

KEYSTONE XL PIPELINE PROJECT

0285-SD-P4-446-6-448.2-S

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"/> Haakon Quad Map: <input type="text"/> N/A Township: <input type="text"/> (05N), 04N Range: <input type="text"/> 20E Aerial Map: <input type="text"/> See attached map sheet Section: <input type="text"/> (30, 31,32), 05 Centerline: <input type="text"/> 3/14/2012 MP: <input type="text"/> 446.65 to <input type="text"/> 448.24		
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): The primary reason for this reroute is to avoid a bad creek crossing (crossing too close to the road, involves wetland area and a lot of tree removal). The reroute has been proposed based on the field reconnaissance efforts. The team walked the area and suggested a route to the west of the pond. The proposed reroute sits on a cultivated land (not wet).		
DETAIL ROUTE VARIATION (Please describe route variation in detail): Route variation starts near MP 446.6 and deviates ~22° southeast of CL. It extends in this direction for ~4,820 ft. Along this section the reroute crosses the CL, thus placing itself west of the current CL. The reroute continues by turning further southeast and extends in this direction for ~1,220 ft. Then it continues south thus crossing the West Plum Creek at a drier location. It continues in this direction for ~615.6 ft. before it makes a last turn southeast towards the current CL and extends in this direction for ~1,822 ft. to rejoin it near MP 448.2.			
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 all from Landowner McDonnell Land Company, LLC: ML-SD-HK-00540.000, ML-SD-HK-00560.000, ML-SD-HK-00620.000. Tract ML-SD-HK-00610.000 (also McDonnell Land Company, LLC) drops offline with reroute. Miscellaneous Savings include avoid removal of trees (~10,000)			
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"/>			
COST ANALYSIS (costs incurred or saved from the route variation)			
Additional length of route realignment:	81	ft.	\$ 29,087.40 \$ 360/ft
Additional length of side-hill construction:		ft.	\$ - \$ 19/ft
Additional length of wetland construction:	-227	ft.	\$ (44,250.83) \$ 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:	1.61	mile	\$ 8,028.41 \$ 5,000/mile
Cultural:	1.61	mile	\$ 4,014.20 \$ 2,500/mile
Biological:	1.61	mile	\$ 4,495.91 \$ 2,800/mile
Miscellaneous costs saved or added due to route variation from ADDITIONAL IMPACTS listed above:			\$ (10,000)
Overall estimated costs of the route variation:			\$ (8,624.91) (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 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:

Date:

10

Received by:

Date:

Fax to: ?

11

Assigned Tracking Number:

12

Filed by:

Date:

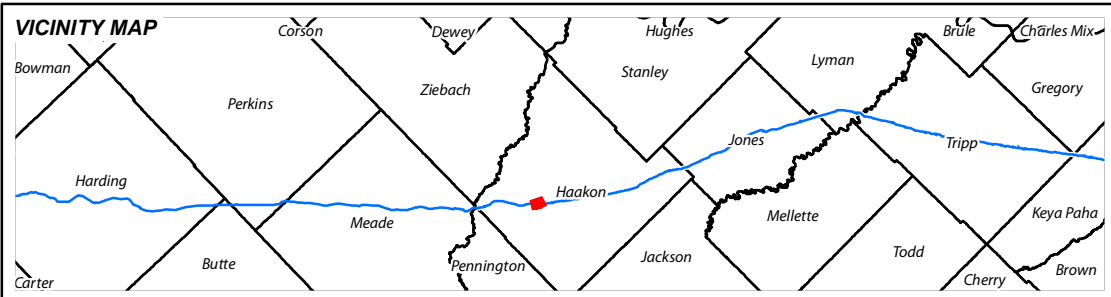
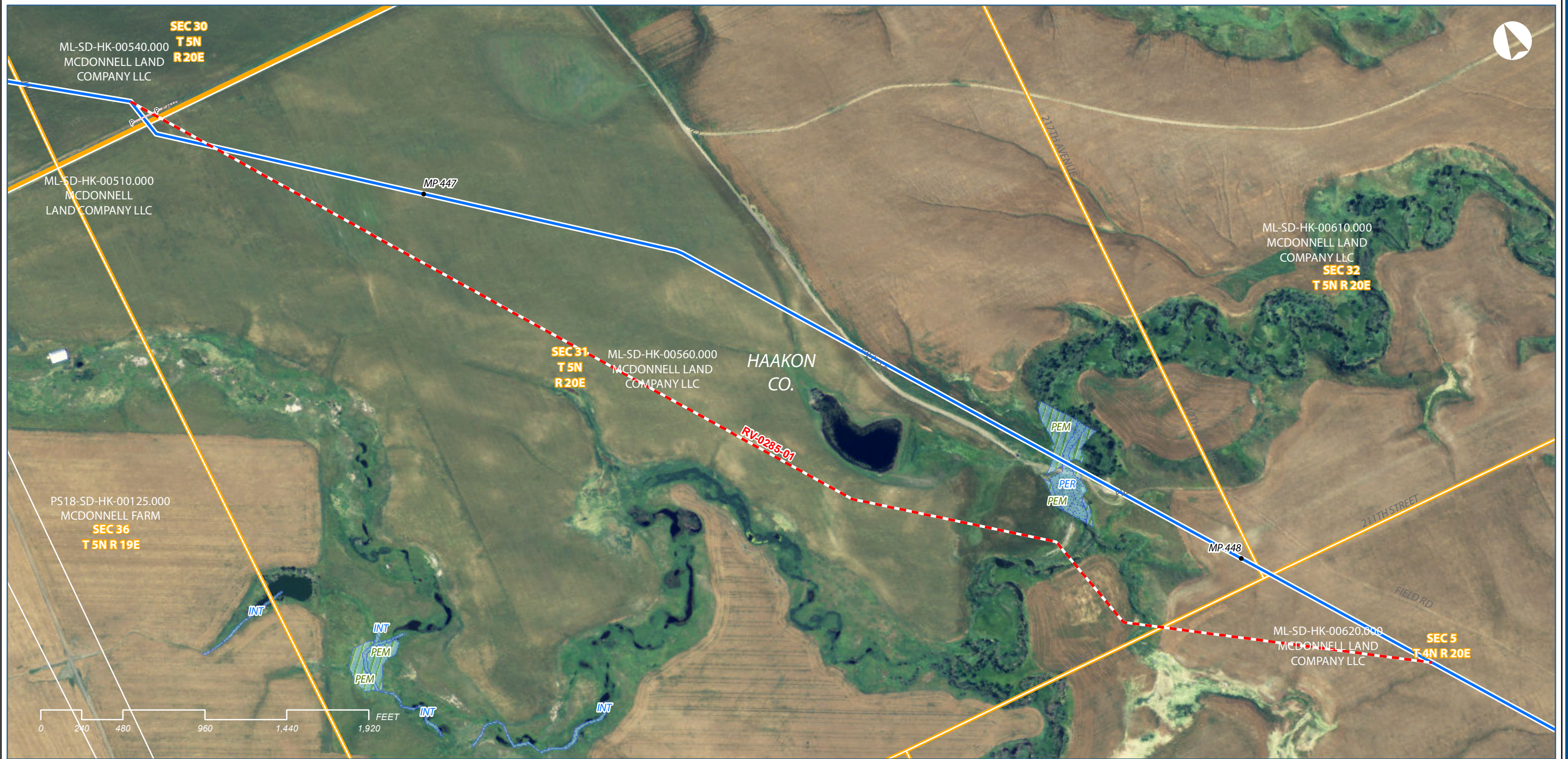
Fax to: ?

0285-SD-P4-446.6-448.2-S

KEYSTONE XL PIPELINE PROJECT

0285-SD-P4-446-6-448-2-S

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM		
Date: <u>3/20/2012</u> Description: <small>The primary reason for this reroute is to avoid a bad creek crossing (crossing too close to the road, involves wetland area and a lot of tree removal).</small>	Tracking Number: <u>0285-SD-P4-446-6-448-2-S</u> MP: <u>446.7</u> to <u>448.2</u> Originated By: <u>Engineering</u> Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
TransCanada - Land Tina Hall Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <i>Tina Hall</i> Date: <u>4/18/12</u> If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
TransCanada - Engineering Meera Kothari Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <i>Meera Kothari</i> Date: <u>6/21/12</u> If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
Exp - Engineering Butch Wallace Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <i>Butch Wallace</i> Date: <u>6-19-2012</u> If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
Exp - Environmental Jonathan Minton Comments: <u>Pending Survey</u>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <i>Jonathan Minton</i> Date: <u>5-1-12</u> If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
Stantec - Risk Assessment Heidi Tillquist Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
Facilities - TransCanada Sandra Gigovic Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
TransCanada - PM (Montana) Alan Lietz Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
TransCanada - PM (South Dakota) James Odom Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
TransCanada - PM (Nebraska) Robert Bradley Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
TransCanada - Keystone XL Manager Steve Marr Comments: <div style="border: 1px solid black; height: 30px;"></div>	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> Date: _____ If Rejected Why? <div style="border: 1px solid black; height: 30px;"></div>	
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"/>		



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

KEYSTONE PHASE IV, US
Proposed Route Variation 0285-01

COUNTY:	HAAKON	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 UTM14 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