

0212-XX-P2-XXX.X-XXX.X-S

KEYSTONE PHASE IV, US PIPELINE PROJECT - STEELE CITY SEGMENT PIPELINE ROUTE VARIATION FORM	
1	VARIATION TYPE: Refinement: <input type="text"/> Reroute: <input checked="" type="checkbox"/> Centerline: <input checked="" type="checkbox"/> Valve Site: <input type="text"/> Pump Station: <input type="text"/>
2	LOCATION: Sketch: <input type="text" value="Attached"/> Pictures: <input type="text" value="See attached."/> State: <input type="text" value="SD, NE"/> County: <input type="text" value="Multiple"/> Quad Map: <input type="text" value="N/A"/> Township: <input type="text" value="Multiple"/> Range: <input type="text" value="Multiple"/> Aerial Map: <input type="text" value="See attached map sheet"/> Section: <input type="text" value="Multiple"/> Centerline: <input type="text" value="11/18/2010"/> MP: <input type="text" value="XXX.X"/> to <input type="text" value="XXX.X"/>
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p>This report consists of 2 proposed route variations to realign Horizontal Directional Drills. The reason for the route variation is listed in the "Supplemental Info" tab.</p> <p>The route variations have been proposed based on a combination of Flyover video of Centerline, LIDAR data, Pictometry and other aeriels.</p> </div>
DETAIL ROUTE VARIATION (Please describe route variation in detail): <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p>Listed in "Supplemental Info" Tab.</p> <p>No new landowners have been affected by the proposed route variations.</p> </div>	
ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): <div style="border: 1px solid black; padding: 5px; min-height: 50px;"> <p>Listed in "Cost Analysis" Tab.</p> </div>	
9	Originator: <input type="text" value="Engineering"/> Date: <input type="text" value="6/28/2011"/>
10	Received by: <input type="text"/> Date: <input type="text" value="6/28/2011"/> <i>Fax to: ?</i>
11	Assigned Tracking Number: <input type="text" value="0212-XX-P2-XXX.X-XXX.X-S"/>
12	Filed by: <input type="text"/> Date: <input type="text"/> <i>Fax to: ?</i>

Keystone Phase IV, US - Supplemental Information for Route Variation Report 0212

Prepared: 2011-06-29

RV ID	MP Start	MP End	State	County	Section	Township	Range	Original Length (ft)	Reroute Length (ft)	Change in Length (ft)	Max. Perp. Deviation (ft)	Reason for Variation	Brief Variation Description	Additional Impacts/Comments	Number of New Landowners impacted by reroute	Number of Landowners on current route impacted by reroute	Number of tracts purchased on original route.	Civil Survey Complete?	Civil Survey Needed (ft)	Moves Pump Station?	Moves Valve Site?	In Co-located Area?	Biological Survey Complete for Existing Corridor?	Cultural Survey Complete for Existing Corridor?	Biological Survey Complete for Proposed Corridor?	Cultural Survey Complete for Proposed Corridor?	Estimated Length Requiring new Environmental Surveys (ft)	Originator
0212-01	292.99	294.03	SD	Harding	22,27,26	32N	37E	5,460	5,469	9	141	To have better Entry pt. at Little Missouri River HDD.	Route variation starts near MP 293 and deviates ~2" south from C/L for ~3,952 ft. then it turns east for ~1,517 ft to rejoin the current C/L near MP 294.0.	- Current location is not constructable due to location being in drainage/ditch.	0	2		NO	5,469	NO	NO	NO	Yes	Yes	No	No	5,469	Engineering
0212-02	617.45	618.33	NE	Rock	16,15	2N	23E	4,654	4,578	-76	397	To realign the Niobrara river HDD.	Route variation starts at MP 617.45 and continues south thus deviating from current C/L ~8.5'. It continues straight south until it rejoins the C/L near MP 618.3.	-Exit side was on a slope, so move back to facilitate pullback.	0	2		NO	4,578	NO	NO	NO	Yes	Yes	No	No	4,578	Engineering

Keystone Phase IV, US - Cost Analysis for Route Variation Report 0212

Prepared: 2011-06-29

RV ID	Additional length (ft)	Cost \$360/ft	Additional length of wetland construction (ft)	Cost \$195/ft	Additional length of side hill construction (ft)	Cost \$19/ft	Additional bore length (ft)	Cost \$540/ft	Additional Waterbody crossings	Cost (\$77,250/EA btw 10' - 19') (\$32,500/EA < 10')	Cost of Environmental survey (\$5,300/mile)	Cost of Civil survey (\$5,000/mile)	Approximate cost for land purchased on current centerline	Miscellaneous cost for additional impacts	Total Cost
0212-01	9	\$ 3,269.50	0	\$ -	0	\$ -	0	\$ -	0	\$ -	\$ 5,489.91	\$ 5,179.16	\$ -	\$ (50,000.00)	\$ (36,061.44)
0212-02	-76	\$ (27,262.62)	0	\$ -	0	\$ -	0	\$ -	0	\$ -	\$ 4,595.45	\$ 4,335.33	\$ -		\$ (18,331.84)

Overall Estimated Costs of Routes Variations= \$ (54,393.28)

Keystone Phase IV, US - Approval form for Route Variation Report 0212

Prepared: 2011-06-29

RV ID		0212-01	0212-02
LAND (UFS) Doug Riechley	Approval (Y/N)	Y	Y
	Comments	- Approved during 6/21/2011 meeting	- Approved during 6/21/2011 meeting
ENGINEERING (TransCanada) Meera Kothari / David Guien	Approval (Y/N)	Y	Y
	Comments	- Approved during 6/21/2011 meeting	- Approved during 6/21/2011 meeting
ENGINEERING (exp) Butch Wallace	Approval (Y/N)	Y	Y
	Comments	- Approved during 6/21/2011 meeting	- Approved during 6/21/2011 meeting
CONSTRUCTION (TransCanada) Bobby Curbow	Approval (Y/N)	Y	Y
	Comments	- Approved during 6/21/2011 meeting	- Approved during 6/21/2011 meeting
ENVIRONMENTAL (exp) Jonathan Minton	Approval (Y/N)	Y	Y
	Comments	- Cultural site on the south side - No issues. - Requires additional Env. Survey	- No Issues as long as line is not shifted east towards cultural site on the south side of the HDD. - Requires additional Env. Survey
SAFETY (exp.) Jason Mllenbruch	Approval (Y/N)	N/A	N/A
	Comments	- Approved during 6/21/2011 meeting	- Approved during 6/21/2011 meeting
FACILITIES (TransCanada) Sandra Gigovic	Approval (Y/N)	N/A	N/A
	Comments	- Approved during 6/21/2011 meeting	- Approved during 6/21/2011 meeting
PROJECT MANAGEMENT (TransCanada) Alan Lietz	Approval (Y/N)	Y	Y
	Comments	- Approved during 6/21/2011 meeting	- Approved during 6/21/2011 meeting
PROJECT MANAGEMENT (TransCanada) Steve Marr	Approval (Y/N)		
	Comments		

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT)

RV-0202-0208, RV-0210-0212, RV-0218

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT) ROUTE VARIATION AUTHORIZATION FORM																										
Date: 6/28/2011		Tracking Number: 202-0208, RV-0210-0212, RV																								
Description: BLM Land (RV-0202-0208, RV-0210) Northern Border (RV-0211) Little Missouri & Niobrara HDD's realign (RV-0212) Pawnee Burial Ground (RV-0218)		MP: XXX.X to XXX.X																								
Originated By: Multiple		Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																								
Universal Field - Land Doug Reichley	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011																								
Comments:	If Rejected Why?																									
TransCanada - Engineering Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011																								
Comments: By David Guen	If Rejected Why?																									
Exp - Engineering Butch Wallace	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011																								
Comments:	If Rejected Why?																									
TransCanada - Construction Bobby Curbow	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011																								
Comments:	If Rejected Why?																									
Exp - Environmental Jonathan Minton	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011																								
Comments:	If Rejected Why?																									
AECOM - Risk Assessment Heldi Tillquist	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date:																								
Comments: N/A.	If Rejected Why?																									
Exp - Safety Jason Millenbruch	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date:																								
Comments: N/A.	If Rejected Why?																									
Facilities: Sandra Gligovic	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date:																								
Comments: N/A. Does not affect Facilities.	If Rejected Why?																									
TransCanada - Senior PM Alan Lietz	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011																								
Comments:	If Rejected Why?																									
TransCanada - Manager Steve Marr	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> 7/4/11	Date:																								
Comments:	If Rejected Why?																									
Forward to:	<table border="0"> <tr> <td>Doug Reichley</td><td><input checked="" type="checkbox"/></td> <td>Jonathan Minton</td><td><input checked="" type="checkbox"/></td> <td>Alan Lietz</td><td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Meera Kothari</td><td><input checked="" type="checkbox"/></td> <td>Heldi Tillquist</td><td><input checked="" type="checkbox"/></td> <td>Steve Marr</td><td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Butch Wallace</td><td><input checked="" type="checkbox"/></td> <td>Jason Millenbruch</td><td><input checked="" type="checkbox"/></td> <td></td><td></td> </tr> <tr> <td>Bobby Curbow</td><td><input checked="" type="checkbox"/></td> <td>Sandra Gligovic</td><td><input type="checkbox"/></td> <td></td><td></td> </tr> </table>	Doug Reichley	<input checked="" type="checkbox"/>	Jonathan Minton	<input checked="" type="checkbox"/>	Alan Lietz	<input checked="" type="checkbox"/>	Meera Kothari	<input checked="" type="checkbox"/>	Heldi Tillquist	<input checked="" type="checkbox"/>	Steve Marr	<input checked="" type="checkbox"/>	Butch Wallace	<input checked="" type="checkbox"/>	Jason Millenbruch	<input checked="" type="checkbox"/>			Bobby Curbow	<input checked="" type="checkbox"/>	Sandra Gligovic	<input type="checkbox"/>			
Doug Reichley	<input checked="" type="checkbox"/>	Jonathan Minton	<input checked="" type="checkbox"/>	Alan Lietz	<input checked="" type="checkbox"/>																					
Meera Kothari	<input checked="" type="checkbox"/>	Heldi Tillquist	<input checked="" type="checkbox"/>	Steve Marr	<input checked="" type="checkbox"/>																					
Butch Wallace	<input checked="" type="checkbox"/>	Jason Millenbruch	<input checked="" type="checkbox"/>																							
Bobby Curbow	<input checked="" type="checkbox"/>	Sandra Gligovic	<input type="checkbox"/>																							

SMM

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT)

RV-0202-0208, RV-0210-0212, RV-0218

KEYSTONE XL PIPELINE PROJECT - STEELE CITY SEGMENT PIPELINE ROUTE VARIATION FORM	
1	VARIATION TYPE: Refinement: <input type="text"/> Reroute: <input checked="" type="checkbox"/> X Centerline: <input checked="" type="checkbox"/> X Valve Site: <input type="text"/> Pump Station: <input type="text"/>
2	LOCATION: Sketch: <input checked="" type="checkbox"/> Attached Pictures: <input type="text"/> See attached State: <input type="text"/> Multiple County: <input type="text"/> Multiple Quad Map: <input type="text"/> N/A Township: <input type="text"/> Multiple Range: <input type="text"/> Multiple Aerial Map: <input type="text"/> See attached map sheet Section: <input type="text"/> Multiple Centerline: <input type="text"/> 11/18/2010 MP: <input type="text"/> XXX.X to <input type="text"/> XXX.X
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): The Reason for each Route Variation (RV) is given with the respective RV file. These reroutes are proposed based on aerial/pictometry/Lydar/flyover analysis of current line through BLM lands, Montana, South Dakota, and Nebraska.
DETAIL ROUTE VARIATION (Please describe route variation in detail): See respective Route Variation Files. No new landowners have been affected by the proposed route variations. RVs included: BLM Land (RV-0202-0208, RV-0210) Northern Border (RV-0211) Little Missouri & Niobrara HDD's realign (RV-0212) Pawnee Burial Ground (RV-0218)	
ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): <div style="border: 1px solid black; height: 80px; width: 100%;"></div>	
Is there an increase/decrease in the number of crossings? Yes <input type="text"/> No <input type="text"/> If yes, please list: <input type="text"/> <input type="text"/>	
9	Originator: <input type="text"/> Multiple Date: <input type="text"/> 6/28/2011
10	Received by: _____ Date: <input type="text"/> 6/28/2011 Fax to: ?
11	Assigned Tracking Number: <input type="text"/> RV-0202-0208, RV-0210-0212, RV-0218
12	Filed by: _____ Date: _____ Fax to: ?

RV-0202-0208, RV-0210-0212, RV-0218

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT)

RV-0202-0208, RV-0210-0212, RV-0218

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT) ROUTE VARIATION AUTHORIZATION FORM		
Date: 6/28/2011		Tracking Number: 202-0208, RV-0210-0212, RV
Description: BLM Land (RV-0202-0208, RV-0210) Northern Border (RV-0211) Little Missouri & Niobrara HDD's realign (RV-0212) Pawnee Burial Ground (RV-0218)		MP: XXX.X to XXX.X Originated By: Multiple Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Universal Field - Land Doug Reichley	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011 If Rejected Why? <i>Dug & Vojtech</i>
Comments:		
TransCanada - Engineering Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011 If Rejected Why?
Comments: <i>BLM reroutes to be filed post POD receipt</i>		
Exp - Engineering Butch Wallace	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011 If Rejected Why?
Comments:		
TransCanada - Construction Bobby Curbow	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011 If Rejected Why?
Comments: <i>NORTHERN BORDER MAY NEED 250' CHANGE</i>		
Exp - Environmental Jonathan Minton	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011 If Rejected Why?
Comments: <i>Pending all Survey</i>		
TransCanada - Environmental Stephen Craycroft	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011 If Rejected Why?
Comments:		
Exp - Safety Jason Millenbruch	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/> If Rejected Why?
Comments: N/A.		
Facilities: Sandra Gigovic	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/> If Rejected Why?
Comments: N/A. Does not affect Facilities.		
TransCanada - Senior PM Alan Lietz	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 6/20 & 6/21/2011 If Rejected Why?
Comments: <i>conditional approval pending appropriate regulatory approvals.</i>		
TransCanada - Manager Steve Marr	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date: <input type="text"/> If Rejected Why?
Comments:		
Forward to: Doug Reichley <input checked="" type="checkbox"/> Meera Kothari <input checked="" type="checkbox"/> Butch Wallace <input checked="" type="checkbox"/> Bobby Curbow <input checked="" type="checkbox"/>	Jonathan Minton <input checked="" type="checkbox"/> Stephen Craycroft <input checked="" type="checkbox"/> Jason Millenbruch <input checked="" type="checkbox"/> Sandra Gigovic <input type="checkbox"/>	Alan Lietz <input checked="" type="checkbox"/> Steve Marr <input checked="" type="checkbox"/>

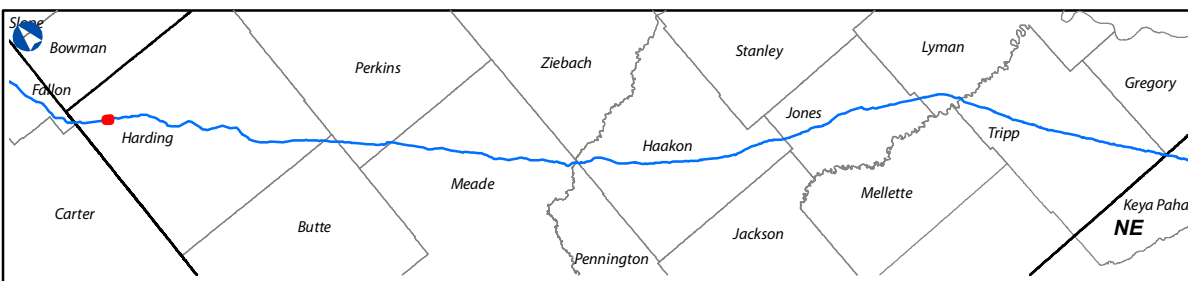
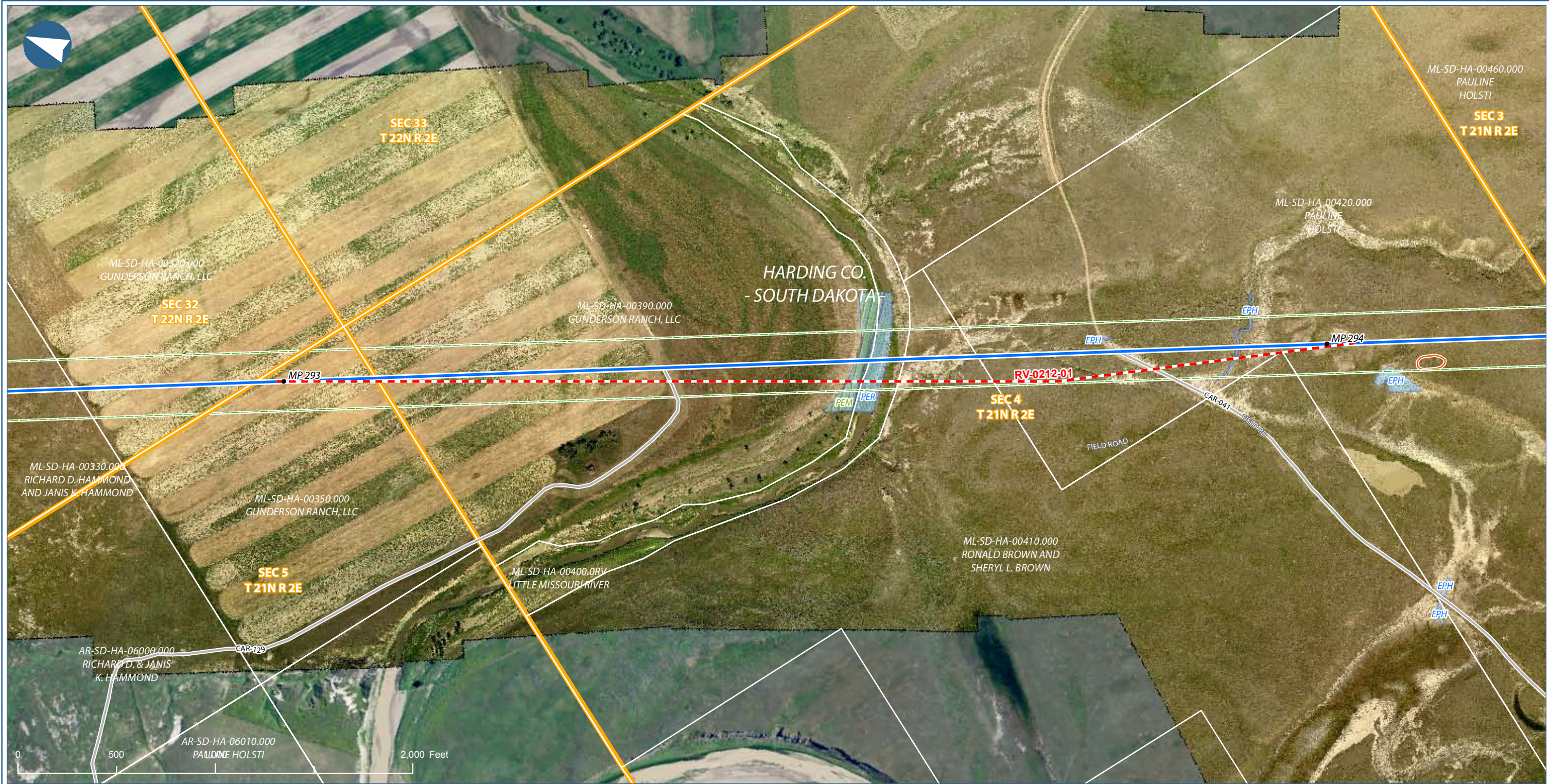
KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT)

RV-0202-0208, RV-0210-0212, RV-0218

KEYSTONE PIPELINE PROJECT - U.S. PHASE IV (STEELE CITY SEGMENT) ROUTE VARIATION AUTHORIZATION FORM			
Date: 6/28/2011		Tracking Number: 002-0208, RV-0210-0212, RV	
Description: BLM Land (RV-0202-0208, RV-0210) Northern Border (RV-0211) Little Missouri & Niobrara HDD's realign (RV-0212) Pawnee Burial Ground (RV-0218)		MP: XXXX to XXXX	
Originated By: Doug Reichley		Multiple	
Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		Date: 6/20 & 6/21/2011	
Universal Field - Land	Doug Reichley	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:		If Rejected Why?	<i>Dug 9-king 10/5/11</i>
TransCanada - Engineering	Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: By David Guen		If Rejected Why?	
Exp - Engineering	Butch Wallace	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:		If Rejected Why?	
TransCanada - Construction	Bobby Curbow	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:		If Rejected Why?	
Exp - Environmental	Jonathan Minton	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:		If Rejected Why?	
AECOM - Risk Assessment	Heidi Tillquist	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: N/A.		If Rejected Why?	
Exp - Safety	Jason Millenbruch	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: N/A.		If Rejected Why?	
Facilities:	Sandra Gigovic	Variation: Approved <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: N/A. Does not affect Facilities.		If Rejected Why?	
TransCanada - Senior PM	Alan Lietz	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <i>conditional approval pending appropriate regulatory approvals</i>		If Rejected Why?	
TransCanada - Manager	Steve Marr	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:		If Rejected Why?	
Forward to: Doug Reichley <input checked="" type="checkbox"/> Jonathan Minton <input checked="" type="checkbox"/> Alan Lietz <input checked="" type="checkbox"/>		Steve Marr <input checked="" type="checkbox"/>	
Meera Kothari <input checked="" type="checkbox"/> Heidi Tillquist <input checked="" type="checkbox"/>		Jason Millenbruch <input checked="" type="checkbox"/>	
Butch Wallace <input checked="" type="checkbox"/> Sandra Gigovic <input type="checkbox"/>			
Bobby Curbow <input checked="" type="checkbox"/>			

SMM

PROPOSED ROUTE VARIATION 0212-01



LEGEND

●	MILEPOST		300 FT CORRIDOR
	PHASE IV CL (2010-11-18)		PROPERTY PARCEL
	PROPOSED ROUTE VARIATION		CULTURAL SITE
	SECTION LINE		WETLAND
	ACCESS ROAD		WATERBODY
	PUMP STATION		
	VALVE SITE		

Keystone Phase IV, US
Proposed Route Variation 0212-01

COUNTY:	HARDING	DRAWN BY:	PD
STATE:	SD	CHECKED BY:	JP
SHEET:	1 OF 1	APPROVED BY:	RG
RV FULL:	0212-SD-P2-293.0-294.0-S		
REVISION			DATE
PRELIMINARY			
PROJECT:	THES0050388X	DWG:	XL-00-P-9178
DATE:	2011-06-28	REV. NO.:	0

PREPARED BY:
exp Energy Services Inc.
t: +1.850.385.5441 | f: +1.850.385.5523
1300 Metropolitan Blvd.
Tallahassee, FL 32308
U.S.A.
www.exp.com

The new identity of Trow Engineering Consultants, Inc.

• BUILDINGS • EARTH & ENVIRONMENT • ENERGY •
• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •