

KEYSTONE XL PIPELINE PROJECT

0281-SD-P4-315-0-315.7-1

KEYSTONE XL PIPELINE PROJECT PIPELINE ROUTE VARIATION FORM			
1	<b>VARIATION TYPE:</b> Refinement: <input type="text"/> Reroute: <input checked="" type="checkbox"/> Footprint: <input type="text"/> Design: <input type="text"/> Centerline: <input checked="" type="checkbox"/> Pump Station: <input type="text"/> Valve Site: <input type="text"/> CAR: <input type="text"/>		
2	<b>LOCATION:</b> Sketch: <input type="text"/> Pictures: <input type="text" value="see Attached"/> State: <input type="text" value="SD"/> County: <input type="text" value="Harding"/> Quad Map: <input type="text" value="N/A"/> Township: <input type="text" value="019N"/> Range: <input type="text" value="04E"/> Aerial Map: <input type="text" value="See attached map sheet"/> Section: <input type="text" value="11"/> Centerline: <input type="text" value="3/14/2012"/> MP: <input type="text" value="315.02"/> to <input type="text" value="315.68"/>		
3	<b>REASON FOR ROUTE VARIATION</b> (Please include reason for route variation): The primary reason for this reroute is to shift the CL and workspaces away from a side slope. This proposed route variation will avoid a difficult construction and restoration.  The reroute has been proposed based on the field reconnaissance efforts, civil survey data, flyover video of CL, and pictometry data.		
<b>DETAIL ROUTE VARIATION</b> (Please describe route variation in detail): Route variation starts near MP 315.0 and deviates ~12.5° southeast. It continues in this direction for ~1,666 ft. Then the reroute turns southeast and extends in this direction for ~2,347 ft to rejoin the Current CL near MP 315.7.			
<b>ADDITIONAL IMPACTS</b> (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): No New Landowners are impacted by this route variation. The reroute impacts 2 existing tracts and Landowners. ML-SD-HA-01445.000 (Bret A. Clanton) ML-SD-HA-01450.000 (Niemi Ranch Limited Partnership...)  Reroute will avoid a difficult construction and restoration through this area for estimated construction savings of ~30,000.			
Is there an increase/decrease in the number of crossings? Yes <input type="text"/> No <input checked="" type="checkbox"/>			
If yes, please list: <input type="text"/> <input type="text"/>			
<b>COST ANALYSIS</b> (costs incurred or saved from the route variation)			
Additional length of route realignment:	48	ft.	\$ 17,286.81 \$ 360/ft
Additional length of side-hill construction:	-600	ft.	\$ (11,400.00) \$ 19/ft
Additional length of wetland construction:		ft.	\$ - \$ 195/ft
Additional bore length (Road, RR):		ft.	\$ - \$ 540/ft
Additional foreign line/pipeline crossings:		EA	\$ - \$ 30,000/EA
Additional water body crossing (streams, ponds, etc.):			
35 - 65' +		EA	\$ - \$ 185,000/EA
10' - 19'		EA	\$ - \$ 77,250/EA
Less than 10'		EA	\$ - \$ 32,500/EA
Additional survey required:			
Civil:	0.00	mile	\$ - \$ 5,000/mile
Cultural:	0.00	mile	\$ - \$ 2,500/mile
Biological:	0.00	mile	\$ - \$ 2,800/mile
Miscellaneous costs saved or added due to route variation from <b>ADDITIONAL IMPACTS</b> listed above:			\$ (30,000)
Overall estimated costs of the route variation:	\$ (24,113.19) (See "Additional Impacts" above)		

4 **LAND / TransCanada** *Tina Hall*

a) Is a new landowner affected by the proposed variation? Yes  No

b) Is the affected landowner/tract a possible condemnation? Yes  No

c) Does proposed route variation impact Tribal Lands? Yes  No

d) Does proposed route variation impact any Federal/State Lands? Yes  No

-If yes, name type (i.e. USFWS, BLM, etc.):

e) Is proposed realignment outside the easement/workspace? Yes  No

f) Is realignment proposed to satisfy landowner request? Yes  No

-If yes, name of landowner(s)/track number(s):

g) Has all the evaluation criteria been examined/provided for this specific discipline? Yes  No

If no, please explain why:

5 **ENGINEERING/CONSTRUCTION - TransCanada** *Meera Kothari*

a) Maximum deviation perpendicular to proposed alignment:  ft.

b) Does variation (CL) (including workspaces) falls within 500 ft. MDEQ Corridor? Yes  No

c) Has the centerline been staked for construction? Yes  No

d) Does route variation affect HDD crossing alignment? Yes  No

e) Is realignment proposed for engineering/construction reasons? Yes  No

f) Will the route variation require the relocation of a pump station? Yes  No

g) Has all the evaluation criteria been examined/provided for this specific discipline? Yes  No

If no, please explain why:

6 **ENVIRONMENTAL / exp** *Jonathan Minton*

a) Has the corridor been environmentally surveyed? Yes  No

b) Has the proposed variation been environmentally surveyed? Yes  No

c) Does proposed route variation impact Sage Grouse areas? Yes  No

d) Does route variation impact ABB areas? Yes  No

e) Was variation proposed to satisfy environmental issues? Yes  No

f) Was realignment proposed to satisfy agency request? Yes  No

-If yes, name of agency(s):

g) Environmental features:

Added (+):  Subtracted (-):

Wetland ID # for newly impacted wetlands:

h) Has all the evaluation criteria been examined/provided for this specific discipline? Yes  No

If no, please explain why:

7 **ENGINEERING / FACILITIES AND HYDRAULICS (if applicable)** *Sandra Gigovic*

a) Will the route variation require the relocation of a pump station? Yes  No

b) Will route variation impact hydraulics? Yes  No

c) Are additional valves required at HCA's or water crossing? Yes  No

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes  No

If no, please explain why:

8 **STAKEHOLDER RELATIONS / TCPL (if applicable)** *Bud Andersen*

a) Does the variation result in any new stakeholders? Yes  No

b) Does the variation require follow-up with specific stakeholder groups? Yes  No

c) Was the variation proposed to satisfy stakeholder request? Yes  No

-If yes, please specify issue type (as it aligns to stakeholder database):

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes  No

If no, please explain why:

9

Originator:

Date:

10

Received by:

Date:

Fax to: ?

11

Assigned Tracking Number:

12

Filed by:

Date:

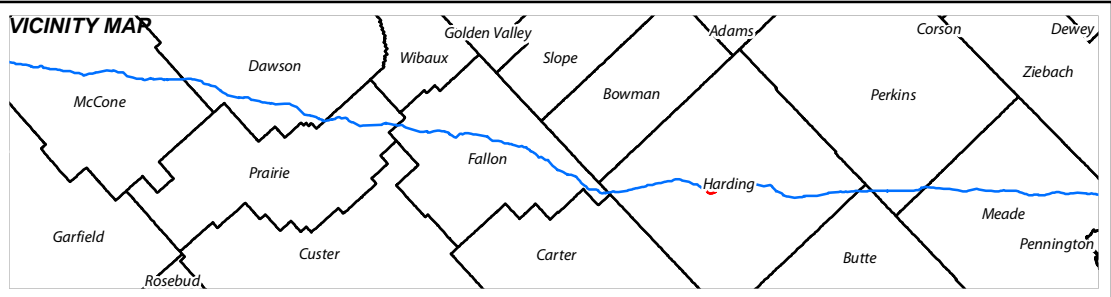
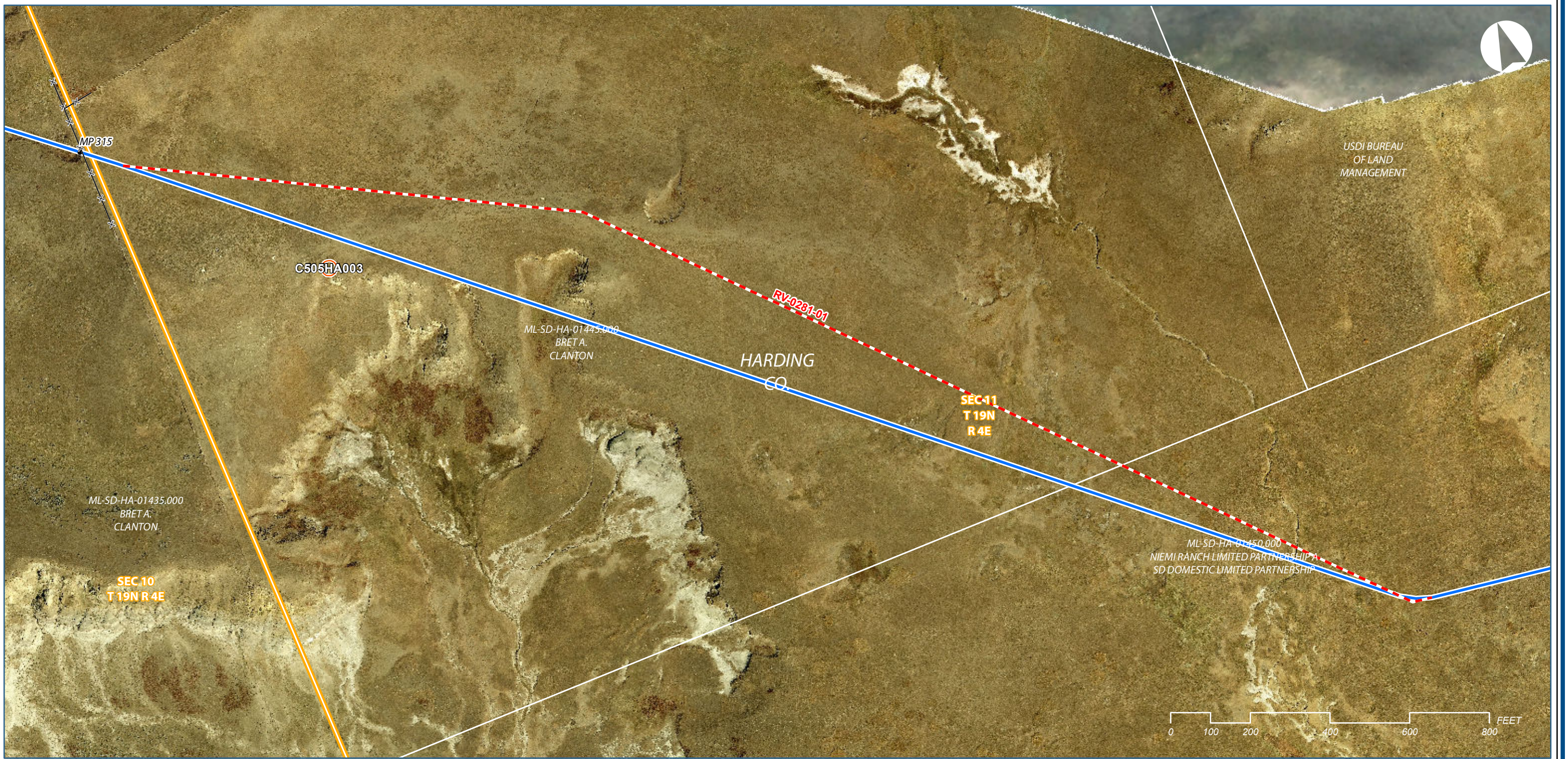
Fax to: ?

0281-SD-P4-315.0-315.7-I

KEYSTONE XL PIPELINE PROJECT

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM		
Date: <u>3/27/2012</u>	Tracking Number: <u>0281-SD-P4-315.0-315.7-1</u>	
Description: <u>The primary reason for this reroute is to shift the CL away from a side slope.</u>	MP: <u>315.0</u> to <u>315.7</u>	Originated By: <u>Engineering</u>
	Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>TransCanada - Land</b>	Tina Hall	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		<i>[Signature]</i> Date: <u>4-16-12</u>
		If Rejected Why?
<b>TransCanada - Engineering</b>	Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		<i>[Signature]</i> Date: <u>4-27-2012</u>
		If Rejected Why?
<b>Exp - Engineering</b>	Butch Wallace	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		<i>[Signature]</i> Date: <u>4-17-2012</u>
		If Rejected Why?
<b>Exp - Environmental</b>	Jonathan Minton	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>
Comments: <u>Pending Survey</u>		<i>[Signature]</i> Date: <u>5-16-12</u>
		If Rejected Why?
<b>Stantec - Risk Assessment</b>	Heidi Tillquist	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		Date: _____
		If Rejected Why?
<b>TransCanada - Facilities</b>	Sandra Gigovic	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		Date: _____
		If Rejected Why?
<b>TransCanada - PM (Montana)</b>	Alan Lietz	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		Date: _____
		If Rejected Why?
<b>TransCanada - PM (South Dakota)</b>	James Odom	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		<i>[Signature]</i> Date: <u>May 23, 2012</u>
		If Rejected Why?
<b>TransCanada - PM (Nebraska)</b>	Robert Bradley	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		Date: _____
		If Rejected Why?
<b>TransCanada - Keystone XL Manager</b>	Steve Marr	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>
Comments:		<i>[Signature]</i> Date: <u>Jun 15/12</u>
		If Rejected Why?
Forward to:	Tina Hall <input type="checkbox"/> Jonathan Minton <input type="checkbox"/> James Odom <input type="checkbox"/> Meera Kothari <input type="checkbox"/> Heidi Tillquist <input type="checkbox"/> Robert Bradley <input type="checkbox"/> Butch Wallace <input type="checkbox"/> Sandra Gigovic <input type="checkbox"/> Steve Marr <input type="checkbox"/> Alan Lietz <input type="checkbox"/>	

0281-SD-P4-315.0-315.7-1



**LEGEND**

- MILEPOST
- KEYSTONE XL CL (2012-03-14)
- - - PROPOSED ROUTE VARIATION
- ▭ SECTION LINE
- ACCESS ROAD
- PUMP STATION
- ⊗ VALVE
- ⊗ SURVEYED FENCE
- ▭ PROPERTY PARCEL
- ▭ CULTURAL SITE
- ▨ WETLAND
- ▨ WATERBODY
- ▭ 500FT MDEQ CORRIDOR
- HDD ENTRY / EXIT

**KEYSTONE XL PROJECT**

*Proposed Route Variation 0281-01*

COUNTY:	HARDING	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW.	2012-03-27	

**PRELIMINARY**

DATE:	2012-03-27	PROJECTION:	NAD83   UTM13 N
-------	------------	-------------	-----------------

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 •

DWG:	XL-30-P-9200	SHEET:	1
------	--------------	--------	---

**RV-0281-01 Looking Northwest at minute 03:32:212**  
**03/14/2012 - Blue line**  
**RV-0281-01 - Red line**



Looking Northwest (Vertical exaggeration = 1)

