

KEYSTONE XL PIPELINE PROJECT

0282-SD-P4-331-9-332-8-1

KEYSTONE XL PIPELINE PROJECT PIPELINE ROUTE VARIATION FORM			
1	VARIATION TYPE: 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	LOCATION: Sketch: <input type="text"/> Pictures: <input type="text"/> N/A State: <input type="text"/> SD County: <input type="text"/> Harding Quad Map: <input type="text"/> N/A Township: <input type="text"/> (18N); 17N Range: <input type="text"/> 06E Aerial Map: <input type="text"/> See attached map sheet Section: <input type="text"/> (034,035); 02 Centerline: <input type="text"/> 3/14/2012 MP: <input type="text"/> 331.86 to <input type="text"/> 332.83		
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): The primary reason for this reroute is to avoid crossing drainage multiple times and to avoid paralleling drainage. The reroute has been proposed based on the field reconnaissance effort.		
DETAIL ROUTE VARIATION (Please describe route variation in detail): Route variation starts near MP 331.9 and deviates ~10.5° southeast of CL. It continues in this direction for ~1,967 ft. This allows more distance and effectively avoids crossing a drainage of the West Squaw Creek twice. The reroute then turns further southeast for ~1,666 ft. The reroute continues by turning south, thus crossing the current CL. It extends in this direction for ~517 ft. before it makes a final turn east towards the current CL. In this direction extends for ~1,054 ft. and rejoins the current CL near MP 332.8.			
ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): No New Landowners are impacted by this route variation. Three tracts are impacted by reroute: ML-SD-HA-02310.000 (State of South Dakota) ML-SD-HA-02320.000 and ML-SD-HA-02390.000 (both tracts: Mark J. Vroman)			
Is there an increase/decrease in the number of crossings? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, please list: <input type="text"/> Reroutes eliminates 1 drainage crossing.			
COST ANALYSIS (costs incurred or saved from the route variation)			
Additional length of route realignment:	99	ft.	\$ 35,760.96 \$ 360/ft
Additional length of side-hill construction:		ft.	\$ - \$ 19/ft
Additional length of wetland construction:	-500	ft.	\$ (97,500.00) \$ 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'	-1	EA	\$ (32,500.00) \$ 32,500/EA
Additional survey required:			
Civil:	0.99	mile	\$ 4,934.15 \$ 5,000/mile
Cultural:	0.99	mile	\$ 2,467.07 \$ 2,500/mile
Biological:	0.99	mile	\$ 2,763.12 \$ 2,800/mile
Miscellaneous costs saved or added due to route variation from ADDITIONAL IMPACTS listed above: <input type="text"/>			
Overall estimated costs of the route variation: <input type="text"/> \$ (84,074.69) (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.): State of South Dakota

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: 356 ft.

b) Does variation (CL) (including workspaces) falls within 500 ft. MDEQ Corridor? Yes N/A 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: Engineering
 Date: 3/20/2012

10 Received by:
 Date: 3/20/2012
 Fax to: ?

11 Assigned Tracking Number: 0282-SD-P4-331.9-332.8-I

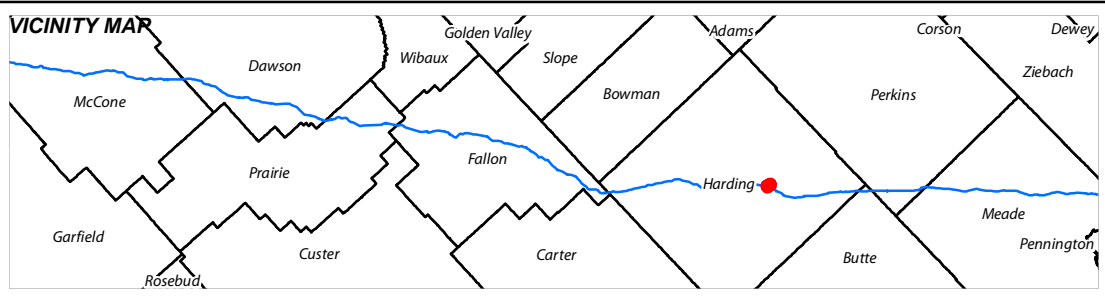
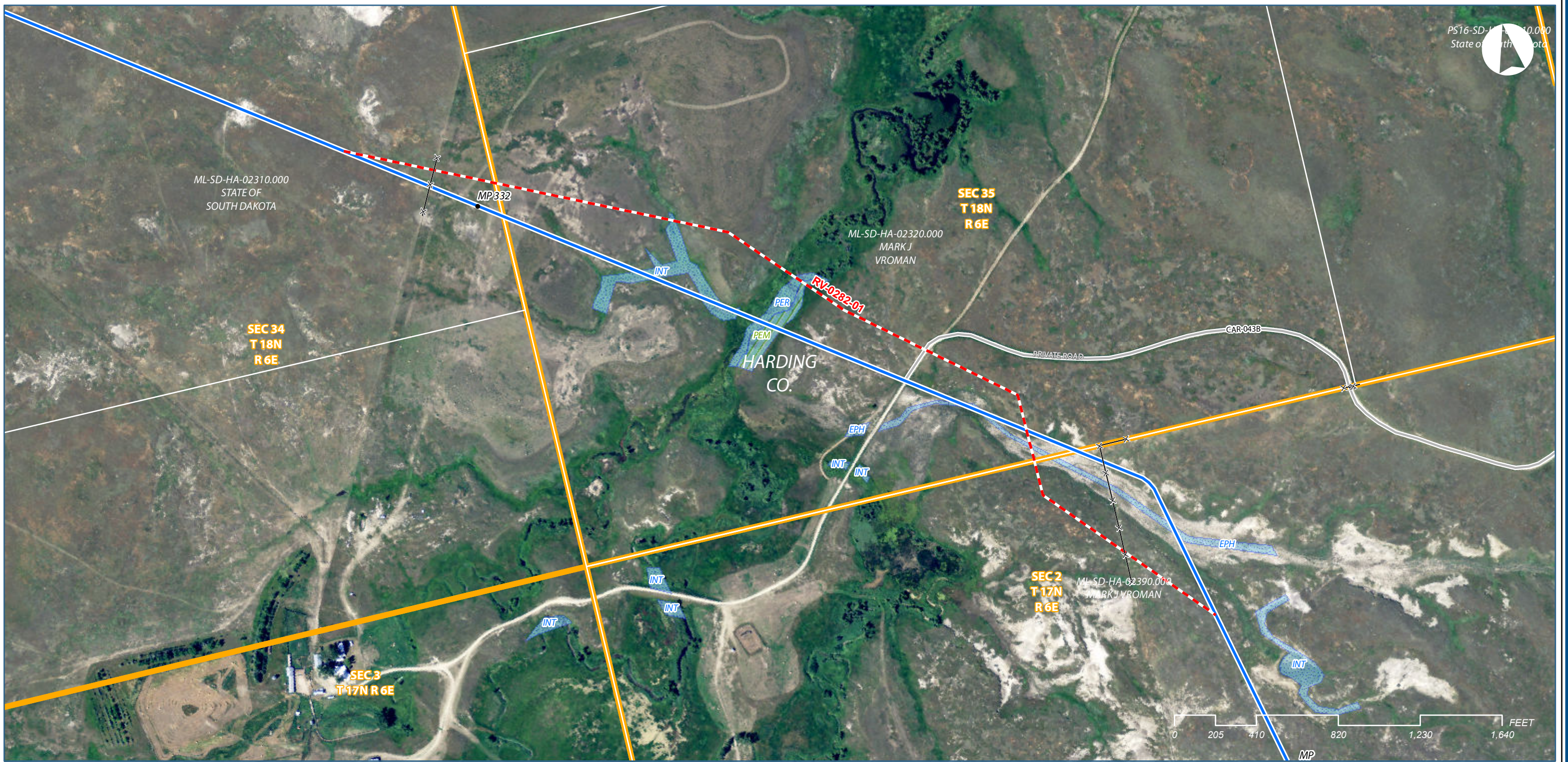
12 Filed by:
 Date:
 Fax to: ?

0282-SD-P4-331.9-332.8-I

KEYSTONE XL PIPELINE PROJECT

0282-SD-P4-331.9-332.8-1

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM		
Date: 3/20/2012	Tracking Number: 0282-SD-P4-331.9-332.8-1	
Description: The primary reason for this reroute is to avoid crossing drainage multiple times and to avoid paralleling drainage.	MP: 331.9 to 332.8	Originated By: Engineering
	Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
TransCanada - Land Tina Hall	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 4-16-12
Comments:	If Rejected Why?	
TransCanada - Engineering Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 3/31/12
Comments:	If Rejected Why?	
Exp - Engineering Butch Wallace	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 3/22/2012
Comments:	If Rejected Why?	
Exp - Environmental Jonathan Minton	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: 5-11-12
Comments: Pending Survey	If Rejected Why?	
Stantec - Risk Assessment Heidi Tillquist	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date:
Comments:	If Rejected Why?	
Facilities - TransCanada Sandra Gigovic	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date:
Comments:	If Rejected Why?	
TransCanada - PM (Montana) Alan Lietz	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date:
Comments:	If Rejected Why?	
TransCanada - PM (South Dakota) James Odom	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: May 23, 2012
Comments:	If Rejected Why?	
TransCanada - PM (Nebraska) Robert Bradley	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	Date:
Comments:	If Rejected Why?	
TransCanada - Keystone XL Manager Steve Marr	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	Date: June 15/12
Comments:	If Rejected Why?	
Forward to: Tina Hall <input type="checkbox"/> Meera Kothari <input type="checkbox"/> Butch Wallace <input type="checkbox"/>	Jonathan Minton <input type="checkbox"/> Heidi Tillquist <input type="checkbox"/> Sandra Gigovic <input type="checkbox"/> Alan Lietz <input type="checkbox"/>	James Odom <input type="checkbox"/> Robert Bradley <input type="checkbox"/> Steve Marr <input type="checkbox"/>



LEGEND

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

KEYSTONE PHASE IV, US

Proposed Route Variation 0282-01

COUNTY:	HARDING	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP

REV. NO.:	REVISION	DATE
0	ISSUED FOR REVIEW.	2012-03-19

PRELIMINARY

DATE:	2012-03-19	PROJECTION:	NAD83 UTM13 N
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PREPARED BY:

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- INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

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