

ATTACHMENT B

Additional Alluvial Characterization Well Completion Report



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.

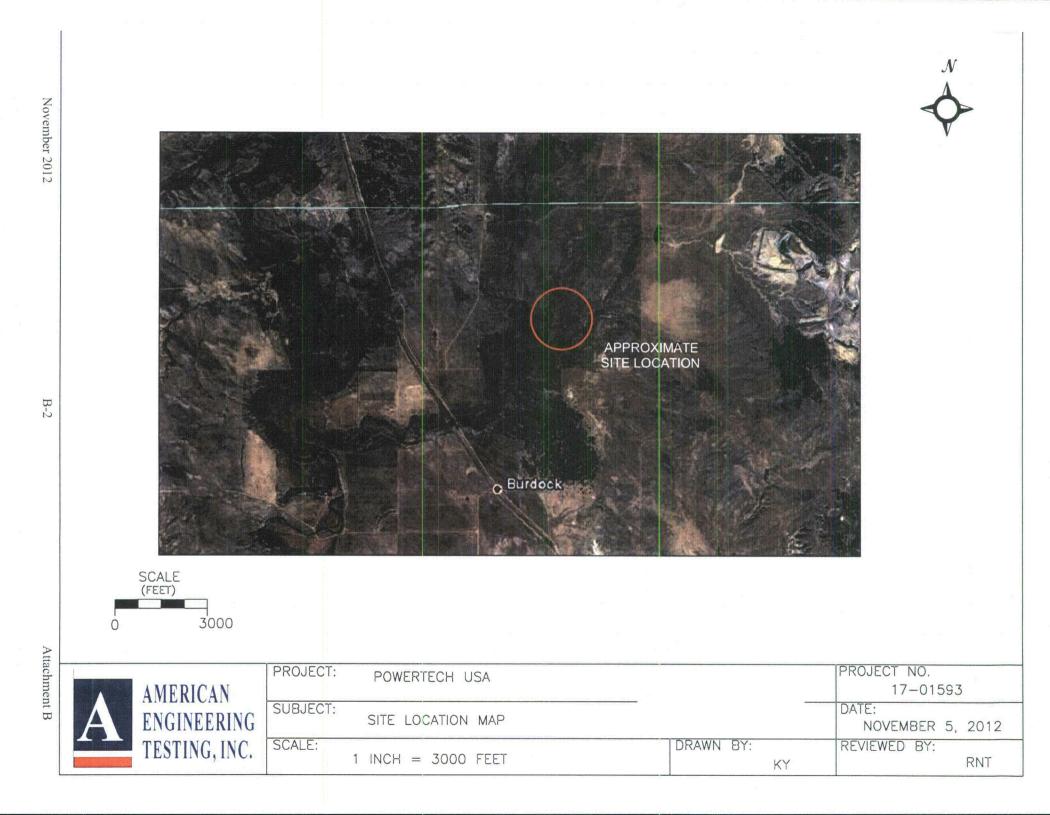
Respectfully,

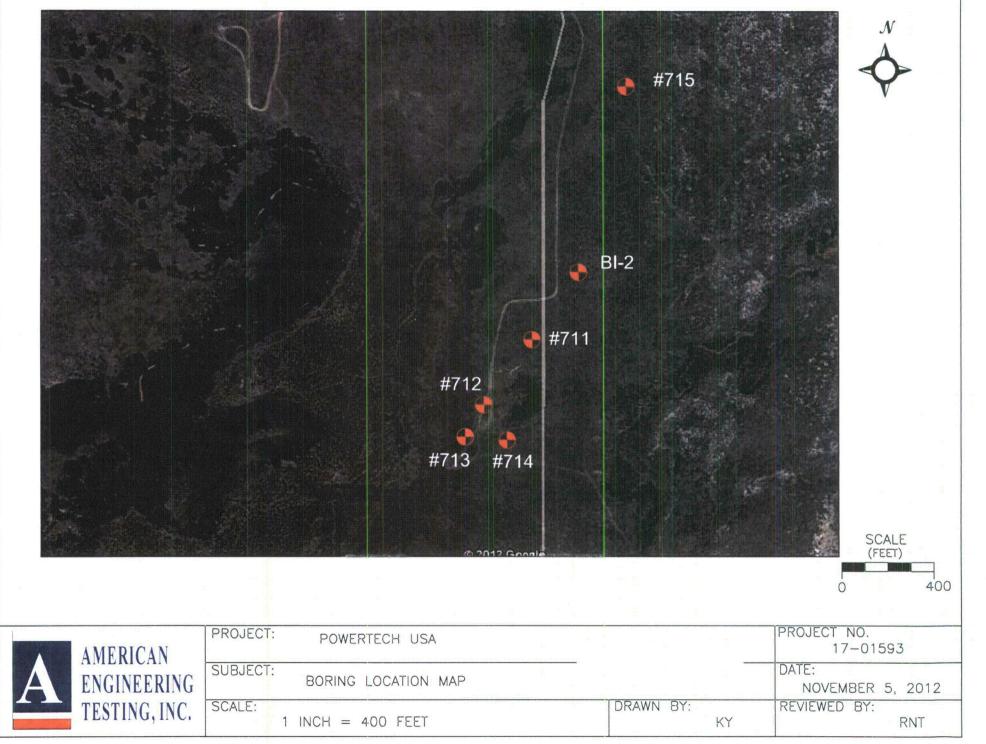
Yates

Kristen R. Yates, EI, CPRR Geotechnical Project Manager

attachments

cc. Mr. Ken Buhler - SDDENR





November 2012

B-3

Attachment B

LOCATION <u>near Edgem</u> DRILLING METHOD <u>4.25</u> SAMPLING METHOD <u>NA</u> GROUND ELEVATION <u>3</u>	11593 tech USA, Inc ont, South Dakota * HSA 4 643.00	PACKING TYPE 8-16 Silica Sand GROUT TYPE Portland Cement DEPTH TO WATER 15.26 GROUND WATER ELEVATION 3630.74
AET_EWN 17-01593.0FU AET WITH PID INFO 11/6/12 PID BIOW	$\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $	MATERIAL DESCRIPTION Source Sand fine to medium grained, orange to light brown Image: Clay red Sandy Clay red Image: Clay red Clayey Sand fine grained at top to coarse grained at bottom, red, wet Image: Clay red Clayey Sand fine grained at top to coarse grained at bottom, red, wet Image: Clay red Shale black Image: Clay red

PRO LOC DRIL SAM GRO TOP LOG REM	ENGINEERING TESTING, INC. PROJECT NUMBER <u>17-01593</u> PROJECT NAME <u>Powertech USA, Inc</u> LOCATION <u>near Edgemont, South Dakota</u> DRILLING METHOD <u>4.25" HSA</u> SAMPLING METHOD <u>4.25" HSA</u> SAMPLING METHOD <u>NA</u> GROUND ELEVATION <u>3634.00</u> TOP OF CASING <u>3637</u> LOGGED BY <u>FL</u> REMARKS <u>ING</u> <u>17 H L G G G G G G G G G G G G G G G G G G</u>								BORING/WELL NU DATE DRILLED CASING TYPE/DIA SCREEN TYPE PACKING TYPE GROUT TYPE DEPTH TO WATER GROUND WATER	MBER #7 10/29/12 METER 2 2-inch diar 8-16 Silica S Portland C 7.63 ELEVATION	212 inch diam. S m. Sch 40 PN Sand Cement 	Sch 40 PV(/C 0.010 s	
d) Old	Blow C	RECOV (inche	SAMPI	INTERVA	(f. BC	U.S.C.S.	GRAP	MAT Sand fine to medium	ERIAL DESCRIPTIO		GW	BOR	
AET_ENVI 17-01593.GPJ AET WITH PID INFO 11/5/12					$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	FA FA FA SHALE		Sandy Clay light yells Sandy Clay red Sandy Clay red Clayey Sand fine gra bottom, red, wet Gravel red Shale black	DW				 Portland Cement Grout 2" PVC Riser Hydrated Bentonite Silica Sand Pack 2" PVC Screen

	ECT NU ECT NA	MBER				A, Inc			BORING/WELL NU DATE DRILLED	IMBER <u>#7</u> 10/29/12	13		
	TION								CASING TYPE/DIA		inch diam S	ch 40 P\/(<u></u>
		ETHOD			1SA				SCREEN TYPE		n. Sch 40 PV		
		IETHO		NA					PACKING TYPE			0.0.0.00	
GROU	ND EL	EVATIO	N _	363	5.00				GROUT TYPE	Portland C			
TOP C	OF CAS	ING	363	B					DEPTH TO WATER	R 20.59			
.OGG	ED BY	FL	•						GROUND WATER	ELEVATION	3617.41		
REMA	RKS												
PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATER	RIAL DESCRIPTIC	DN	GW	BOR	ING ABANDON
		œ						Sand fine to medium g	rained, light vellow	to tan			
				-	1 -	FA		•					
				-	2 -								
				-	3 -			Sandy Claylight yellow	to tan				
				-	4 -							S I	
					5 —	FA							Portland Cement Gro
				-	6 -	10							Cement Gr
				-	7 -							🕅 🐳	2" PVC Rise
				-	8 -			Compte Classed					
				-	9 -			Sandy Clay red					
					10-								Hydrated
					11 -	FA							Bentonite
						17							
					12 -								
				F	13 -								
				F	14 +			Clayey Sand fine grain	ed at top to coarse	grained at		日日	
					15—			bottom, red, wet					
				┢	16 -								.]
				┢	17 -	- -							
				╞	18 -	FA						日日	
				╞	19 -								
					20-								
ł													Silica Sand
					21 -			Gravel red					Pack
					22 -			-					1
				F	23 -	СА							
				┝	24 -	2	3						-2" PVC Scre
				\vdash	25—		3						
				┝	26 -		-	Shale black					
						SHALE		Shale black					
	Ì				28 -								
- 1													

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PROJI LOCA DRILLI SAMPI GROU TOP O	EI TI ECT NI ECT NI TION ING MI LING M ND EL OF CAS ED BY	ESTIN JMBER AME 	EERIN NG, IN <u>Pow</u> ar Edge <u>4.</u> DN _ DN	C. 7-01 verte 25" NA 36: 2	ach US nt, Sou HSA 39.00	uth Dak		BORING/WELL DATE DRILLED CASING TYPE/ SCREEN TYPE PACKING TYPE GROUT TYPE DEPTH TO WAT	DIAMETER2 2-inch dia E8-16 Silica S Portland C TER8.62	714 2-inch diam. So m. Sch 40 PV	ch 40 PVC C 0.010 sl	ot
PID (ppm)	Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	DEPTH (ft. BGL)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIP	TION	GW GW LEVEL	BORI	NG ABANDONEI
AET_ENM 17-01593.GPJ AET WITH PID INFO 11/5/12					$\begin{array}{cccccccccccccccccccccccccccccccccccc$	FA FA FA		Sandy Clay dark red Sandy Clay dark red Sandy Clay red Clayey Sand fine grained at top to coa bottom, red, wet Gravel red	······································			Concrete 2" PVC Riser Portland Cement Grout Hydrated Bentonite -2" PVC Screen Silica Sand Pack
ET_ENVI 17-0159						SHALE		Shale black End of Boring				

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LOCATION <u>near Edgemoni</u> DRILLING METHOD <u>4.25" F</u> SAMPLING METHOD <u>NA</u> GROUND ELEVATION <u>3655</u> TOP OF CASING <u>3655</u> LOGGED BY <u>FL</u> REMARKS	ch USA, Inc ht, South Dakota HSA 53.00	BORING/WELL NUMBER # DATE DRILLED 10/30/12 CASING TYPE/DIAMETER 2 SCREEN TYPE 2-inch dia PACKING TYPE 10-20 Silica GROUT TYPE Portland (DEPTH TO WATER 16.29	2-inch diam. Sch 40 PVC m. Sch 40 PVC 0.010 slot Sand
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Sand fine to medium grained, light yellow to tan Sandy Clay red Clayey Sand fine grained at top to coarse grained at bottom, red, wet Gravel red Shale black End of Boring	

SAMPLING M GROUND EL TOP OF CAS LOGGED BY REMARKS	AME nea Ethod Iethoi Evatic Ing fl	Pow ar Edge 4.: D DN 	rertec mont 25" H NA 3649 2	h USA, , South SA 9.00	Inc Dakota		DEPTH TO WATER	10/30/12 METER2 2-inch dian 8-16 Silica S Portland C 15.21	inch diam. S n. Sch 40 PV and ement	ich 40 PVC /C 0.010 slo	t
PID (ppm) Blow Count	RECOVERY (inches)	SAMPLER TYPE	INTERVAL	(ft. BGL)	U.S.C.S. GRAPHIC LOG	MAT	ERIAL DESCRIPTIO	N	GW LEVEL	BORIN	NG ABANDONE
				3 - 4 - 5 - 6 - F 7 - 8 - 9 - 10 - F 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 17 - 18 - 20 - 21 - 22 - 23 - 29 - 29 - 29 - 20		Sandy Clay brown Sandy Clay red Clayey Sand fine gra bottom, red, wet Gravel red Shale black	ined at top to coarse	grained at			Portland Cement Grou -2" PVC Riser Hydrated Bentonite FSilica Sand Pack -2" PVC Scree

November 2012

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Location SW 1/4 SE 1/4 Sec 3 Tr	wp 7S	Rg 1E	Well Owner: Powertech (USA) Inc.		
	·		Business Name: Powertech (USA) Inc.		
County Custer	North		Address: PO Box 812	-	
			City, State, Zip: Edgemont	SD 57	735
Please mark well location with an "X"			WELL LOG:	DEF	тц
					ТО
w		E	FORMATION	FROM	<u>10</u> _
"			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
/ell Completion Date 10/31/12	Mile	-14			
Distance to nearest potential pollution source (septic tank, aba	andoned well, fee	d lot, etc.)?			
ft. from Unknown	(ident	ify source)	· · · ·		
PROPOSED USE:		holes			
Irrigation Industrial Institutio		itoring well	STATIC WATER LEVEL	15 r	FEET
METHOD OF DRILLING:			If flowing: closed in pressure		PSI
3.25" ID, 6.25 OD HSA to 28 feet			GPM flow through		Inch pipe
		_	Controlled by Valve Reducers Oth	er	
CASING DATA: La Pla	stic L	J Other	Reduced flow rate		GPM
If other describe			Can well be completely shut in?		0
PIPEWEIGHT DIAMETER FROM TO LB/FT 2.00 IN 0.0 FT 18.0	HOLE DIA	6.25 N	Can wer be completely stat in?		
LB/FT IN FT	FT	<u>0.25</u> IN IN	WELL TEST DATA:		
<u>LB/FT</u> <u>FT</u>		P.	Pumped Describe: NA		
GROUTING DATA:		T .	Bailed		
	om 0.0 Ft	To 14.0 Ft	Other		
	$\frac{0.0}{4.0}$ Ft	14.0 Ft 16.0 Ft	Pumping Level Below Land Surface		
Describe grouting procedure			Ft. After Hrs. pumped	(GPM
			Ft. After Hrs. pumped	· (GPM
SCREEN: Perforated pine			If pump installed, pump rate:		GPM
2.00	✓ Manufacture 10.0	ed Feet	REMARKS Monitoring Well #711		
Diameter2.00 Inches Length Material Sch 40 PVC		reet	Lat/Long (43.4673N, 103.98602W) from	PWE handhe	ld GPS
Slot Size 0.010" Set From 18.0 Feet	to 28.0 j	Feet			
Other information 8-16 Silica Sand from 16' to	28'				
			-		
WAS A PACKER OR SEAL USED?	No			678	and this
If so, what material?			report is true and accurate.	ting I-	
Describe packer(s) and location			Drilling firm: American Engineering Tes Signature of License Representative:	ung, Inc.	
DISINFECTION: Was well disinfected upon com	plation?		Signature of License Representative	B. How	~
Yes, How?			<i>'</i> _/ '	•	
Lab to which water No, Why Not? Monitor quality sample sent for analysis	ing Well Onl	У	Signature of Well Owner or Equitable Property Ho	older:	

SOUTH DAKOTA WATER WELL COMPLETION REPORT

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W Sandlight yellow 0 Sandy Clay - light yellow to red 3 Clayey Sand red 14 Gravel red 20 Shale - black 23 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	10 3 14 20 23 25
County Custer North Please mark well location with an "X" Address: PO Box 812 W Image: Post of the second se	3 14 20 23
Please mark well location with an "X" Image: City, State, Zip Edgemont SD 57735 WELL LOG: DEPTH FORMATION FROM Sand —light yellow 0 Sandy Clay – light yellow to red 3 Clayey Sand – red 14 Gravel – red 20 Shale - black 23 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Shale - black	3 14 20 23
Prease mark went Depth location with an "X" Well LOG: Depth Well Completion Date: Sand — light yellow to red 3 IO/31/12 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Well completion tank went Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	3 14 20 23
Well Completion Date: Main From 10/31/12 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Main Main	3 14 20 23
W Sandlight yellow 0 Sandy Clay - light yellow to red 3 Clayey Sand red 14 Gravel red 20 Shale - black 23 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	3 14 20 23
Well Completion Date: Image: Sandlight yellow 0 10/31/12 Image: Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Sandlight yellow 0	14 20 23
Well Completion Date: Image: Clayey Sand - red 14 Well Completion Date: Shale - black 20 10/31/12 Image: Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Image: Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Image: Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	20 23
Well Completion Date: Image: Clayey Sand - red 14 Well Completion Date: Shale - black 20 10/31/12 Image: Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Image: Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Image: Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	23
Well Completion Date: Gravel - red 20 10/31/12 Indicator of the seriest potential pollution source (septic tank, abandoned well, feed lot, etc.)? Gravel - red 20	
Well Completion Date: 10/31/12 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	25
10/31/12 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	
10/31/12 Distance to nearest potential pollution source (septic tank, abandoned well, feed lot, etc.)?	
ft. from Linknown (identify source)	
PROPOSED USE:	
Domestic/Stock Municipal Business Test holes Irrigation Industrial Institutional Monitoring well STATIC WATER LEVEL 7 FEET	
3.25" ID, 6.25 OD HSA	
to 23 feet GPM flow Inch	pipe
CASING DATA: Steel Plastic Other Other	
CASING DATA: Steel I Plastic Other Reduced flow rate GPM	
PIPEWEIGHT DIAMETER FROM TO HOLE DIAMETER Can well be completely shut in?	
LB/FT 2.00 IN 0.0 FT 13.0 FT 6.25 IN	
LB/FT IN FT FT IN WELL TEST DATA:	
LB/FT IN FT FT IN Pumped Describe: NA	
GROUTING DATA:	
Grout Type No. of Sacks Grout Weight From To Cement Lb/gal 0.0 Ft 9.0 Ft Other	
Bentonite Lb/gal 9.0 Ft 11.0 Ft Pumping Level Below Land Surface	
Describe grouting procedure Ft. After Hrs. pumped GPM	
Ft. After Hrs. pumped GPM	
If pump installed, pump rate: GPM	
SCREEN: Perforated pipe A Manufactured REMARKS	
Diameter 2.00 Inches Length10.0 Feet Monitoring Well #712	
Material Sch 40 PVC Lat/Long (43.46653N, 103.98682W) from PWE handheld (JPS
Slot Size $0.010''$ Set From 13.0 Feet to 23.0 Feet	
Other information 8-16 Silica Sand from 11' to 23'	
This well was drilled under license # 678 a	nd this
WAS A PACKER OR SEAL USED? Yes V No report is true and accurate.	
If so, what material? Describe packer(s) and location Drilling firm: American Engineering Testing, Inc.	
Describe packet(s) and location	
DISINFECTION: Was well disinfected upon completion?	
Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:	
quality sample sent for analysis	
Date:	

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SOUTH DAKOTA WATER WELL COMPLETION REPORT

	Domortoch (USA) Inc
Location <u>SE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec <u>3</u> Twp <u>7S</u> Rg <u>1E</u></u>	Well Owner: Powertech (USA) Inc. Business Name: Powertech (USA) Inc.
Cruster Custor North	
County Custer North	
Please mark well	City, State, Zip: Edgemont SD 57735
location with an "X"	WELL LOG: DEPTH
E	FORMATION FROM TO
w local data and the second se	
	Sand – light yellow to tan 0 3
	Sandy Clay – light yellow to red 3 14
	Clayey Sand – red 14 21
	Gravel – red 21 26
Well Completion Date:	Shale - black 26 28
Well Completion Date:	
10/31/12 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 I Monitoring well	21
METHOD OF DRILLING: METHOD MARK Monitoring well	
3.25" ID, 6.25 OD HSA	If flowing: closed in pressure PSI
to 28 feet	GPM flow through Inch pipe
	Controlled by Valve Reducers Other
CASING DATA: Steel Plastic Other	Reduced flow rate GPM
	Can well be completely shut in?
PIPEWEIGHT DIAMETER FROM TO HOLE DIAMETER LB/FT 2.00 N 0.0 FT 13.0 FT 6.25 N	
LB/FT IN FT FT IN	WELL TEST DATA:
	Pumped Describe: NA
GROUTING DATA:	Bailed
Grout Type No. of Sacks Grout Weight From To	Other
Cement Lb/gal 0.0 Ft 9.0 Ft	Pumping Level Below Land Surface
Bentonite Lb/gal 9.0 Ft 11.0 Ft Describe grouting procedure	Ft. After Hrs. pumped GPM
Describe ground procedure	Ft. After Hrs. pumped GPM
	If pump installed, pump rate: GPM
SCREEN: Perforated pipe Manufactured	REMARKS
Diameter2.00 Inches Length15.0 Feet	Monitoring Well #713
Material Sch 40 PVC	Lat/Long (43.46615N, 103.9871W) from PWE handheld GPS
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 V No	This well was drilled under license # 678 and this
If so, what material?	report is true and accurate.
Describe packer(s) and location	Drilling firm: American Engineering Testing, Inc.
	Signature of License Representative:
DISINFECTION: Was well disinfected upon completion?	S. B. How

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

Signature of Well Owner	or Equitable	Property Holder:
Signature of their Owner	or Equitable	riopenty monuel.

Date:

SD EForm - 1	621L[) V1
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SOUTH DAKOTA WATER WELL COMPLETION REPORT

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Location SE 1/4 SW 1/4 Sec 3	Twp 7S	Rg	1E	Well Owner: Powertech (USA) Inc.		
			Business Name: Powertech (USA) Inc.			
County Custer	North		Address: PO Box 812			
	1 1	T1		City, State, Zip: Edgemont	SD 57	735
Please mark well location with an "X"				· · · · · · · · · · · · · · · · · · ·		······································
		<u> </u>		WELL LOG:		TH
			E	FORMATION	FROM	
w				Sand –light red		3
				Sandy Clay – dark red to red	3	15
	×			Clayey Sand – red	15	25
				Gravel – red	25	27
				Shale - black	27	28
Well Completion Date:		bi				
10/31/12						
Distance to nearest potential pollution source (septic ft. from <u>Unknown</u>						
PROPOSED USE:			ourcey			
	Business	Test hole Monitorii				
Irrigation Industrial I METHOD OF DRILLING:	nstitutional	Monitori	ng wen		9 FE	
3.25" ID, 6.25 OD HSA				If flowing: closed in pressure		PSI
to 28 feet				GPM flow through		Inch pipe
	4			Controlled by Valve Reducers Oth	her	
CASING DATA: Steel	✓ Plastic		Other	Reduced flow rate		GPM
PIPEWEIGHT DIAMETER FROM	TO HOL	LE DIAME	TER	Can well be completely shut in?		
LB/FT 2.00 IN 0.0 FT	17.0 FT		25 IN			
LB/FT IN FT	FT		ĪN	WELL TEST DATA:		
LB/FT IN FT	FT		IN	Pumped Describe: NA		
GROUTING DATA: Grout Type No. of Sacks Grout Weight	From	То		Bailed		
Cement Lb/gal	0.0 Ft		.0 Ft	Other		
Bentonite Lb/gal	13.0 Ft		.0 Ft	Pumping Level Below Land Surface		
Describe grouting procedure		.		Ft. After Hrs. pumped		GPM
2				Ft. After Hrs. pumped		GPM
SCREEN				If pump installed, pump rate:		GPM
SCREEN: / Perforated pipe Diameter 2.00 Inches Let	Manuf neth 10.0	`		REMARKS		
Diameter 2.00 Inches Lei Material Sch 40 PVC	ngth10.0	J F	eet	Monitoring Well #714 Lat/Long (43.46611N, 103.98643W) frc	m PWF handl	eld GPS
	Feet to 2'	7.0 Feet	+	Luciong (43.4001114, 103.70045 W) IIC		
Other information 8-16 Silica Sand from			•			
Other mormation of to Since Sund nom						
WAS A DACKED OD OD VY VYDDA	V.	No		This well was drilled under license #	678	and this
WAS A PACKER OR SEAL USED?	Yes 🗸	JNO		report is true and accurate.		
Describe packer(s) and location				Drilling firm: American Engineering Tes	sting, Inc.	
·····				Signature of License Representative:	<u>- 11</u>	
DISINFECTION: Was well disinfected up Yes, How?	on completion?			le la	B. Hor	
	Ionitoring Well	l Only		Signature of Well Owner or Equitable Property H	ol der :	
And a serie to analysis			i			
			:			,
			I	Date:		

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SOUTH DAKOTA WATER WELL COMPLETION REPORT

County Custer North Please mark well Image: Strate Str		Well Owner: Powertech (USA) Inc.
County Custer North Address: PO Box 812 Please mark well bocation with an "X"	Location NE 1/4 SE 1/4 Sec 3 Twp 7S Rg 1E	
Press mark well location with an "X" Sol \$7735 WELL LOG: DEPTH DEPTH Well Completion Date: W PROM TO Sandy Clay - red 5 13 23 O(3) 1/12 Sandy Clay - red 5 13 Sandy Clay - red 5 13 23 O(3) 1/12 Sandy Clay - red 13 23 FROMONDOW Concerce (rept task, abactoral with (red ts, ce.r)? Clay ex Sand - red 13 23 PROPOSED USE: Manufactured Emethods 14 14 14 PROPOSED USE: Manufactured Emethods 16 16 16 PROPOSED USE: Manufactured Monitoring well STATIC WATER LEVEL 16 16 PROPOSED USE: State: Pressource 16 16 16 16 CASINC DATA: State: Pressource 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16 16<		
Predete mark weil Yeil Weil LoG: DEPTH Weil Completion with weil Yeil Weil Completion Date: Predetermark Predetermark Predetermark Weil Completion Date: Image in marking predetermark Image in marking predetermark Sand — light yellow to tan 0 5 Weil Completion Date: Image in marking predetermark Image in marking predetermark Sand — red 13 32 IO(3)1/2 Image in marking predetermark Image in marking predetermark Sand — red 13 32 IO(3)1/2 Image in marking predetermark Image in marking predetermark Sand — red 13 32 IO(3)1/2 Image in marking predetermark Image in marking predetermark Sand — red 13 32 IO(3)1/2 Image in marking predetermark Image in marking predetermark 16 FETH IO(3)1/2 Image in marking predetermark Image in marking predetermark 16 FETH IO(3)1/2 Image in marking predetermark Image in marking predetermark Image in marking predetermark 16 FETH If other describe Image in marking predetermark Image in marking predetermark Image in marking predetermark<	County Custer North	
Well Completion Date: Deprint Well Completion Date: Sandfight yellow to tan 0 5 Ol31/12 Sandfight yellow to tan 0 DomestCoNED Municipal Business 0 CASING DATA: Steel O Pale CASING DATA: Steel O NO LBPT NO NO Pole Can welb completely shat in? Can welb completely shat in? NO Punped Describe: NA Bailed OO Pit Prot REMARKS Monitoring Well #15		City, State, Zip: Eugemont SD 37733
W X Sand —light yellow to tan 0 5 Sandy Clay - red 5 13 23 Clayey Sand - red 13 23 Gravel - red 23 31 Shale - black 31 32 Shale - black 31 32 PROPOSED USE:	location with an "X"	WELL LOG: DEPTH
Well Completion Date: Sand — Tight yellow to tan 0 5 Well Completion Date: Sandy Clay - red 5 13 UO31/12 Clayey Sand - red 23 31 Shale - Dlack 31 32 UO31/12 Shale - Dlack 31 32 Shale - Dlack 31 32 PROPOSED USE: Instrutional Monitoring well Brinktown Identify source Fit boles Instrutional Monitoring well STATIC WATER LEVEL 16 PROPOSED USE: Instrutional Monitoring well STATIC WATER LEVEL 16 CASING DATA: Steel Plastic Other Reduced flow rate 6PM CASING DATA: Steel Plastic Other Reduced flow rate GPM I down a facks Grout Weight From To Can well be completely shut in? Can well be completely shut in? Lawrt No of Sacks Grout Weight From To Bailed Other Screent Lbgal 8,0 Fr 10,0 Fr 8,0 Fr Other Bentonite Lbgal <t< td=""><td>E</td><td>FORMATION FROM TO</td></t<>	E	FORMATION FROM TO
Well Completion Date: Sand — light yellow to tan 0 5 Well Completion Date: Sand Yellow to tan 0 5 Well Completion Date: Sand Yell Sand - red 13 23 UO31/12 Sand - light yellow to tan 0 5 13 State - black 31 32 31 DYNAMER For Participation Notices (teptic tank, abandoned well, feel lot, etc.)?	w x	
Well Completion Date: Image: Clayey Sand - red 13 23 Gravel - red 23 31 Jointaice to nearest potential pollimes source (septe task, abandoned well feed to, etc.)? Image: Static Clayey Sand - red 23 31 Minicipal Manufacture of nearest potential pollimes source (septe task, abandoned well feed to, etc.)? Image: Static Clayey Sand - red 31 32 Monocinal pollimes source (septe task, abandoned well feed to, etc.)? Image: Static Clayey Sand - red 31 32 Memory DSP Industrial Business Test holes Image: Static Clayey Sand - red 1 Image: Static Clayey Sand - red Static Clayey Sand - red 1 1 Image: Static Clayey Sand - red 1 1 1 Image: Static Clayey Sand - red 1 1 1 Image: Static Clayey Sand - red 1 1 1 Image: Static Clayey Sand - red 1 1 1 Image: Static Clayey Sand - red 1 1 1 1 Image: Static Clayee Sand - red 1 1 1 1 1 Static Clayee Sand - red 1 1 1 1 1 <td></td> <td>Sand –light yellow to tan 0 5</td>		Sand –light yellow to tan 0 5
Well Completion Date: Image: State - Image: Completion Date: Image: Comple		Sandy Clay – red 5 13
Well Completion Date: Image: Shale - black 31 32 U0/31/12 Shale - black 31 32 U0/31/12 Reference of the starts potential pollution source (representation of the starts pollution of the		
Well Completion Date: Image: Second polymon source (septe task, abandoned well, feed lot, etc.)? ID/31/12 It from II for the complete task, abandoned well, feed lot, etc.)? Image: Indexerse potential polymon source (septe task, abandoned well, feed lot, etc.)? Image: Im		Gravel – red 23 31
10/31/12 Hile H Distance towards potental pollition source (septite task, shaudoned well, feed lot, etc.)? Image: Control of the source is the	Well Completion Date:	Shale - black 31 32
Stance on narrest potential polition source (spece tank, abandoned well, feed for, etc.)	Ø1 Mile₽	
International processing International processing International processing International processing PROPOSED USE: Industrial industrial institutional processing Test holes Information processing Information processing Demonstrict Stock Industrial institutional processing Test holes Information processing PSI 3.25° ID, 6.25 OD HSA Isteel Incharge PSI Incharge PSI CASING DATA: Isteel Plastic Other Controlled by Valve Reducers Other CASING DATA: Steel Plastic Other Controlled by Valve Reducers Other IBAFT 2.00 N 0.0 Ft 12.0 Ft Ft PSI Pumped Describe Can well be completely shut in? IBAFT N FT FT P Pumped Describe NA GROUTING DATA: N FT FT P Pumped Other Pumped Other Centent Lbgal 8.0 Ft 10.0 Ft 8.0 Ft Pumped Other Pumped Other SCREEN: Perforated pipe Man		
PROPOSED USE: Municipal Business Test holes Irrigation Industrial Institutional Monitoring well STATIC WATER LEVEL 16 FEET METHOD OF DRILLING: 3.25° 1D, 6.25 OD HSA If flowing: closed in pressure PSI CASING DATA: Steel Image: Plastic Other Reduced flow rate Controlled by Ualve Reducers Other If other describe PIE FROM TO HOLE DIAMETER Reduced flow rate GPM LB#T N FT FT DS Balad Other Reduced flow rate GPM GROUTING DATA: Static Lbigal 0.0 FT 8.0 Ft DS Ft DB Data well be completely shut in? GROUTING DATA: Ement Lbigal 0.0 Ft 8.0 Ft 10.0 Ft Balad Doher Pumping Level Below Land Surface Ft After Hts. pumped GPM Green tit Lbigal 0.0 Ft 3.0 Ft 10.0 Ft Lather Hts. pumped GPM SCREEN: Deerorated pipe Manufactured Manufactured Balad Other GPM		
Inrigation Industrial Institutional Ø Monitoring well STATIC WATER LEVEL 16 FEET METHOD OF DRILLING: 3.25° ID, 6.25 CO HSA If dowing: closed in pressure PSI CASING DATA: Steel If and pipe Inch pipe CASING DATA: Steel If and pipe Controlled by	PROPOSED USE:	<u>├</u> ────────────────────────────────────
METHOD OF DRILLING: 3.25" ID, 6.23 OD HSA to 28 feet If flowing: closed in pressure PS1 3.25" ID, 6.23 OD HSA to 28 feet GPM flow through Inch pipe CASING DATA: Steel Plastic Other If flowing: closed in pressure PS1 GPM flow through Inch pipe Controlled by Valve Reducers Other GPM CASING DATA: Steel If nowing: closed in pressure PS1 GPM flow through Inch pipe CASING DATA: Steel If nowing: closed in pressure PS1 GPM flow through Inch pipe Can well be completely shut in? CAN House CAN GPM		
3.25" ID, 6.25 OD HSA Inch pipe 0 28 feet Inch pipe CASING DATA: Steel Plastic Other If other describe Inch pipe Controlled by		
CASING DATA: Steel Plastic Other If other describe PROM TO HOLE DIAMETER Reduced flow rate GPM LBFT 2.00 IN 0.0 FT 12.0 FT 6.25 IN N WELL TEST DATA: GPM LBFT IN FT FT IN FT GPM Can well be completely shut in? Can well be completely shut in? N FT FT IN WELL TEST DATA: LBFT IN FT FT IN Bailed GROUTING DATA: Controlled by Valve Reducers Other INA GROUTING DATA: TN FT FT IN GROUTING DATA: Grow of Sacks Grout Weight From To Do Cement Lb/gal 0.0 Ft 8.0 Ft 10.0 Ft Pumping Level Below Land Surface Describe grouting procedure	3.25" ID, 6.25 OD HSA	
CASING DATA:	to 28 feet	
If other describe		Controlled by Valve Reducers Other
PIPEWEIGHT DIAMETER FROM TO HOLE DIAMETER Can well be completely shut in? LB/FT IN FT FT FT N LB/FT IN FT FT FT N GROUTING DATA: IN FT FT N GROUTING DATA: IN FT FT N Grout Type No. of Sacks Grout Weight From To Describe NA Date: Bailed Other Pumped Describe NA Bailed GPM SCREEN: Perforated pipe Imatufactured No REMARKS Diameter 2.00 Inches Length 20.0 Feet Material Sch 40 PVC Stot Size 0.010" Set From 12.0 Feet 32.0 Feet Stot Size 0.010" Set From 12.0 Feet Monitoring Well #715 Lat/Long (43.47031N, 103.98447W) from PWE handheld GPS WAS A PACKER OR SEAL USED? Yes No This well was drilled under license # 678 and this report		Reduced flow rate GPM
LB/FT 2.00 N 0.0 FT 12.0 FT 6.25 N LB/FT N FT FT FT N N GROUTING DATA: Grout Type No. of Sacks Grout Weight From To Cement Lb/gal 0.0 Ft 8.0 Ft Benitonite Lb/gal 0.0 Ft 8.0 Ft Describe grouting procedure Lb/gal 8.0 Ft 10.0 Ft SCREEN: Deforated pipe Manufactured Ft. After Hrs. pumped GPM If pump installed, pump rate: CPM GPM Ft. After Hrs. pumped GPM SCREEN: Describe grouting procedure 20.0 Feet GPM Ft. After Hrs. pumped GPM Material Sch 40 PVC Set From 12.0 Feet to 32.0 Feet GAL/LONG (43.47031N, 103.98447W) from PWE handheld GPS La/Long (43.47031N, 103.98447W) from PWE handheld GPS WAS A PACKER OR SEAL USED? Yes No This well was dhiled under license # 678 and this If so, what material? </td <td></td> <td>Can well be completely shut in?</td>		Can well be completely shut in?
LBAT IN IT IT IT IN Pumped Describe: NA GROUTING DATA: Grout Type No. of Sacks Grout Weight From To Bailed Other Cement Lb/gal 0.0 Ft 8.0 Ft 10.0 Ft Bailed Other Describe grouting procedure Lb/gal 8.0 Ft 10.0 Ft 8.0 Ft Pumping Level Below Land Surface SCREEN: Perforated pipe Manufactured Ft. After Hrs. pumped GPM Material Sch 40 PVC Sch 40 PVC Sco Feet 32.0 Feet REMARKS Monitoring Well #715 Lat/Long (43.47031N, 103.98447W) from PWE handheld GPS LaVLong (43.47031N, 103.98447W) from PWE handheld GPS WAS A PACKER OR SEAL USED? Yes No This well was drilled under license # 678 and this If so, what material? Describe packer(s) and location Signature of License Representative: Mark American Engineering Testing, Inc. Signature of Well Owner or Equitable Property Holder: Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder: Lab to which water No, Why Not? Monitoring Well Only		
GROUTING DATA: Grout Type No. of Sacks Grout Weight From To Grout Type No. of Sacks Grout Weight From To Bentonite Lb/gal 0.0 Ft 8.0 Ft 10.0 Ft Describe grouting procedure Bailed Other Pumping Level Below Land Surface SCREEN: Deforated pipe Manufactured Ft. After Hrs. pumped GPM If pump installed, pump rate: GPM GPM GPM GPM GPM Material Sch 40 PVC Sch 40 PVC Sch 40 PVC Sch 40 PVC REMARKS Stot Size 0.010" Set From 12.0 Feet to 32.0 Feet Other information 10-20 Silica Sand from 10' to 32' This well was drilled under license # 678 and this WAS A PACKER OR SEAL USED? Yes No This well was drilled under license # 678 and this Describe packer(s) and location Disinfected upon completion? Signature of License Representative: Dilling firm: American Engineering Testing, Inc. Signature of Well Owner or Equitable Property Holder: Lab to which water No, Why Not? Monitoring Well Only	LB/FT IN FT FT IN	
Grout Type No. of Sacks Grout Weight From To Cerment Lb/gal 0.0 Ft 8.0 Ft Bentonite Lb/gal 8.0 Ft 10.0 Ft Describe grouting procedure GPM SCREEN: Perforated pipe Manufactured Diameter 2.00 Inches Length Aterial Sch 40 PVC Sch 40 PVC 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' This well was drilled under license # 678 and this WAS A PACKER OR SEAL USED? Yes No This well was drilled under license # 678 and this If so, what material? Describe packer(s) and location Signature of License Representative: Signature of License Representative: Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder: Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:	LB/FT IN FT FT IN	Pumped Describe: NA
Cement Lb/gal 0.0 Ft 8.0 Ft 10.0 Ft Bentonite Lb/gal 8.0 Ft 10.0 Ft 10.0 Ft Describe grouting procedure Bentonite Ft After Hrs. pumped GPM SCREEN: Perforated pipe Manufactured Manufactured GPM GPM Diameter 2.00 Inches Length 20.0 Feet REMARKS Monitoring Well #715 Material Sch 40 PVC Set from 12.0 Feet to 32.0 Feet GPM REMARKS Sot Size 0.010" Set From 12.0 Feet to 32.0 Feet GPA GPA Other information 10-20 Silica Sand from 10' to 32' Feet Mo This well was drilled under license # 678 and this Poscribe packer(s) and location Disinfected upon completion? Dilling firm: American Engineering Testing, Inc. Signature of License Representative: Signature of Well Owner or Equitable Property Holder: Lab to which water Mo, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:		
Bentonite Lb/gal 8.0 Ft 10.0 Ft Pumping Level Below Land Surface Describe grouting procedure Describe grouting procedure Ft. After Hrs. pumped GPM SCREEN: Image: Perforated pipe Manufactured GPM If pump installed, pump rate: GPM Diameter 2.00 Inches Length 20.0 Feet REMARKS Material Sch 40 PVC Sol Size 0.010" Set From 12.0 Feet to 32.0 Feet Solt Size 0.010" Set From 12.0 Feet to 32.0 Feet Conter information 10-20 Silica Sand from 10' to 32' This well was drilled under license # 678 and this WAS A PACKER OR SEAL USED? Yes No This well was drilled under license # 678 and this If so, what material? Describe packer(s) and location Dilling firm: American Engineering Testing, Inc. Signature of License Representative: Signature of Well Owner or Equitable Property Holder: Signature of Well Owner or Equitable Property Holder:		Other
Describe grouting procedure Ft. After Hrs. pumped GPM SCREEN: Perforated pipe Image: Manufactured GPM Diameter 2.00 Inches Length 20.0 Feet Material Sch 40 PVC Sch 40 PVC REMARKS Monitoring Well #715 Slot Size 0.010" Set From 12.0 Feet 32.0 Feet Other information 10-20 Silica Sand from 10' to 32' This well was drilled under license # 678 and this WAS A PACKER OR SEAL USED? Yes No Preprint is true and accurate. Drilling firm: American Engineering Testing, Inc. Signature of License Representative: Yes, How? Yes, How? Signature of Well Owner or Equitable Property Holder: Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:		Pumping Level Below Land Surface
SCREEN: Perforated pipe Manufactured Diameter 2.00 Inches Length 20.0 Material Sch 40 PVC	Describe grouting procedure	Ft. After Hrs. pumped GPM
SCREEN: Perforated pipe Manufactured Diameter 2.00 Inches Length 20.0 Feet Material Sch 40 PVC Sch 40 PVC Sch 40 PVC Sch 40 PVC Slot Size 0.010" Set From 12.0 Feet Manufactured Other information 10-20 Silica Sand from 10' to 32' Feet Sch 40 PVC This well was drilled under license # 678 and this WAS A PACKER OR SEAL USED? Yes No This well was drilled under license # 678 and this Describe packer(s) and location DISINFECTION: Was well disinfected upon completion? Drilling firm: American Engineering Testing, Inc. Signature of License Representative: Signature of Well Owner or Equitable Property Holder: Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:	,	Ft. After Hrs. pumped GPM
Diameter 2.00 Inches Length 20.0 Feet Material Sch 40 PVC Stot Size 0.010" Set From 12.0 Feet Monitoring Well #715 Slot Size 0.010" Set From 12.0 Feet to 32.0 Feet Other information 10-20 Silica Sand from 10' to 32' This well was drilled under license # 678 and this WAS A PACKER OR SEAL USED? Yes No This well was drilled under license # 678 and this If so, what material?		If pump installed, pump rate: GPM
Material Sch 40 PVC Material Sch 40 PVC Slot Size 0.010" Set From 12.0 Feet 32.0 Other information 10-20 Silica Sand from 10' to 32' WAS A PACKER OR SEAL USED? Yes Yes No If so, what material? Describe packer(s) and location DISINFECTION: Was well disinfected upon completion? Yes, How? Yes, How? Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:		
Slot Size 0.010" Set From 12.0 Feet to 32.0 Feet Other information 10-20 Silica Sand from 10' to 32' This well was drilled under license # 678 and this WAS A PACKER OR SEAL USED? Yes Yes No This well was drilled under license # 678 and this If so, what material?		
Other information 10-20 Silica Sand from 10' to 32' WAS A PACKER OR SEAL USED? Yes If so, what material? Inis well was drilled under license # Describe packer(s) and location Inis Merican Engineering Testing, Inc. DISINFECTION: Was well disinfected upon completion? Yes, How? Yes, How? Lab to which water No, Why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:		Lat/Long (43.4/031N, 103.9844/W) from PWE handheld GPS
WAS A PACKER OR SEAL USED? Yes No If so, what material?		
WAS A PACKER OR SEAL USED? Yes No If so, what material?	Other information 10-20 Silica Sand from 10' to 32'	
WAS A PACKER OR SEAL USED? Yes No If so, what material?	· · · · · · · · · · · · · · · · · · ·	This well was drilled under license # 678 and this
Describe packer(s) and location DISINFECTION: Was well disinfected upon completion? Yes, How? Lab to which water No, Why Not? Monitoring Well Only quality sample sent for analysis	WAS A PACKER OR SEAL USED? Yes Vo	
Describe packer(s) and location Signature of License Representative: DISINFECTION: Was well disinfected upon completion? Yes, How?		Drilling firm: American Engineering Testing, Inc.
DISINFECTION: Was well disinfected upon completion? Yes, How? Lab to which water No, Why Not? Monitoring Well Only quality sample sent for analysis	Describe packer(s) and location	Signature of Linear Democraticity
Lab to which water why Not? Monitoring Well Only Signature of Well Owner or Equitable Property Holder:		15. B. How
quality sample sent for analysis		
Date		Signature of Well Owner or Equitable Property Holder:
Date		
		Date:

SOUTH DAKOTA WATER WELL COMPLETION REPORT

Location NE 1/4 SE 1/4 Se	ec 3 Ty	wp 7S	Rg	1E	Well Owner: Powertech (USA) Inc.	· · · · · · · · ·	
				Business Name: Powertech (USA) Inc.			
County Custer North			Address: PO Box 812				
					City, State, Zip: Edgemont	SD 57	735
Please mark well location with an "X"					WELL LOG:	DFI	РТН
				~	FORMATION	FROM	то
W				E	FORMATION		
		×			Sand –light yellow to tan	0	5
		_^			Sandy Clay – brown to red	5	13
					Clayey Sand – red	13	26
					Gravel – red	26	34
Well Completion Date:					Shale - black	. 34	35
-	ki	Mile	Þ				
10/31/12 Distance to nearest potential pollution source	(septic tank, aba	andoned we	ill, feed lot	etc.)?			
ft_from Linknown			identify s				
PROPOSED USE:	Busines	° – – – – – – – – – – – – – – – – – – –	Test hole	96			
Irrigation Industrial	Institutio		Monitori		STATIC WATER LEVEL	15 F	TEET
METHOD OF DRILLING:					If flowing: closed in pressure		PSI
3.25" ID, 6.25 OD HSA to 28 feet					GPM flow through		Inch pipe
					Controlled by Valve Reducers	Other	
CASING DATA: Steel	🖌 Pla	stic		Other	Reduced flow rate		GPM
If other describe							Orm
PIPEWEIGHT DIAMETER FROM	то		E DIAME		Can well be completely shut in?		
LB/FT 2.00 IN 0.0	FT 14.0	FT -	0.4	25 IN IN	WELL TEST DATA:	<u></u>	<u> </u>
	FT			IN	Pumped Describe: NA		
GROUTING DATA:					Bailed		
Grout Type No. of Sacks Grout W	•	om O O =	To		Other		
	-	0.0 Ft 0.0 Ft		0.0 Ft	Pumping Level Below Land Surface		
Describe grouting procedure		<u></u>			Ft. After Hrs. pumped		GPM
					Ft. After Hrs. pumped	······	GPM
					If pump installed, pump rate:		GPM
SCREEN: Perforated pip					REMARKS		
Diameter 2.00 Inches	Length	20.0	F	eet	Monitoring Well BI-2 Lat/Long (43.4681N, 103.98526W) fr	om DWE handhe	ALCOS
Material <u>Sch 40 PVC</u> Slot Size 0.010" Set From	14.0 Feet	to 34	l.0 Fee	+	Lav Long (43.400114, 105.96520 W) II	JIII I WE Handling	.u 01 5
Other information 8-16 Silica Sand				ı			
Other mormation o 10 Shirte Saine		5.		:			
			No		This well was drilled under license #	678	and this
WAS A PACKER OR SEAL USEI If so, what material?	D? Yes		NO		report is true and accurate.		
Describe packer(s) and location			· · ·		Drilling firm: American Engineering T	esting, Inc.	
					Signature of License Representative:	B. Hor	~
DISINFECTION: Was well disinfec		pletion?			7		
Yes, How		• • • •			Signature of Well Owner or Equitable Property	Holder:	
Lab to which water quality sample sent for analysis	lot? Monitor	ing Well	Only		Signature of wen Owner of Equitable Property		
• • • • • • • • • • • • • • • • • • • •							
				-	Data		
j					Date:		