USA) INC.
TESTING, INC.

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01493	**BORING/WELL NUMBER**	DB12-32-DC4
PROJECT NAME	Powertech	**DATE DRILLED**	7/11/12
LOCATION	Near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2" PVC Flush Thread, Sch. 40
DRILLING METHOD	3.25" HSA	**SCREEN TYPE**	2" PVC Flush Thread, Sch. 40, 0.010 slot
SAMPLING METHOD	Auger Cuttings	**PACKING TYPE**	12-20 Silica Sand
GROUND ELEVATION	3617 (provided by PWE from topo map)	**GROUT TYPE**	Bentonite/Cement
TOP OF CASING		**DEPTH TO WATER**	18.00
LOGGED BY	FL	**GROUND WATER ELEVATION**	
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	GW LEVEL	BORING ABANDONED
			AUGER 1		1–3	CL		**SANDY CLAY** light brown		
					3–18	CL		**SILTY CLAY** brown		Portland Cement; Bentonite Seal
					18–22	SP		**SAND & GRAVEL** yellowish brown, wet		12-20 Silica Sand; 2" PVC, 0.010 Slot Screen
					22–23	CH		**SHALE** black		
					23			Bottom of Boring		

AET_ENVI 17-01493.GPJ AET WITH PID INFO 9/14/12

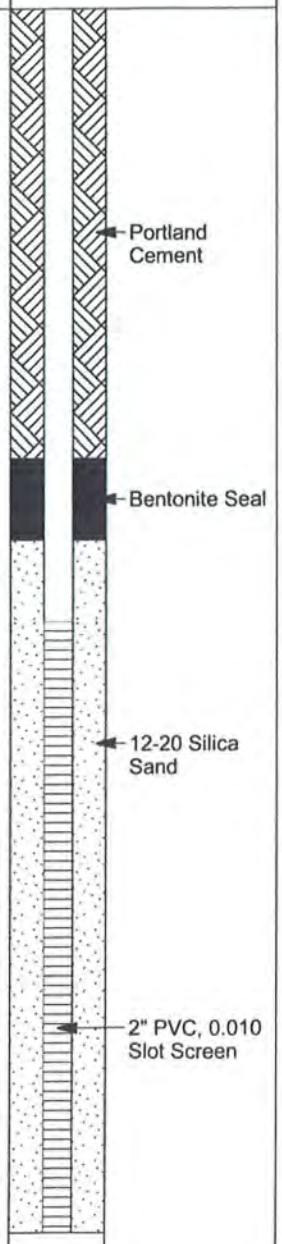
POWERTECH (USA) INC.
TESTING, INC.

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01493	**BORING/WELL NUMBER**	DB12-3-BC-1
PROJECT NAME	Powertech	**DATE DRILLED**	7/9/12
LOCATION	Near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2" PVC Flush Thread, Sch. 40
DRILLING METHOD	3.25" HSA	**SCREEN TYPE**	2" PVC Flush Thread, Sch. 40, 0.010 slot
SAMPLING METHOD	Auger Cuttings	**PACKING TYPE**	12-20 Silica Sand
GROUND ELEVATION	3638 (provided by PWE from topo map)	**GROUT TYPE**	Bentonite/Cement
TOP OF CASING		**DEPTH TO WATER**	12.50
LOGGED BY	FL	**GROUND WATER ELEVATION**	
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	GW LEVEL
			AUGER 1		1–4	SP		**SAND** orange-brown	
					4–15	CL		**SANDY CLAY** brown to reddish brown	
					15–29	SP		**SAND & GRAVEL** reddish brown, wet	
					29–30	CH		**SHALE** black	
					30			Bottom of Boring	

BORING ABANDONED



AET_ENVI 17-01493.GPJ AET WITH PID INFO 9/14/12

POWERTECH (USA) INC.
TESTING, INC.

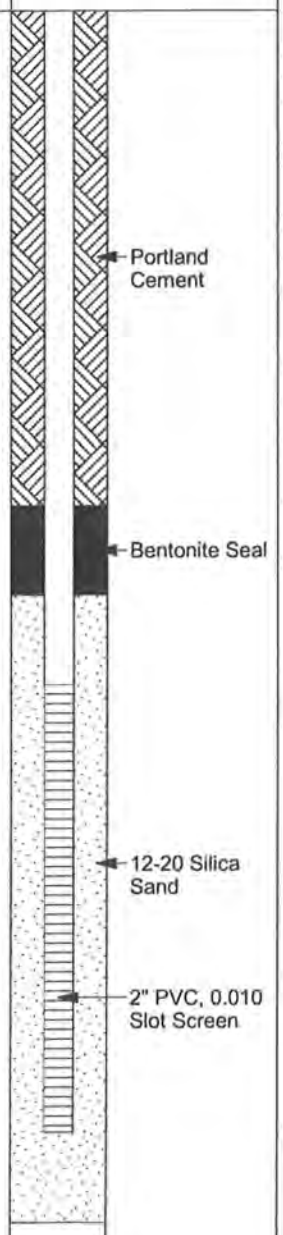
BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01493	**BORING/WELL NUMBER**	DB12-3-BC-2
PROJECT NAME	Powertech	**DATE DRILLED**	7/9/12
LOCATION	Near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2" PVC Flush Thread, Sch. 40
DRILLING METHOD	3.25" HSA	**SCREEN TYPE**	2" PVC Flush Thread, Sch. 40, 0.010 slot
SAMPLING METHOD	Auger Cuttings	**PACKING TYPE**	12-20 Silica Sand
GROUND ELEVATION	3637 (provided by PWE from topo map)	**GROUT TYPE**	Bentonite/Cement
TOP OF CASING		**DEPTH TO WATER**	3.00
LOGGED BY	FL	**GROUND WATER ELEVATION**	
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
			AUGER 1		1–3	SP		**SAND** tan to brown
					3–8	CL		**CLAY** dark brown
					8–15	CL		**SANDY CLAY** red
					15–22	SC		**CLAYEY SAND** red to reddish gray wet at 18'
					22–27	CH		**SHALE** black
					27			Bottom of Boring

GW LEVEL

BORING ABANDONED



AET_ENVI 17-01493.GPJ AET WITH PID INFO 9/14/12

POWERTECH (USA) INC.
TESTING, INC.

BORING/WELL CONSTRUCTION LOG

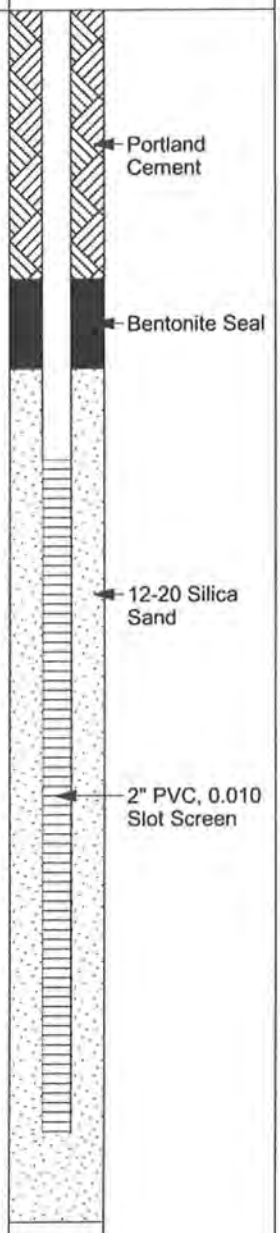
PROJECT NUMBER 17-01493
PROJECT NAME Powertech
LOCATION Near Edgemont, South Dakota
DRILLING METHOD 3.25" HSA
SAMPLING METHOD Auger Cuttings
GROUND ELEVATION 3654 (provided by PWE from topo map)
TOP OF CASING
LOGGED BY FL
REMARKS

BORING/WELL NUMBER DB12-3-BC-3
DATE DRILLED 7/9/12
CASING TYPE/DIAMETER 2" PVC Flush Thread, Sch. 40
SCREEN TYPE 2" PVC Flush Thread, Sch. 40, 0.010 slot
PACKING TYPE 12-20 Silica Sand
GROUT TYPE Bentonite/Cement
DEPTH TO WATER 9.50
GROUND WATER ELEVATION

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
			AUGER 1		1–3	SP		**SAND** orange-brown
					4	CL		**SILTY CLAY** reddish brown
					5–12	SC		**CLAYEY SAND** reddish brown, wet
					13–24	SP		**SAND & GRAVEL** reddish brown
					25–26	CH		**SHALE** black
					27			Bottom of Boring

GW LEVEL

BORING ABANDONED



AET_ENVI 17-01493.GPJ AET WITH PID INFO 9/14/12

DAKOTA WATER WELL COMPLETION REPORT

11- 02

Powertech (USA) Inc.

Location NW ¼ SW ¼ Sec 30 Twp 6S Rg 1E

County Custer

Please mark well location with an "X"

North

W E

Well Completion Date

7/10/12

1 Mile

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

ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sandy Clay – light brown to tan	0	10
Sandy Clay –brown	10	18
Sand & Gravel –light brown to brown	18	23
Shale - black	23	24

PROPOSED USE:
☐ Domestic/Stock ☐ Irrigation ☐ Municipal ☐ Industrial ☐ Business ☐ Institutional ☐ Test holes ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25" OD HSA to 24 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	14.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	10.0 Ft
Bentonite		Lb/gal	10.0 Ft	12.0 Ft

Describe grouting procedure

STATIC WATER LEVEL 20.0 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: NA

☐ Bailed

☐ Other

Pumping Level Below Land Surface

Ft. After Hrs. pumped GPM

Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 10.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 14.0 Feet to 24.0 Feet

Other information 12-20 Silica Sand from 12' to 24'

REMARKS

Monitoring Well DB12-30-DC1

Lat/Long (43.49946N, 104.0515W) from PWE handheld GPS

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material?

Describe packer(s) and location

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative:

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?

☑ No, Why Not? Monitoring Well Only

Lab to which water quality sample sent for analysis

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

11- 02

Powertech (USA) Inc.

Location SE ¼ SW ¼ Sec 30 Twp 6S Rg 1E

County Custer

Please mark well location with an "X"

North

W E

	×		

1 Mile

Well Completion Date

7/10/12

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

_____ ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57747

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sandy Clay – light brown	0	9
Clay –brown	9	11
Sand & Gravel –brown	11	31
Shale - black	31	33

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes

☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25" OD HSA
to 33 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
____ LB/FT	2.00 IN	0.0 FT	11.0 FT	6.25 IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement	____	____ Lb/gal	0.0 Ft	7.0 Ft
Bentonite	____	____ Lb/gal	7.0 Ft	9.0 Ft

Describe grouting procedure

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 20.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 11.0 Feet to 31.0 Feet

Other information 12-20 Silica Sand from 9' to 33'

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material? _____

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How? _____

☑ No, Why Not? Monitoring Well Only

Lab to which water quality sample sent for analysis

STATIC WATER LEVEL 11.0 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: NA

☐ Bailed

☐ Other

Pumping Level Below Land Surface

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

Monitoring Well DB12-30-DC2

Lat/Long (43.49328N, 104.0475W) from PWE handheld GPS

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: B. Hoo

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

11- 02

Powertech (USA) Inc.

Location NW ¼ NE ¼ Sec 31 Twp 6S Rg 1E

County Custer

Please mark well location with an "X"

North

W E

1 Mile

Well Completion Date

7/10/12

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

_____ ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sandy Clay – light brown	0	8
Silty Clay –brown	8	17
Sand & Gravel –brown	17	21
Shale - black	21	23

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes

☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25" OD HSA
to 23 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
_____ LB/FT	2.00 IN	0.0 FT	13.0 FT	6.25 IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN
_____ LB/FT	_____ IN	_____ FT	_____ FT	_____ IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement	_____	Lb/gal	0.0 Ft	9.0 Ft
Bentonite	_____	Lb/gal	9.0 Ft	11.0 Ft

Describe grouting procedure

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 10.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 13.0 Feet to 23.0 Feet

Other information 12-20 Silica Sand from 11' to 23'

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material? _____

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How? _____

☑ No, Why Not? Monitoring Well Only

Lab to which water quality sample sent for analysis

STATIC WATER LEVEL Dry 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: NA

☐ Bailed

☐ Other

Pumping Level Below Land Surface

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

Monitoring Well DB12-31-DC3

Lat/Long (43.49144N, 104.0411W) from PWE handheld GPS

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: Ryan B. Hoehn

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

11- 02

Location NW ¼ NW ¼ Sec 32 Twp 6S Rg 1E

County Custer

Please mark well location with an "X"

North

W E

1 Mile

Well Completion Date

7/11/12

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

_____ ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sandy Clay – light brown	0	3
Silty Clay –brown	3	18
Sand & Gravel – yellowish brown	18	22
Shale - black	22	23

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25 OD HSA
to 23 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other
If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
____ LB/FT	2.00 IN	0.0 FT	13.0 FT	6.25 IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN
~~LB/FT~~	~~IN~~	~~FT~~	~~FT~~	~~IN~~

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement	____	____ Lb/gal	0.0 Ft	9.0 Ft
Bentonite	____	____ Lb/gal	9.0 Ft	11.0 Ft

Describe grouting procedure

STATIC WATER LEVEL 18.0 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: NA
☐ Bailed
☐ Other

Pumping Level Below Land Surface

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 10.0 Feet

Material ~~Sch 40 PVC~~

Slot Size 0.010" Set From 13.0 Feet to 23.0 Feet

Other information 12-20 Silica Sand from 11' to 23'

REMARKS
Monitoring Well DB12-32-DC4
Lat/Long (43.49144N, 104.0329W) from PWE handheld GPS

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?

Lab to which water quality sample sent for analysis ☑ No, Why Not? Monitoring Well Only

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

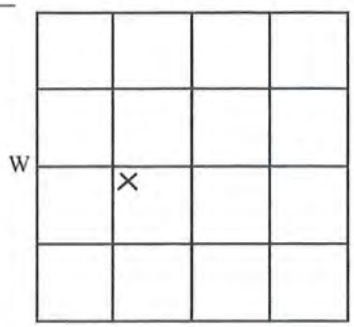
DAKOTA WATER WELL COMPLETION REPORT

11- 02

Location NE ¼ SW ¼ Sec 3 Twp 7S Rg 1E

County Fall River

Please mark well location with an "X"



Well Completion Date

7/9/12

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

ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand - orange-brown	0	4
Sandy Clay - brown to reddish brown	4	15
Sand & Gravel - reddish brown, wet	15	29
Shale - black	29	30

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25" OD HSA to 30 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	15.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	11.0 Ft
Bentonite		Lb/gal	11.0 Ft	13.0 Ft

Describe grouting procedure

STATIC WATER LEVEL 12.5 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: NA
☐ Bailed
☐ Other

Pumping Level Below Land Surface

Ft. After Hrs. pumped GPM

Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 15.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 15.0 Feet to 30.0 Feet

Other information 12-20 Silica Sand from 13' to 30'

REMARKS

Monitoring Well DB12-3-BC1
Lat/Long (43.47107N, 103.9905W) from PWE handheld GPS

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?

Lab to which water quality sample sent for analysis ☑ No, Why Not? Monitoring Well Only

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

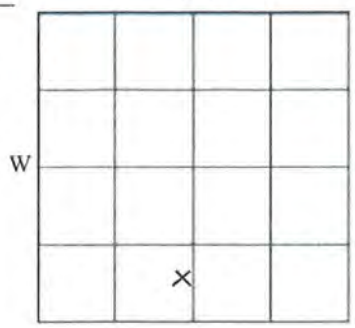
11- 02

Location SE /4 SW /4 Sec 3 Twp 7S Rg 1E

Powertech (USA) Inc.

County Fall River

Please mark well location with an "X"



Well Completion Date

7/9/12

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

ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand – tan to brown	0	3
Clay – dark brown	3	8
Sandy Clay - red	8	15
Clayey Sand – red to reddish gray	15	22
Shale - black	22	27

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25" OD HSA
to 27 feet

STATIC WATER LEVEL 3.0 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?

CASING DATA: ☐ Steel ☑ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
____ LB/FT	2.00 IN	0.0 FT	15.0 FT	6.25 IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN
____ LB/FT	____ IN	____ FT	____ FT	____ IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement	____	____ Lb/gal	0.0 Ft	11.0 Ft
Bentonite	____	____ Lb/gal	11.0 Ft	13.0 Ft

Describe grouting procedure

WELL TEST DATA:

☐ Pumped Describe: NA
☐ Bailed
☐ Other

Pumping Level Below Land Surface

____ Ft. After ____ Hrs. pumped ____ GPM

____ Ft. After ____ Hrs. pumped ____ GPM

If pump installed, pump rate: ____ GPM

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 10.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 15.0 Feet to 25.0 Feet

Other information 12-20 Silica Sand from 13' to 27'

REMARKS

Monitoring Well DB12-3-BC2

Lat/Long (43.46629N, 103.9863W) from PWE handheld GPS

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material? ____

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How? ____

☑ No, Why Not? Monitoring Well Only

Lab to which water quality sample sent for analysis

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: Ryan B Hoxter

Signature of Well Owner or Equitable Property Holder:

Date: ____

DAKOTA WATER WELL COMPLETION REPORT

11- 02

Location NW ¼ NW ¼ Sec 3 Twp 7S Rg 1E

County Fall River

Please mark well location with an "X"

North

W E

1 Mile

Well Completion Date

7/9/12

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

ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand – orange-brown	0	4
Silt Clay – reddish brown	4	5
Clayey Sand – reddish brown	5	13
Sand & Gravel –reddish brown	13	25
Shale - black	25	27

PROPOSED USE:

☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25" OD HSA
to 27 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	10.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	6.0 Ft
Bentonite		Lb/gal	6.0 Ft	8.0 Ft

Describe grouting procedure

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 15.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 10.0 Feet to 25.0 Feet

Other information 12-20 Silica Sand from 8" to 27'

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material?

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How?

Lab to which water quality sample sent for analysis ☑ No, Why Not? Monitoring Well Only

STATIC WATER LEVEL 9.5 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: NA

☐ Bailed

☐ Other

Pumping Level Below Land Surface

Ft. After Hrs. pumped GPM

Ft. After Hrs. pumped GPM

If pump installed, pump rate: GPM

REMARKS

Monitoring Well DB12-3-BC3
Lat/Long (43.47687N, 103.9925W) from PWE handheld GPS

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative:

Signature of Well Owner or Equitable Property Holder:

Date:

This page intentionally left blank

SOURCE U

POWERTECH FIELD NOTES AUGUST 20 AND 23, 2012

This page intentionally left blank

POWERTECH (USA) INC.

Water levels

Well No	8/20/2012 wtr level	Depth	Stickup
676	15.23	20.9	
678	10.79	16.72	
679	29.72	41.36	app 28"
707	34.11	42.45	27.25"
709	32.1	40.1	22.25"
	8/23/2012		
677	11.05	16.45	

Measured by Frank Lichnovsky, Powertech (USA) Inc.
Using Powertech In Situ Inc. Electric Water Level Tape

This page intentionally left blank

SOURCE V

AET WELL COMPLETION REPORT NOVEMBER 2012

This page intentionally left blank

POWERTECH (USA) INC.
AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
· ENVIRONMENTAL
· GEOTECHNICAL
· MATERIALS
· FORENSICS

November 5, 2012

Mr. Frank Lichnovsky
Powertech (USA), Inc.
PO Box 812
Edgemont, SD 57735

Subject: Well Completion Reports
Powertech Inc.
Sites NW of Edgemont, South Dakota
AET No. 17-01493

Dear Frank:

Please find the attached boring location maps, well construction logs, and South Dakota well completion reports for six monitoring wells drilled on October 29-31, 2012. If you have any questions regarding the attached reports, please call our office at (605) 388-0029.

Respectfully,

Kristen R. Yates

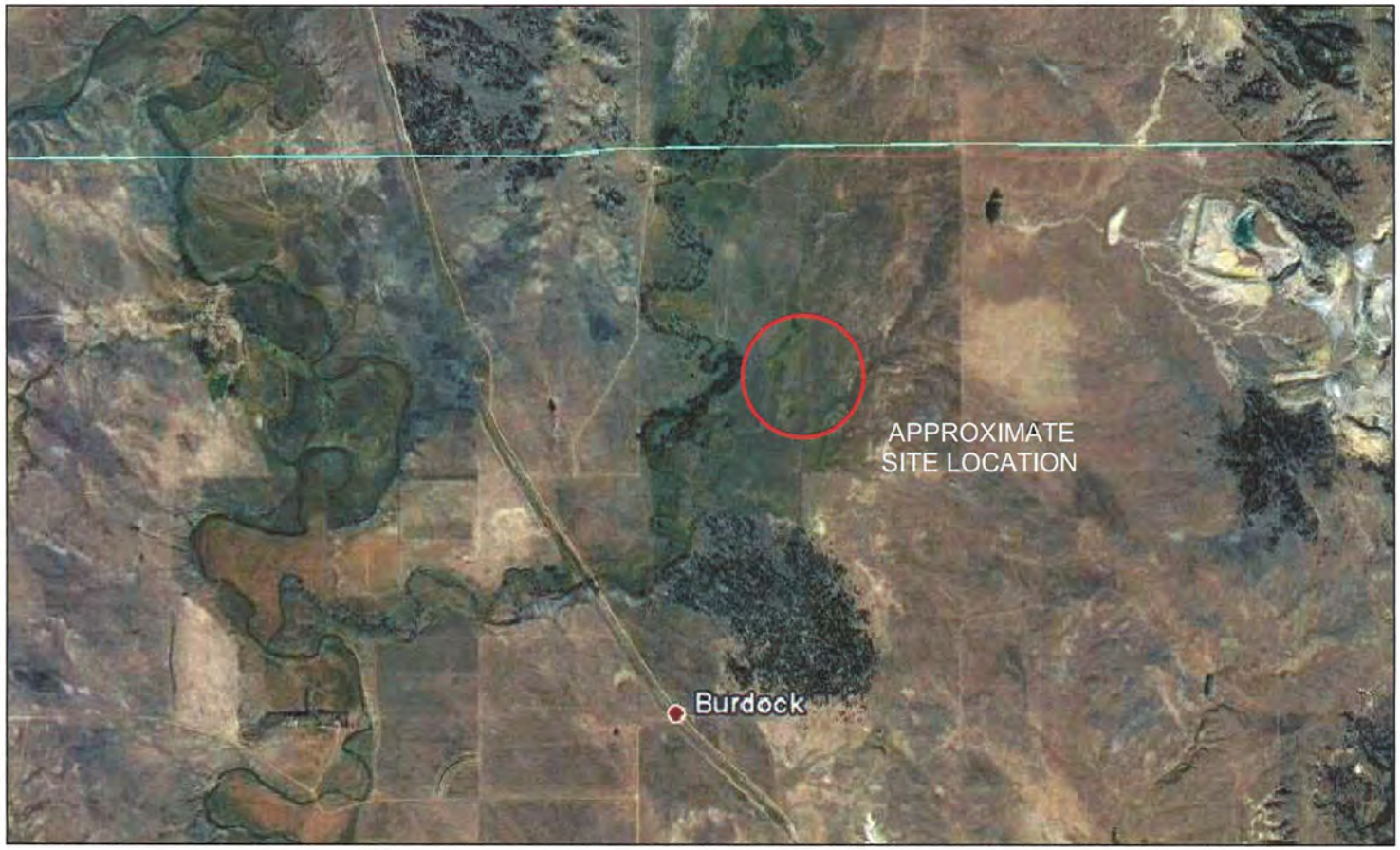
Kristen R. Yates, EI, CPRR
Geotechnical Project Manager

attachments

cc. Mr. Ken Buhler - SDDENR

N

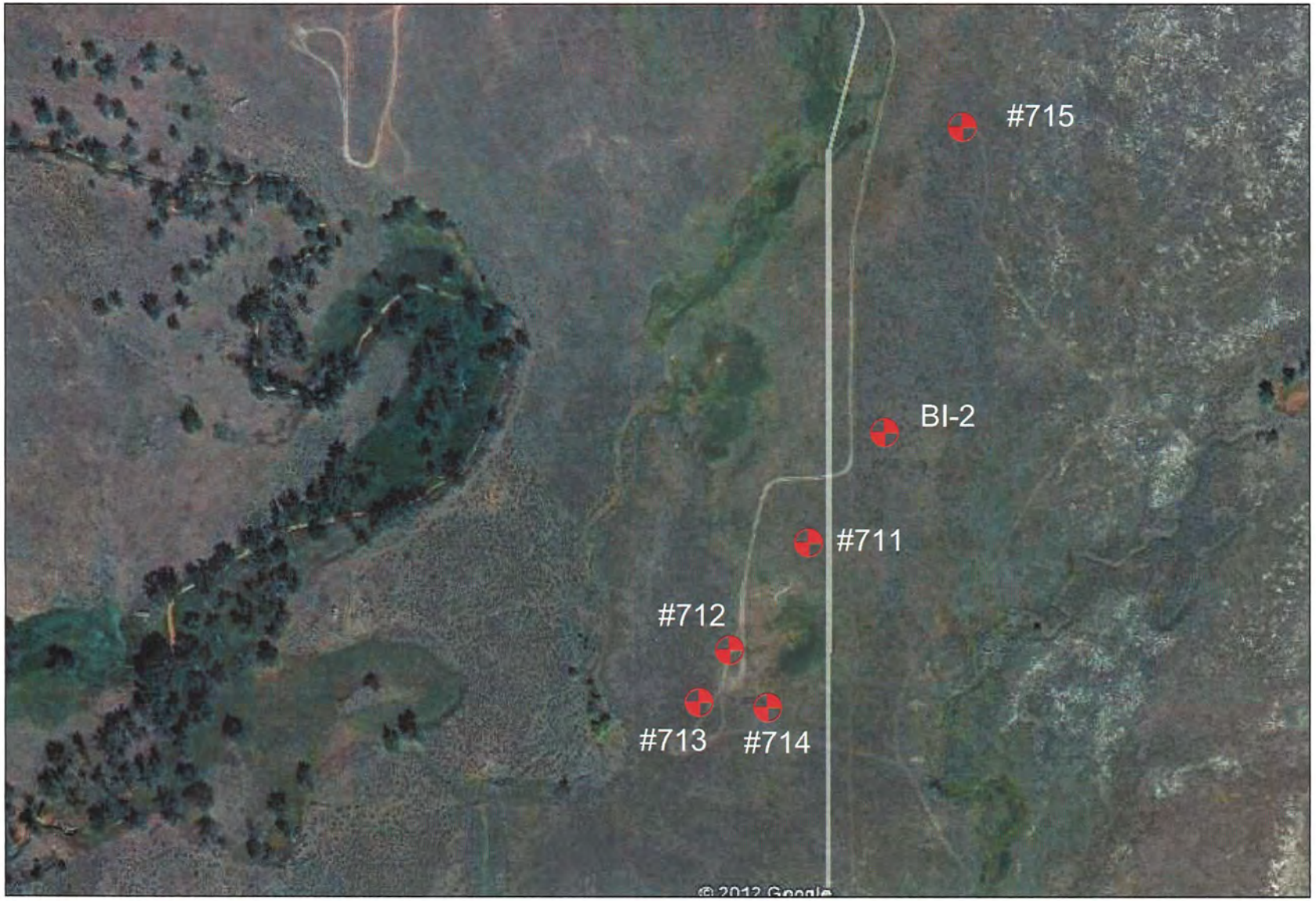
POWERTECH (USA) INC.



SCALE
(FEET)

0 3000

AMERICAN ENGINEERING TESTING, INC.	PROJECT: POWERTECH USA		PROJECT NO. 17-01593
	SUBJECT: SITE LOCATION MAP		DATE: NOVEMBER 5, 2012
January 2013	SCALE: 1 INCH = 3000 FEET B.V-4	DRAWN BY: KY	REVIEWED BY: RNT Appendix B Source V



N

POWERTECH (USA) INC.

SCALE (FEET)

0 400

AMERICAN ENGINEERING TESTING, INC.	PROJECT: POWERTECH USA		PROJECT NO. 17-01593
	SUBJECT: BORING LOCATION MAP		DATE: NOVEMBER 5, 2012
	SCALE: 1 INCH = 400 FEET	DRAWN BY: KY	REVIEWED BY: RNT

Powertech (USA) Inc.
TESTING, INC.

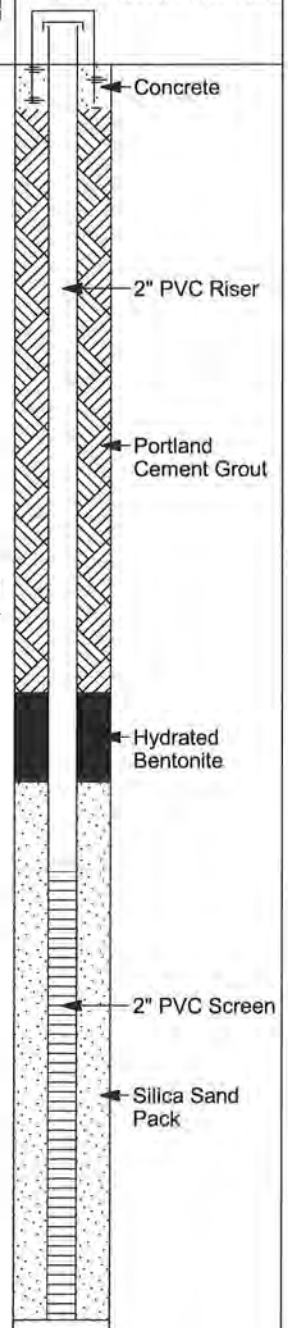
BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01593	**BORING/WELL NUMBER**	#711
PROJECT NAME	Powertech USA, Inc	**DATE DRILLED**	10/29/12
LOCATION	near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2-inch diam. Sch 40 PVC
DRILLING METHOD	4.25" HSA	**SCREEN TYPE**	2-inch diam. Sch 40 PVC 0.010 slot
SAMPLING METHOD	NA	**PACKING TYPE**	8-16 Silica Sand
GROUND ELEVATION	3643.00	**GROUT TYPE**	Portland Cement
TOP OF CASING	3646	**DEPTH TO WATER**	15.26
LOGGED BY	FL	**GROUND WATER ELEVATION**	3630.74
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
					1–9	FA		**Sand** fine to medium grained, orange to light brown
					9–19	FA		**Sandy Clay** red
					19–23	FA		**Clayey Sand** fine grained at top to coarse grained at bottom, red, wet
					23–27	CA		**Gravel** red
					27–28	SHALE		**Shale** black
					28			End of Boring

GW LEVEL

BORING ABANDONED



AET_ENVI 17-01593.GPJ AET WITH PID INFO 11/5/12

POWERTECH (USA) INC.
TESTING, INC.

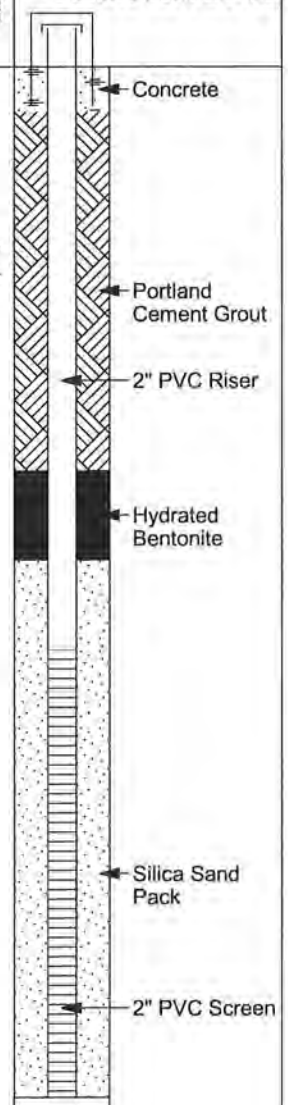
BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01593	**BORING/WELL NUMBER**	#712
PROJECT NAME	Powertech USA, Inc	**DATE DRILLED**	10/29/12
LOCATION	near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2-inch diam. Sch 40 PVC
DRILLING METHOD	4.25" HSA	**SCREEN TYPE**	2-inch diam. Sch 40 PVC 0.010 slot
SAMPLING METHOD	NA	**PACKING TYPE**	8-16 Silica Sand
GROUND ELEVATION	3634.00	**GROUT TYPE**	Portland Cement
TOP OF CASING	3637	**DEPTH TO WATER**	7.63
LOGGED BY	FL	**GROUND WATER ELEVATION**	3629.37
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
					1–3	FA		**Sand** fine to medium grained, light yellow
					3–8	FA		**Sandy Clay** light yellow
					8–14	FA		**Sandy Clay** red
					14–20	FA		**Clayey Sand** fine grained at top to coarse grained at bottom, red, wet
					20–23	CA		**Gravel** red
					23–25	SHALE		**Shale** black
					25			End of Boring

GW LEVEL

BORING ABANDONED



AET_ENVI 17-01593.GPJ AET WITH PID INFO 11/5/12

POWERTECH (USA) INC.
TESTING, INC.

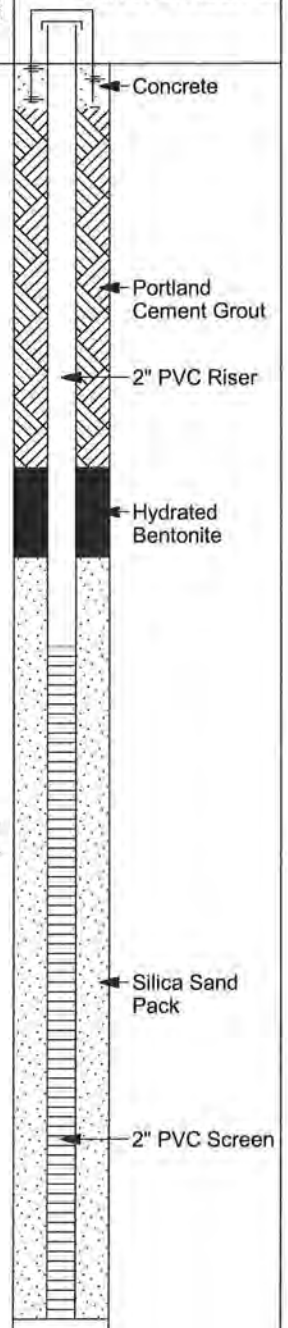
BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01593	**BORING/WELL NUMBER**	#713
PROJECT NAME	Powertech USA, Inc	**DATE DRILLED**	10/29/12
LOCATION	near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2-inch diam. Sch 40 PVC
DRILLING METHOD	4.25" HSA	**SCREEN TYPE**	2-inch diam. Sch 40 PVC 0.010 slot
SAMPLING METHOD	NA	**PACKING TYPE**	8-16 Silica Sand
GROUND ELEVATION	3635.00	**GROUT TYPE**	Portland Cement
TOP OF CASING	3638	**DEPTH TO WATER**	20.59
LOGGED BY	FL	**GROUND WATER ELEVATION**	3617.41
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
					1–3	FA		**Sand** fine to medium grained, light yellow to tan
					3–8	FA		**Sandy Clay**light yellow to tan
					8–14	FA		**Sandy Clay** red
					14–21	FA		**Clayey Sand** fine grained at top to coarse grained at bottom, red, wet
					21–26	CA		**Gravel** red
					26–28	SHALE		**Shale** black
					28			End of Boring

GW LEVEL

BORING ABANDONED



AET_ENVI 17-01593.GPJ AET WITH PID INFO 11/5/12

Powertech (USA) Inc.
TESTING, INC.

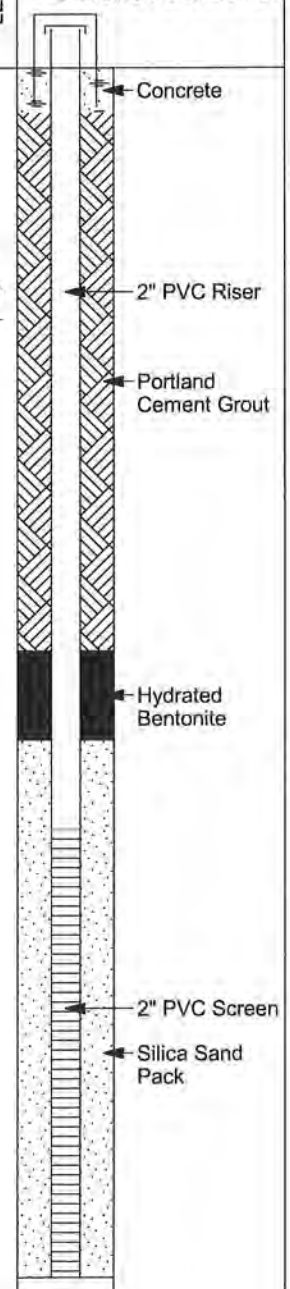
BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01593	**BORING/WELL NUMBER**	#714
PROJECT NAME	Powertech USA, Inc	**DATE DRILLED**	10/29/12
LOCATION	near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2-inch diam. Sch 40 PVC
DRILLING METHOD	4.25" HSA	**SCREEN TYPE**	2-inch diam. Sch 40 PVC 0.010 slot
SAMPLING METHOD	NA	**PACKING TYPE**	8-16 Silica Sand
GROUND ELEVATION	3639.00	**GROUT TYPE**	Portland Cement
TOP OF CASING	3642	**DEPTH TO WATER**	8.62
LOGGED BY	FL	**GROUND WATER ELEVATION**	3633.38
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
					1–3	FA		**Sand** fine to medium grained, light red
					3–13	FA		**Sandy Clay** dark red
					13–15	FA		**Sandy Clay** red
					15–25	FA		**Clayey Sand** fine grained at top to coarse grained at bottom, red, wet
					25–27	CA		**Gravel** red
					27–28	SHALE		**Shale** black
								End of Boring

GW LEVEL

BORING ABANDONED



AET_ENVI 17-01593.GPJ AET WITH PID INFO 11/5/12

POWERTECH (USA) INC.
TESTING, INC.

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01593	**BORING/WELL NUMBER**	#715
PROJECT NAME	Powertech USA, Inc	**DATE DRILLED**	10/30/12
LOCATION	near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2-inch diam. Sch 40 PVC
DRILLING METHOD	4.25" HSA	**SCREEN TYPE**	2-inch diam. Sch 40 PVC 0.010 slot
SAMPLING METHOD	NA	**PACKING TYPE**	10-20 Silica Sand
GROUND ELEVATION	3653.00	**GROUT TYPE**	Portland Cement
TOP OF CASING	3655	**DEPTH TO WATER**	16.29
LOGGED BY	FL	**GROUND WATER ELEVATION**	3638.71
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
					1–4	FA		**Sand** fine to medium grained, light yellow to tan
					5–12	FA		**Sandy Clay** red
					13–23	FA		**Clayey Sand** fine grained at top to coarse grained at bottom, red, wet
					23–31	CA		**Gravel** red
					31–32	SHALE		**Shale** black
								End of Boring

GW LEVEL

BORING ABANDONED

- Concrete
- Portland Cement Grout
- 2" PVC Riser
- Hydrated Bentonite
- Silica Sand Pack
- 2" PVC Screen

AET_ENVI 17-01593.GPJ AET WITH PID INFO 11/5/12

Powertech (USA) Inc.
TESTING, INC.

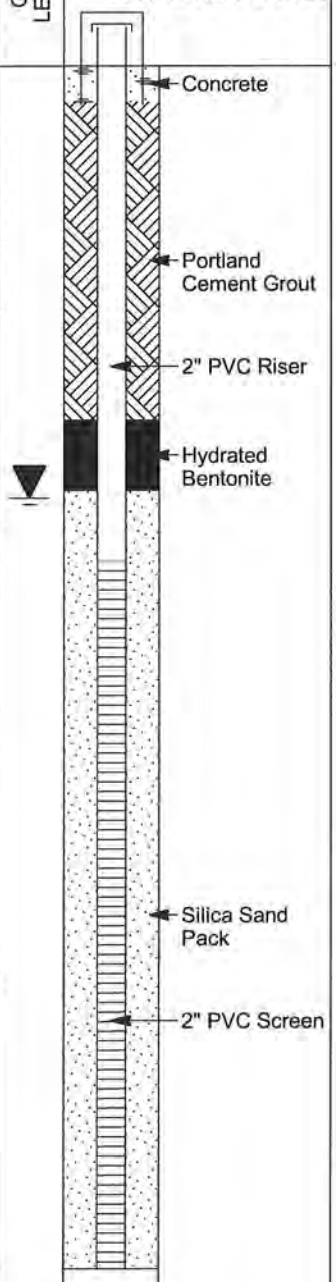
BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER	17-01593	**BORING/WELL NUMBER**	BI-2
PROJECT NAME	Powertech USA, Inc	**DATE DRILLED**	10/30/12
LOCATION	near Edgemont, South Dakota	**CASING TYPE/DIAMETER**	2-inch diam. Sch 40 PVC
DRILLING METHOD	4.25" HSA	**SCREEN TYPE**	2-inch diam. Sch 40 PVC 0.010 slot
SAMPLING METHOD	NA	**PACKING TYPE**	8-16 Silica Sand
GROUND ELEVATION	3649.00	**GROUT TYPE**	Portland Cement
TOP OF CASING	3652	**DEPTH TO WATER**	15.21
LOGGED BY	FL	**GROUND WATER ELEVATION**	3636.79
REMARKS			

PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
					1–5	FA		**Sand** fine to medium grained, light yellow to red
					5–7	FA		**Sandy Clay** brown
					7–13	FA		**Sandy Clay** red
					13–26	FA		**Clayey Sand** fine grained at top to coarse grained at bottom, red, wet
					26–34	CA		**Gravel** red
					34–35	SHALE		**Shale** black
								End of Boring

GW LEVEL

BORING ABANDONED



AET_ENVI 17-01593.GPJ AET WITH PID INFO 11/5/12

DAKOTA WATER WELL COMPLETION REPORT

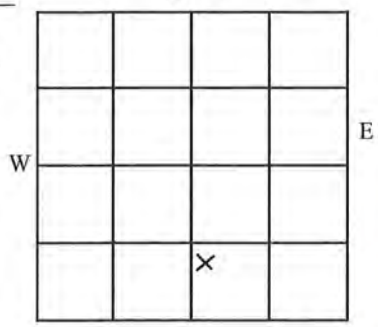
11- 02

Powertech (USA) Inc.

Location SW ¼ SE ¼ Sec 3 Twp 7S Rg 1E

County Custer

Please mark well location with an "X"



Well Completion Date
10/31/12

1 Mile

Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?
_____ ft. from Unknown (identify source)

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25 OD HSA
to 28 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other
If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
___ LB/FT	2.00 IN	0.0 FT	18.0 FT	6.25 IN
___ LB/FT	___ IN	___ FT	___ FT	___ IN
___ LB/FT	___ IN	___ FT	___ FT	___ IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement	___	___ Lb/gal	0.0 Ft	14.0 Ft
Bentonite	___	___ Lb/gal	14.0 Ft	16.0 Ft

Describe grouting procedure

SCREEN: ☐ Perforated pipe ☑ Manufactured
Diameter 2.00 Inches Length 10.0 Feet
Material Sch 40 PVC
Slot Size 0.010" Set From 18.0 Feet to 28.0 Feet
Other information 8-16 Silica Sand from 16' to 28'

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No
If so, what material?
Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?
☐ Yes, How?
☑ No, Why Not? Monitoring Well Only
Lab to which water quality sample sent for analysis

Well Owner: Powertech (USA) Inc.
Business Name: Powertech (USA) Inc.
Address: PO Box 812
City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand – orange to light brown	0	9
Sandy Clay – red	9	19
Clayey Sand – red	19	23
Gravel – red	23	27
Shale - black	27	28

STATIC WATER LEVEL 15 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: NA
☐ Bailed
☐ Other
Pumping Level Below Land Surface
___ Ft. After ___ Hrs. pumped ___ GPM
___ Ft. After ___ Hrs. pumped ___ GPM
If pump installed, pump rate: ___ GPM

REMARKS
Monitoring Well #711
Lat/Long (43.4673N, 103.98602W) from PWE handheld GPS

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: B. Hoeft

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

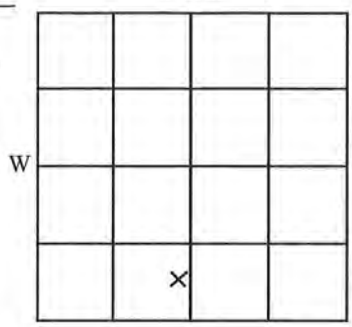
11- 02

Powertech (USA) Inc.

Location SE ¼ SW ¼ Sec 3 Twp 7S Rg 1E

County Custer

Please mark well location with an "X"



Well Completion Date: 10/31/12

1 Mile

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

_____ ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand –light yellow	0	3
Sandy Clay – light yellow to red	3	14
Clayey Sand – red	14	20
Gravel – red	20	23
Shale - black	23	25

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25 OD HSA to 23 feet

STATIC WATER LEVEL 7 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?

CASING DATA: ☐ Steel ☑ Plastic ☐ Other

If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	13.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	9.0 Ft
Bentonite		Lb/gal	9.0 Ft	11.0 Ft

Describe grouting procedure

WELL TEST DATA:
☐ Pumped Describe: NA
☐ Bailed
☐ Other

Pumping Level Below Land Surface

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 10.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 13.0 Feet to 23.0 Feet

Other information 8-16 Silica Sand from 11' to 23'

REMARKS
Monitoring Well #712
Lat/Long (43.46653N, 103.98682W) from PWE handheld GPS

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material? _____

Describe packer(s) and location

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: B. B. Hoeft

DISINFECTION: Was well disinfected upon completion?

☐ Yes, How? _____

☑ No, Why Not? Monitoring Well Only

Lab to which water quality sample sent for analysis

Signature of Well Owner or Equitable Property Holder:

Date: _____

DAKOTA WATER WELL COMPLETION REPORT

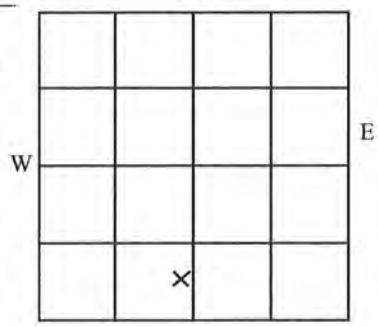
11- 02

POWERTECH (USA) INC.

Location SE ¼ SW ¼ Sec 3 Twp 7S Rg 1E

County Custer

Please mark well location with an "X"



Well Completion Date: 10/31/12

1 Mile

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

_____ ft. from Unknown (identify source)

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25 OD HSA
to 28 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other
If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	13.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	9.0 Ft
Bentonite		Lb/gal	9.0 Ft	11.0 Ft

Describe grouting procedure

SCREEN: ☐ Perforated pipe ☑ Manufactured
Diameter 2.00 Inches Length 15.0 Feet
Material Sch 40 PVC
Slot Size 0.010" Set From 13.0 Feet to 28.0 Feet
Other information 8-16 Silica Sand from 11' to 28'

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No
If so, what material?
Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?
☐ Yes, How?
Lab to which water quality sample sent for analysis ☑ No, Why Not? Monitoring Well Only

Well Owner: Powertech (USA) Inc.
Business Name: Powertech (USA) Inc.
Address: PO Box 812
City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand –light yellow to tan	0	3
Sandy Clay – light yellow to red	3	14
Clayey Sand – red	14	21
Gravel – red	21	26
Shale - black	26	28

STATIC WATER LEVEL 21 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: NA
☐ Bailed
☐ Other
Pumping Level Below Land Surface
Ft. After Hrs. pumped GPM
Ft. After Hrs. pumped GPM
If pump installed, pump rate: GPM

REMARKS
Monitoring Well #713
Lat/Long (43.46615N, 103.9871W) from PWE handheld GPS

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: B. Hoo

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

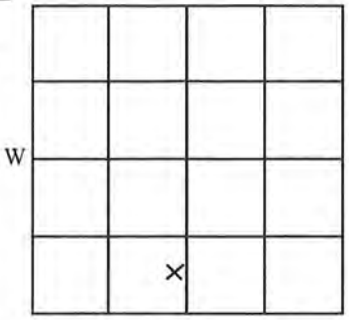
11- 02

Powertech (USA) Inc.

Location SE ¼ SW ¼ Sec 3 Twp 7S Rg 1E

County Custer

Please mark well location with an "X"



Well Completion Date: 10/31/12

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

_____ ft. from Unknown (identify source)

Well Owner: Powertech (USA) Inc.

Business Name: Powertech (USA) Inc.

Address: PO Box 812

City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand –light red	0	3
Sandy Clay – dark red to red	3	15
Clayey Sand – red	15	25
Gravel – red	25	27
Shale - black	27	28

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25 OD HSA
to 28 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other
If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	17.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	13.0 Ft
Bentonite		Lb/gal	13.0 Ft	15.0 Ft

Describe grouting procedure

STATIC WATER LEVEL 9 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: NA
☐ Bailed
☐ Other

Pumping Level Below Land Surface

_____ Ft. After _____ Hrs. pumped _____ GPM

_____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

SCREEN: ☐ Perforated pipe ☑ Manufactured

Diameter 2.00 Inches Length 10.0 Feet

Material Sch 40 PVC

Slot Size 0.010" Set From 17.0 Feet to 27.0 Feet

Other information 8-16 Silica Sand from 15' to 27'

REMARKS
Monitoring Well #714
Lat/Long (43.46611N, 103.98643W) from PWE handheld GPS

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No

If so, what material? _____

Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?
☐ Yes, How? _____
☑ No, Why Not? Monitoring Well Only

Lab to which water quality sample sent for analysis

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: B. Hoo

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

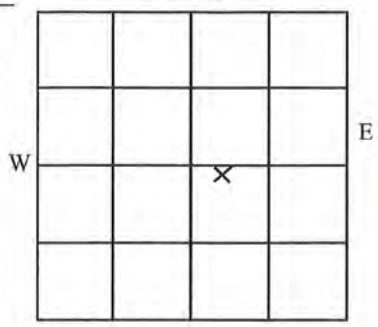
11- 02

POWERTECH (USA) INC.

Location NE ¼ SE ¼ Sec 3 Twp 7S Rg 1E

County Custer

Please mark well location with an "X"



Well Completion Date: 10/31/12

1 Mile

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

_____ ft. from Unknown (identify source)

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25 OD HSA
to 28 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other
If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	12.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	8.0 Ft
Bentonite		Lb/gal	8.0 Ft	10.0 Ft

Describe grouting procedure

SCREEN: ☐ Perforated pipe ☑ Manufactured
Diameter 2.00 Inches Length 20.0 Feet
Material Sch 40 PVC
Slot Size 0.010" Set From 12.0 Feet to 32.0 Feet
Other information 10-20 Silica Sand from 10' to 32'

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No
If so, what material? _____
Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?
☐ Yes, How? _____
Lab to which water quality sample sent for analysis ☑ No, Why Not? Monitoring Well Only

Well Owner: Powertech (USA) Inc.
Business Name: Powertech (USA) Inc.
Address: PO Box 812
City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand –light yellow to tan	0	5
Sandy Clay – red	5	13
Clayey Sand – red	13	23
Gravel – red	23	31
Shale - black	31	32

STATIC WATER LEVEL 16 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: NA
☐ Bailed
☐ Other
Pumping Level Below Land Surface
_____ Ft. After _____ Hrs. pumped _____ GPM
_____ Ft. After _____ Hrs. pumped _____ GPM
If pump installed, pump rate: _____ GPM

REMARKS
Monitoring Well #715
Lat/Long (43.47031N, 103.98447W) from PWE handheld GPS

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: B. Hoeft

Signature of Well Owner or Equitable Property Holder:

Date:

DAKOTA WATER WELL COMPLETION REPORT

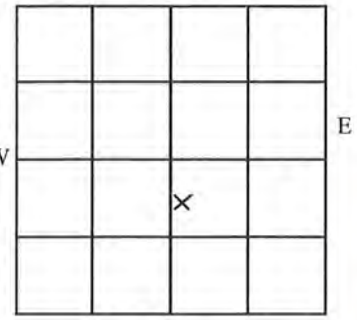
11- 02

Powertech (USA) Inc.

Location NE ¼ SE ¼ Sec 3 Twp 7S Rg 1E

County Custer

Please mark well location with an "X"



Well Completion Date: 10/31/12

1 Mile

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

_____ ft. from Unknown (identify source)

PROPOSED USE:
☐ Domestic/Stock ☐ Municipal ☐ Business ☐ Test holes
☐ Irrigation ☐ Industrial ☐ Institutional ☑ Monitoring well

METHOD OF DRILLING:
3.25" ID, 6.25 OD HSA
to 28 feet

CASING DATA: ☐ Steel ☑ Plastic ☐ Other
If other describe

PIPEWEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
LB/FT	2.00 IN	0.0 FT	14.0 FT	6.25 IN
LB/FT	IN	FT	FT	IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
Cement		Lb/gal	0.0 Ft	10.0 Ft
Bentonite		Lb/gal	10.0 Ft	12.0 Ft

Describe grouting procedure

SCREEN: ☐ Perforated pipe ☑ Manufactured
Diameter 2.00 Inches Length 20.0 Feet
Material Sch 40 PVC
Slot Size 0.010" Set From 14.0 Feet to 34.0 Feet
Other information 8-16 Silica Sand from 12' to 34'

WAS A PACKER OR SEAL USED? ☐ Yes ☑ No
If so, what material?
Describe packer(s) and location

DISINFECTION: Was well disinfected upon completion?
☐ Yes, How?
Lab to which water quality sample sent for analysis ☑ No, Why Not? Monitoring Well Only

Well Owner: Powertech (USA) Inc.
Business Name: Powertech (USA) Inc.
Address: PO Box 812
City, State, Zip: Edgemont SD 57735

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Sand –light yellow to tan	0	5
Sandy Clay – brown to red	5	13
Clayey Sand – red	13	26
Gravel – red	26	34
Shale - black	34	35

STATIC WATER LEVEL 15 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: NA
☐ Bailed
☐ Other
Pumping Level Below Land Surface
_____ Ft. After _____ Hrs. pumped _____ GPM
_____ Ft. After _____ Hrs. pumped _____ GPM
If pump installed, pump rate: _____ GPM

REMARKS
Monitoring Well BI-2
Lat/Long (43.4681N, 103.98526W) from PWE handheld GPS

This well was drilled under license # 678 and this report is true and accurate.

Drilling firm: American Engineering Testing, Inc.

Signature of License Representative: B. Hoeft

Signature of Well Owner or Equitable Property Holder:

Date:

This page intentionally left blank

SOURCE W

POWERTECH FIELD NOTES OCTOBER 31, 2012

This page intentionally left blank

10/31/2012	time	depth to water to from TOC	Stick up	est. Elev of water
BC -1	10:54	15.99		3624
BC-2	9:14	5.68		3630
BI-2	10:21	15.21	2.87	3637
708	9:27	20.16		3614
711	10:06	15.26	3.1	3631
712	9:14	7.63	3.43	3630
713	9:32	20.59	2.64	3617
714	9:48	8.62	2.83	3636 est
715	10:42	16.29	2.77	3639

BI-2	43.4681	103.98526		1030977	434898	3649
711	43.4673	103.98602		1030763	434616	3643
712	43.46653	103.98682		1030539	434345	3634
713	43.46615	103.9871		1030458	434210	3635
714	43.46611	103.98643	incorrect			3642
715	43.47031	103.98447		1031222	435694	3653