

KEYSTONE XL PIPELINE PROJECT

0258-SD-P4-350.7-351.5-1

| KEYSTONE XL PIPELINE PROJECT<br>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"/><br>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"/><br>State: <input type="text" value="SD"/> County: <input type="text" value="Harding"/> Quad Map: <input type="text" value="N/A"/><br>Township: <input type="text" value="15N"/> Range: <input type="text" value="08E"/> Aerial Map: <input type="text" value="See attached map sheet"/><br>Section: <input type="text" value="10"/> Centerline: <input type="text" value="3/14/2012"/> MP: <input type="text" value="350.74"/> to <input type="text" value="351.47"/> |      |                           |
| 3   | <b>REASON FOR ROUTE VARIATION</b> (Please include reason for route variation):<br><div style="border: 1px solid black; padding: 5px; min-height: 150px;"> <p>The primary reason for this reroute is to shift CL and workspaces out of and away from pond.</p> <p>The reroute has been proposed based on a combination of flyover video, LIDAR data, Pictometry and other aeriels.</p> </div>  |      |                           |
| <b>DETAIL ROUTE VARIATION</b> (Please describe route variation in detail):<br><div style="border: 1px solid black; padding: 5px; min-height: 150px;"> <p>Route variation starts near MP 350.7 and deviates ~10° southwest of CL. It continues in this direction for ~2,102 ft. This allows more distance (~160 ft.) between CL/workspaces and pond. Then the reroute turns east and extends for ~1,809 ft. before rejoining the C/L near MP 351.5.</p> </div> |   |      |                           |
| <b>ADDITIONAL IMPACTS</b> (Please include any additional impacts which may affect cost; crossings, induction bends, etc.):<br><div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p>No New Landowners are impacted by this route variation. Two Tracts are Impacted by reroute:<br/>                     ML-SD-HA-03310.000 (State of South Dakota)<br/>                     ML-SD-HA-03320.000 (Jeff Jensen)</p> </div>                 |   |      |                           |
| 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"/><br><input type="text"/>   |   |      |                           |
| <b>COST ANALYSIS</b> (costs incurred or saved from the route variation)   |   |      |                           |
| Additional length of route realignment:   | 64  | ft.  | \$ 23,087.33 \$ 360/ft    |
| Additional length of side-hill construction:  |   | ft.  | \$ - \$ 19/ft             |
| Additional length of wetland construction:  | -283  | ft.  | \$ (55,182.72) \$ 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:  | 0.55  | mile | \$ 2,758.35 \$ 5,000/mile |
| Cultural:   | 0.74  | mile | \$ 1,849.09 \$ 2,500/mile |
| Biological:   | 0.55  | mile | \$ 1,544.68 \$ 2,800/mile |
| Miscellaneous costs saved or added due to route variation from <b>ADDITIONAL IMPACTS</b> listed above: <input type="text"/>   |   |      |                           |
| Overall estimated costs of the route variation: \$ (25,943.26) (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:  370 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:  3/19/2012

10 Received by:   
 Date:  3/19/2012  
 Fax to: ?

11 Assigned Tracking Number:  0258-SD-P4-350.7-351.5-I

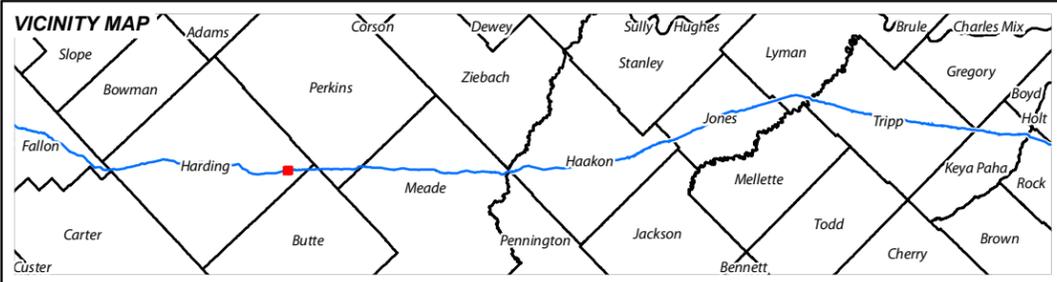
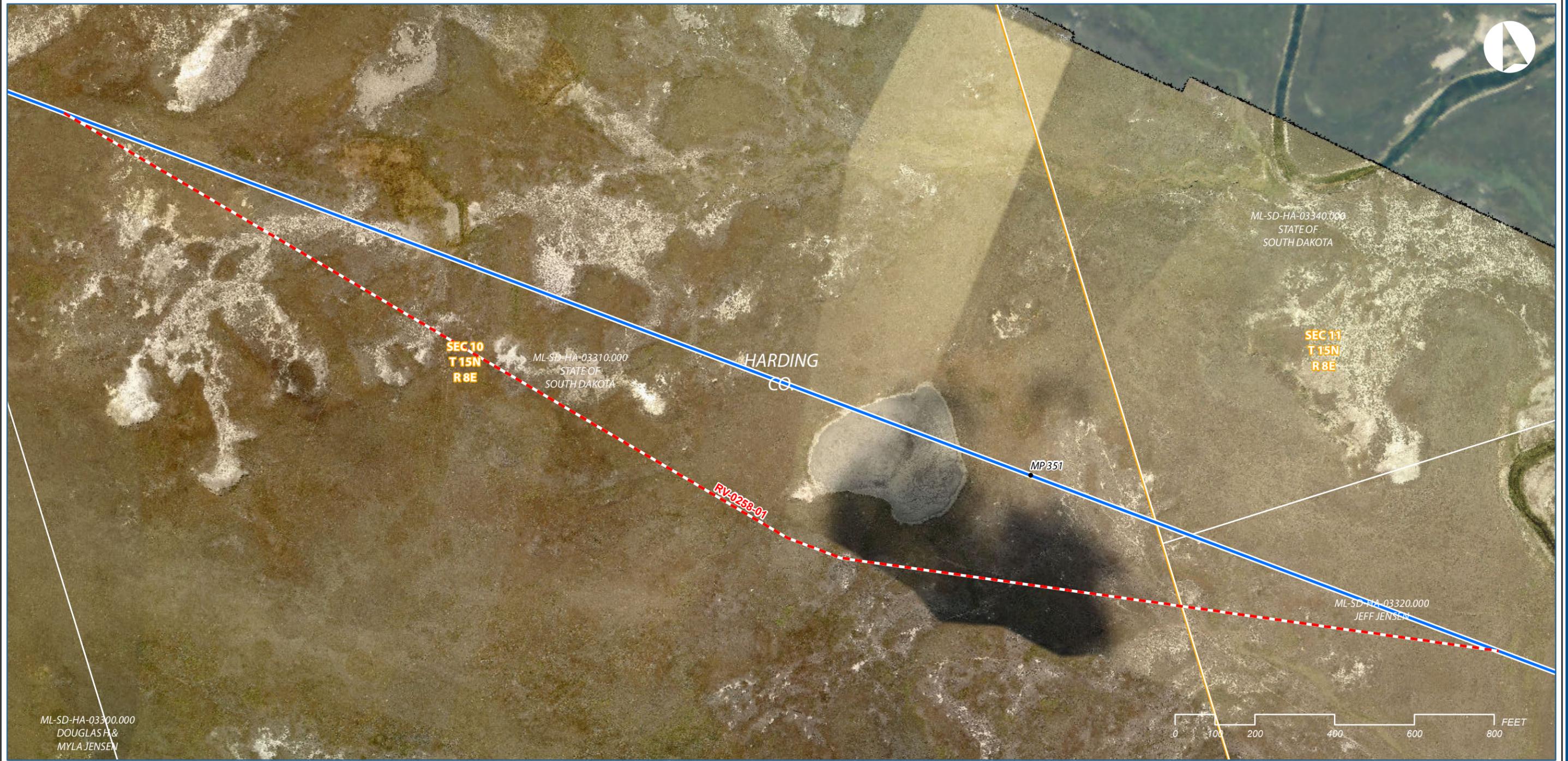
12 Filed by:   
 Date:   
 Fax to: ?

0258-SD-P4-350.7-351.5-I

KEYSTONE XL PIPELINE PROJECT

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| KEYSTONE XL PIPELINE PROJECT<br>ROUTE VARIATION AUTHORIZATION FORM   |   |   |
|--|---|---|
| Date: 3/19/2012  | Tracking Number: 0258-SD-P4-350.7-351.5-1   | MP: 350.7 to 351.5  |
| Description: The primary reason for this reroute is to shift CL and workspaces out of pond.                                  | Originated By: Engineering  | 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"/>   | Date: 4-16-12   |
| Comments:  | If Rejected Why?  |   |
| <b>TransCanada- Engineering</b> Meera Kothari  | Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>   | Date: 3/22/12   |
| Comments:  | If Rejected Why?  |   |
| <b>Exp - Engineering</b> Butch Wallace   | Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>   | Date: 5/22/2012   |
| Comments:  | If Rejected Why?  |   |
| <b>Exp - Environmental</b> Jonathan Minton   | Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>   | Date:   |
| Comments: Pending Survey   | If Rejected Why?  |   |
| <b>Stantec - Risk Assessment</b> Heidi Tillquist   | Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>  | Date:   |
| Comments:  | If Rejected Why?  |   |
| <b>Facilities - TransCanada</b> Sandra Gigovic   | Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>  | Date:   |
| Comments:  | If Rejected Why?  |   |
| <b>TransCanada - PM (Montana)</b> Alan Lietz   | Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>  | Date:   |
| Comments:  | If Rejected Why?  |   |
| <b>TransCanada - PM (South Dakota)</b> James Odom  | Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>   | Date: May 23, 2012  |
| Comments:  | If Rejected Why?  |   |
| <b>TransCanada - PM (Nebraska)</b> Robert Bradley  | Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>  | Date:   |
| Comments:  | If Rejected Why?  |   |
| <b>TransCanada - Keystone XL Manager</b> Steve Marr  | Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>   | Date: Jun 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
- PHASE IV CL (2010-09-21)
- - - PROPOSED ROUTE VARIATION
- ▭ SECTION LINE
- ACCESS ROAD
- PUMP STATION
- ⊗ VALVE
- ▭ PROPERTY PARCEL
- ▭ CULTURAL SITE
- ▨ WETLAND
- ▨ WATERBODY
- ▭ 500FT MDEQ CORRIDOR
- HDD ENTRY / EXIT

**KEYSTONE PHASE IV, US**

*Proposed Route Variation 0258-01*

|           |              |             |                    |
|-----------|--------------|-------------|--------------------|
| COUNTY:   | HARDING      | DRAWN BY:   | PD                 |
| STATE:    | SOUTH DAKOTA | CHECKED BY: | JP                 |
| REV. NO.: | 0            | REVISION    | ISSUED FOR REVIEW. |
|           |              | DATE        | 2011-11-28         |

**PRELIMINARY**

|       |            |             |                 |
|-------|------------|-------------|-----------------|
| DATE: | 2011-11-28 | PROJECTION: | NAD83   UTM13 N |
|-------|------------|-------------|-----------------|

PREPARED BY:

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

**RV-0258-01 - Looking Northwest at minute 06:11.671  
03/14/2012 CL (Blue line); Reroute (red line)**



