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

5,789

Centerline: X Valve Site: Pump Station:  OCATION: Sketch: Attached Pictures: See attached.  State: SD, NE County: Multiple Range: Multiple Aerial Map: See attached map sheet  Section: Multiple Centerline: 11/18/2010 MP: XXX.X to XXX.X  REASON FOR ROUTE VARIATION (Please Include reason for route variations:  This report consists of 4 proposed route variations. These route variations are proposed to avoid waterwells. The reason for the route variation is sted in the "Supplemental Info" tab.  The route variations have been proposed based on a combination of Flyover video of Centerline, LIDAR data, Pictometry and other aerials as an ffort to determine reroutes through BLM Land.					UTE VARIATION FO				
State: SD, NE County: Multiple Quad Map: N/A Township: Multiple Range: Multiple Centerline: 11/18/2010 MP: XXX.X to XXX.X  REASON FOR ROUTE VARIATION (Please Include reason for route variations are proposed to avoid waterwells. The reason for the route variation is sted in the "Supplemental Info" tab.  The route variations have been proposed based on a combination of Flyover video of Centerline, LIDAR data, Pictometry and other aerials as an affort to determine reroutes through BLM Land.  DETAIL ROUTE VARIATION (Please describe route variation in detail):  isted in "Supplemental Info" Tab.	VARIATION TYPE:		Refinement:			Reroute:	X		
State: SD, NE County: Multiple Quad Map: N/A Township: Multiple Range: Multiple Aerial Map: See attached map sheet		Centerline:	X		Valve Site:		P	ump Station:	
Section: Multiple Range: Multiple Centerline: 11/18/2010 MP: XXX.X to XXX.X  REASON FOR ROUTE VARIATION (Please include reason for route variation):  This report consists of 4 proposed route variations. These route variations are proposed to avoid waterwells. The reason for the route variation is isted in the "Supplemental Info" tab.  The route variations have been proposed based on a combination of Flyover video of Centerline, LIDAR data, Pictometry and other aerials as an effort to determine reroutes through BLM Land.  DETAIL ROUTE VARIATION (Please describe route variation in detail):  Listed in "Supplemental Info" Tab.	LOCATION:	5	Sketch:	Attac	ched	Pictures: Se	e attached.		
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	isted in "Supplement	al Info" Tab.							
ADDITIONAL IMPACTS (Please Include any additional impacts which may affect cost; crossings, induction bends, etc.):			de any addition	nal impacts which	may affect cost; cro	essings, induction	bends, etc.):		
isted in "Cost Analysis" Tab.			de any addition	nal impacts which	may affect cost; cro	essings, induction	bends, etc.):		
			de any addition	nal impacts which	may affect cost; cro	essings, induction	bends, etc.):		
			de any addition	nal impacts which	may affect cost; cro	essings, induction	bends, etc.):		
			de any addition	nal impacts which	may affect cost; cro	ssings, induction	bends, etc.):		
			de any addition	nal impacts which	may affect cost; cro	essings, induction	bends, etc.):		
isted in "Cost Analysis" Tab.	Listed in *Cost Analysi	s* Tab.		nal impacts which	may affect cost; cro				
originator: Engineering	Listed in *Cost Analysi Originator:	s* Tab. Engineerii	ng	nal impacts which	may affect cost; cro		Received by:		
Originator: Engineering 10 Received by: Date: 7/5/2011 Date: 7/5/2011	Listed in *Cost Analysi Originator:	s* Tab. Engineerii	ng	nal impacts which	may affect cost; cro		Received by:	7/5	5/2011
Originator: Engineering Date: 7/5/2011  Date: 7/5/2011  Date: 7/5/2011  Fax to: ?	isted in "Cost Analysi Originator:  Date:	s* Tab. Engineerii 7/5/2011	ng l		may affect cost; cro	10	Received by:	7/5	/2011
Originator: Engineering Date: 7/5/2011  Date: 7/5/2011  Date: 7/5/2011  Date: 7/5/2011	isted in "Cost Analysi Originator: Date:	s* Tab. Engineerii 7/5/2011	ng l		may affect cost; cro	10	Received by: Date:	7/5	V2011
Originator: Engineering Date: 7/5/2011  Date: 7/5/2011  Date: 7/5/2011  Date: 12	Listed in *Cost Analysi Originator:  Date:	s* Tab. Engineerii 7/5/2011	ng l		may affect cost; cro	10	Received by: Date: Filed by:	7/5	/2011

Document Control Number:

# Keystone Phase IV, US - Supplemental Information for Route Variation Report 0214 Prepared: 2011-07-05

RV ID MP Start	t MP End State	e County	Section	Townsh	ip Range	Original Length (ft)	Reroute Length (ft			• 1	Brief Variation Description	Additional Impacts/Comments	Number of New Landowners impacted by reroute	Number of Landowners on current route impacted by reroute	Civil Survey Complete?		Pump	Valve locate	Biological Survey	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)	
0214-01 386.61	387.23 SD	Meade	018	11N	13E	3,287	3,364	77	244	To avoid Well/Levee	Route variation starts at MP 386.6 and deviates ~5° southwest from C/L for ~2,089 ft. Then turns slightly east for ~200 ft and turns east again and continues in this direction for ~200 ft. ft and thus avoiding the well. From here, it turns east for ~900 ft to rejoin the current C/L near MP 387.2.		0	1	Yes	3,364	NO	NO NO	Yes	Yes	No	No	3,364	Engineering
0214-02 585.18	585.65 SD	Tripp	10	96N	75W	2,439	2,441	2	36	To avoid clippling fence, waterwell	Route variation starts at MP 585.2 and deviates slighly ~1° south for ~1,987 ft. Then, turns east for ~454 to rejoin the C/L near MP 585.7.		0	1	NO	2,441	NO	NO NO	Yes	Yes	Yes	Yes	0	Engineering
0214-03 605.63	606.19 NE	Keya Paha	17	34N	18W	2,972	2,979	8	105	To avoid waterwell	Route variation starts at MP 605.3 and deviates ~5.5° east for ~1,122 ft. Then, turns west for ~1,857 to rejoin the C/L near MP 606.2. Along its path avoids a waterwell near MP 605.85		0	1	NO	2,979	NO	NO NO	Yes	Yes	No	No	2,000	Engineering
0214-04 708.10	708.54 NE	Greeley	31	20N	10W	2,341	2,342	2	34	To avoid waterwell	Route variation starts at MP 708.1 and deviates ~5° southwest of current C/L for ~432 ft. Then turns east for ~1,911 ft to rejoin the C/L near MP 708.5.		0	1	NO	2,342	NO	NO NO	Yes	Yes	Yes	Yes	0	Engineering

## Keystone Phase IV, US - Cost Analysis for Route Variation Report 0214 Prepared: 2011-07-05

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		Total Cost
0214-01	77	\$ 27,598.6	2 0	\$ -	0	\$ -	0	\$ -	0	\$ -	\$ 3,376.30	\$ 3,185.19	\$ -	\$ (45,000.00)	\$ (10,839.89)
0214-02	2	\$ 597.5	7 0	\$ -	0	\$ -	0	\$ -	0	\$ -	\$ -	\$ 2,311.15	\$ -	\$ (15,000.00)	\$ (12,091.28)
0214-03	8	\$ 2,806.4	7 0	\$ -	0	\$ -	0	\$ -	0	\$ -	\$ 2,007.58	\$ 2,821.42	\$ -	\$ (15,000.00)	\$ (7,364.54)
0214-04	2	\$ 603.0	0 0	\$ -	0	\$ -	0	\$ -	0	\$ -	\$ -	\$ 2,218.01	\$ -	\$ (15,000.00)	\$ (12,178.99)

Overall Estimated Costs of Routes Variations= \$ (42,474.70)

### **Keystone Phase IV, US - Approval form for Route Variation Report 0214** Prepared: 2011-07-05

RV ID		0214-01	0214-02	0214-03	0214-04
LAND (UFS)	Approval (Y/N)	Y	Υ	Υ	Y
Doug Riechley	Comments	- Land. No issues	- Land. No issues	- Land. No issues. Reroute is benefitial to Landowner.	
ENGINEERING (TransCanada)	Approval (Y/N)	Y	Y	Υ	Y
ENGINEERING (TransCanada) Meera Kothari / David Guien	Comments				
ENGINEERING (exp)	Approval (Y/N)	Υ	Υ	Y	Ÿ
Butch Wallace	Comments				
CONSTRUCTION (TransCanada)	Approval (Y/N)	Y	Y	Y	Y
Bobby Curbow	Comments				
CANADANA CANTAL ()	Approval (Y/N)	Υ	Y	Y	Y
ENVIRONMENTAL (exp) Jonathan Minton	Comments	- Requires additional Env. Survey	- Requires additional Env. Survey	- Potential additional Env. Survey required.	- No additional Env. Survey required.
CALLY (ave.)	Approval (Y/N)	N/A	N/A	N/A	N/A
SAFETY (exp.) Jason Mllenbruch	Comments				
EACH ITIES (TransCanada)	Approval (Y/N)	N/A	N/A	N/A	N/A
FACILITIES (TransCanada) Sandra Gigovic	Comments				
PROJECT MANAGEMENT	Approval (Y/N)	Υ	Y	Y	Υ
(TransCanada) Alan Lietz	Comments	VV			
PROJECT MANAGEMENT	Approval (Y/N)	Y- 8M,	Y - 8m,	Y- 8m	Y- 8M /
(TransCanada) Steve Marr	Comments	8/31/11	8/31/11	8/3/11	8/31/11

KEYSTONE XL PIPELINE PROJECT - STEELE CI PIPELINE ROUTE VARIATION FORM		Т		
VARIATION TYPE: Refinement:	Reroute:	X		
Centerline: X Valve Site:	X		Pump Station:	
			r unip olation	
OCATION: Sketch: Attached	Pictures: S	ee attached		
The state of the s	Quad Map: 1	THE PERSON NAMED IN	Trans.	
	Aerial Map:	and the second		
Section: Multiple Centerline: 11/18/2010	MP:	XXX.X	to	XXX.X
REASON FOR ROUTE VARIATION (Please include reason for route variation):				
The Reason for each Route Vanation (RV) is given with the respective RV file.				
These reroutes are proposed based on aerial/pictometry/Lydar/flyover analysis of current line	through Mon	tana, South	Dakota, and Net	oraska.
DETAIL ROUTE VARIATION (Please describe route variation in detail):	San San San San	TONIO A	The state of the s	
See respective Route Variation Files. No new landowners were affected by the proposed route	e variations.			
RVs included:				
Discussed prior to 6/20/2011: Western Prairie Fringe Orchid Reroute (RV-0194)				
John Harter Reroute (RV-0195)				
Buzek Reroute (RV-0197)				
Discussed during 6/20/2011 Meeting:				
Reroute away from sidehili (SOM Land) (RV-0209)				
Discussed during 6/21/2011 Meeting:				
Reroutes to avoid creek Crossings (RV-0199)				
MP 475 Reroute (RV-0200) Reroutes to lessen/reduce Pis (RV-0213)				
Reroutes to avoid waterwell; fence (RV-0214)				9
Reroutes to avoid creeks, dropoffs, wetlands, etc. (RV-0215)				
Reroutes to avoid sideslopes/hilis (RV-0216) Reroutes to avoid pivot centers (RV-0217)				
Discussed during 8/10/2011 Meeting: HWY 73 Reroute (RV-0196)				
HWY 56 Reroute (RV-0219)				
Bad River HDD realignment reroute (RV-0220)				
MP 396 Reroute (RV-0224) Yeliowstone River HDD Entry Pt (RV-0227)				
Pi Breakdowns of all previous RV's for new CL (RV-0228 and RV-0229)				
CK-MLV-06 and CK-11 Valves relocation (RV-0230)				
ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossin	ngs, induction	bends, etc.	):	
s there an increase/decrease in the number of crossings?	Vas			de De de de
f yes, please list:	Yes_	-	No	000 000 000 000 000 000 000 000 000 00
r yes, piease list:		- Whamin		1900
	lio			
Originator: Multiple		Received	by:	
Date: 8/12/2011		Da	ate: 8/12	2/2011
			Fax to: ?	
RV-0194-0197, RV-0199-0200, RV-0209, RV-0213-0217, RV-0219-	12			HEAVE WATER
Assigned Tracking Number: 0220, RV-0224, RV-0227-0230		Filed	by:	
		De	fax to: ?	

<sup>\*</sup> Evaluation Criteria is located in Route Refinement and Reroute Process Section 3

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

	KEYSTONE PIPELINE PROJECT ROUTE VARIATION	- U.S. PHASE IV (STEELE C ON AUTHORIZATION FORM	ITY SEGMENT)
Date:	8/12/2011	Tracking Number:	RV-0194-0197, RV-0199-0200, RV-0209, RV-0213-0217, RV-0219-0220, RV-0224, RV-0227-0230
John Harter Buzek Rero	airie Fringe Orchid Reroute (RV-0194) r Reroute (RV-0195) rute (RV-0197) ay from sidehii (SOM Land) (RV-0209)	Originated By:  Variation Form Attache	P: XXX.X to XXX.X Multiple
Universal Field - Land	Doug Reichl		X Rejected
Comments: 1ent	vil sur Jey	If Rejected Why?	P. A. 10/5) 11
TransCanada- Engine	ering Meera Koth	arl Variation Approved	X Rejected
Comments: and by Da meetings.	avid Guien on the 8/20 and 6/21	If Rejected Why?	Date: <u>6/20, 6/21, &amp; 8/10/11</u>
Exp - Engineering	Butch Wallac	ce Variation: Approved	X Rejected
Comments:		If Rejected Why?	Date: 6/20, 6/21, & 8/10/11
TransCanada - Constr	nuction Bobby Curbo	A STATE OF THE PARTY OF THE PAR	X Rejected
Comments:		If Rejected Why?	Date: 8/20, 6/21, & 8/10/11
Exp - Environmental	Jonathan Minto	on Variation: Approved	X Rejected
Comments:		If Rejected Why?	Date: 6/20, 6/21, & 8/10/11
AECOM - Risk Assesm	nent Heidi Tiliqui	st Variation: Approved	N/A Rejected
Comments: N/A.	A MEG (TV) (CTE)	If Rejected Why?	Date:
facilities:	Sandra Gigovi	c Variation: Approved	N/A Rejected
Comments: N/A. Does	not affect Facilities.	If Rejected Why?	Date:
ranaCanada - PM (NE	1 Robert Bradle	y Variation: Approved	X Rejected
comments:		If Rejected Why?	Date: 8/10/2011
ransCanada - Senior I	PM Alan Liet	z Variation: Approved	X Rejected
comments:	ry appropriate	If Rejected Why?	Date: 6/20, 6/21, & 8/10/11
ransCanade - Manage	Steve Mar	r Variation: Approved	Rejected
omments:	A CONTRACTOR OF THE CONTRACTOR	If Rejected	Date: 2/3////
		Why?	
orward to: Doug Reich		an Minton X	Alan Lietz X
Meera Koth Butch Walls Bobby Curb	ace X Robert	iliquist X Bradley X	Steve Marr X

Document Control Number: KXL10-00006-01-AA-180 (Form 2)

RV-0194, 0195, 0197, RV-0199-0200, RV-0209, RV-0213-0217

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

	KEYSTONE PIPELINE PROJECT - U ROUTE VARIATION	.S. PHASE IV (STEELE CITY SEGMENT) AUTHORIZATION FORM
Date:	8/12/2011	Tracking Number:  RV-0194, 0195, 0197, RV-0199-0200, RV-0209, RV-0213-0217
Description:	Western Prairie Fringe Orchid Renote (RV-0196), John Harter Renote (RV-0195); Buzek Renote (RV-0197); Renote awer form cideltill (SOM Land) (RV-0209); Renotes to evoid creek Crossings (RV-0199); MP 475 Renote (RV-0200); Renotes to lessen/reduce Pls (RV-0213); Renotes to avoid waterwell; fence (RV-0214);	MP: XXX.X to XXX.X  Originated By: Multiple  Variation Form Attached: Yes X No
Universal F	leid - Land Doug Reichley	Variation: Approved X Rejected
Comments:	Singural	Date: 6/20, 6/21, & 8/10/11  If Rejected Why? Dr. G. 10/5/11
IranaCanac	fa- Engineering Meera Kothari	Variation: Approved X Rejected
Comments:	and by David Gulen on the 6/20 and 6/21 meetings. for the are Kothan,	Date: 8/20, 6/21, & 6/10/11  If Rejected  Why?
Exp - Engine Comments:	eering Butch Wallace	Variation: Approved X Rejected Date: 6/20, 6/21, 8 8/10/11
		Date: 6/20, 8/21, 8 8/10/11  If Rejected  Why?
	a - Construction Bobby Curbow	Variation: Approved X Rejected
Comments:	ne (ny-arita)	Date: 6/20, 6/21, & 8/10/11  If Rejected Why?
Exp - Enviro	nmental Jonathan Minton	Variation: Approved X Rejected
Comments:	fending Survey Complotion	Date: 6/20, 6/21, & 8/10/11  If Rejected  Why?
TransCanad	a - Environmental Stephen Craycroft	Variation: Approved X Rejected
Comments:	pendically (Next IV)	Date: 6/20, 6/21, & 6/10/11  If Rejected Why?
Facilities:	Sandra Gigovic	Variation: Approved NA Rejected
Comments:	N/A. Does not affect Facilities.	If Rejected
		Why?
	k Assessment Heidi Tiliquist	Variation: Approved Rejected
		If Rejected Why?
IransCanada	- Senior PM Alan Lietz	Variation: Approved X Rejected
Comments:	powlif appear in the	Date: 6/20, 6/21, & 8/10/11  If Rejected  Why?
TransCanada Comments:	- Manager Steve Marr	Variation: ApprovedRejected
C. Allerton		If Rejected Why?
	Doug Reichley X Jonathan Meera Kotharl X Stephen C Sutch Wallace X Heldi Tiliq Sobby Curbow X Sandra Gl	Craycroft X Steve Marr X

RV-0194, 0195, 0197, RV-0199-0200, RV-0209, RV-0213-0217

#### TransCanada In business to deliver PROPOSED ROUTE VARIATION 0214-01 SEC 7 11N R 13E ML-SD-ME-00260.000 LYLE D WEISS, ETUX ML-SD-ME-00290.000 VANSICKEL ET AL **SEC 18** T 11N R 13E MEADE CO. SOUTH DAKOTA LYLE D WEISS, ETU LEGEND **Keystone Phase IV, US exp** Energy Services Inc. Ziebach Perkins Gregory Proposed Route Variation 0214-01 t: +1.850.385.5441 | f: +1.850.385.5523 1300 Metropolitan Blvd. Tallahassee, FL 32308 U.S.A. 300 FT CORRIDOR PHASE IV CL (2010-11-18) PROPERTY PARCEL COUNTY: Harding CHECKED BY: STATE: SD PROPOSED ROUTE VARIATION CULTURAL SITE 1 OF 1 APPROVED BY: RG SHEET: Keya Paha SECTION LINE WETLAND RV FULL: 0214-XX-P2-XXX.X-XXX.X-S ΝE ACCESS ROAD WATERBODY The new identity of Trow Engineering Consultants, Inc. **PRELIMINARY** PUMP STATION Keystone Phase IV, US • BUILDINGS • EARTH & ENVIRONMENT • ENERGY • • INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY • VALVE SITE THES0050388X XL-00-P-9178 2011-06-28 REV. NO.:

### TransCanada In business to deliver PROPOSED ROUTE VARIATION 0214-02 ML-SD-TR-11680.000 LEGEND **Keystone Phase IV, US exp** Energy Services Inc. t: +1.850.385.5441 | f: +1.850.385.5523 1300 Metropolitan Blvd. Tallahassee, FL 32308 U.S.A. Proposed Route Variation 0214-02 300 FT CORRIDOR PHASE IV CL (2010-11-18) PROPERTY PARCEL NE CHECKED BY: STATE: PROPOSED ROUTE VARIATION CULTURAL SITE APPROVED BY: RG SECTION LINE RV FULL: 0214-XX-P2-XXX.X-XXX.X-S REVISION ACCESS ROAD The new identity of Trow Engineering Consultants, Inc. **PRELIMINARY** PUMP STATION HORIZONTAL DIRECTIONAL DRILL Keystone Phase IV, US • BUILDINGS • EARTH & ENVIRONMENT • ENERGY • • INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY • VALVE SITE PROJECT: THES0050388X XL-00-P-9178 REV. NO.: