

KEYSTONE XL PIPELINE PROJECT

0515-SD-P4-346.6-347.2-S

KEYSTONE XL PIPELINE PROJECT PIPELINE ROUTE VARIATION FORM			
1	VARIATION TYPE:	Refinement: <input type="text"/>	Reroute: <input checked="" type="checkbox"/> X
		Footprint: <input type="text"/>	Design: <input checked="" type="checkbox"/> X
		Centerline: <input checked="" type="checkbox"/> X	Pump Station: <input type="text"/>
		Valve Site: <input type="text"/>	CAR: <input type="text"/>
2	LOCATION:	Sketch: <input type="text" value="Attached"/>	Pictures: <input type="text" value="N/A"/>
	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="016N"/>	Range: <input type="text" value="007E, (008E)"/>	Aerial Map: <input type="text" value="See attached map sheet"/>
	Section: <input type="text" value="25, 36, (31)"/>	Centerline: <input type="text" value="11/18/2012"/>	MP: <input type="text" value="346.60"/> to <input type="text" value="347.22"/>
3	REASON FOR ROUTE VARIATION (Please include reason for route variation):		
	<p>The primary reason for this route variation is to avoid impacting eligible pehistoric cultural site (SN # 39HN1202 or C710HA009) by shifting the CL/workspaces southwest, thus avoiding the need for treatment/mitigation measures.</p> <p>This reroute is requested by Environmental and has been verified by field reconnaissance (civil survey).</p>		
	DETAIL ROUTE VARIATION (Please describe route variation in detail):		
	<p>The proposed route variation begins near MP 346.6 and deviates ~15° west from the current CL and continues for ~1,093 ft before rounding into a 2,246 ft. stretch where it connects back to the CL near MP 347.2.</p> <p>5 Tracts impacted: ML-SD-HA-02990.000 (Dwight A. and Sandra Laffin Reedy) ML-SD-HA-03000.000 (Dale D. Horton) - To be offline ML-SD-HA-13010.000 (State of South Dakota) ML-SD-HA-13020.000 (State of South Dakota) ML-SD-HA-13030.000 (Marsha Lytle)</p>		
	ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.):		
	<p>Additional costs are associated with environmental survey.</p> <p>Miscellaneous cost savings include: Treatment/mitigation (includes: Mitigation plan and approval by agencies, field work and report, etc) ~\$200,000-\$250,000</p> <p>The reroute increases pipe length by 158 ft.</p>		
	Is there an increase/decrease in the number of crossings?	Yes <input type="text"/>	No <input checked="" type="checkbox"/> X
	If yes, please list: <input type="text"/>		
	COST ANALYSIS (costs incurred or saved from the route variation)		
	Additional length of route realignment:	<input type="text" value="158"/> ft.	\$ 56,733.26 \$ 360/ft
	Additional length of side-hill construction:	<input type="text"/> ft.	\$ - \$ 19/ft
	Additional length of wetland construction:	<input type="text"/> ft.	\$ - \$ 195/ft
	Additional bore length (Road, RR):	<input type="text"/> ft.	\$ - \$ 540/ft
	Additional foreign line/pipeline crossings:	<input type="text"/> EA	\$ - \$ 30,000/EA
	Additional water body crossing (streams, ponds, etc.):		
	35 - 65' +	<input type="text"/> EA	\$ - \$ 185,000/EA
	10' - 19'	<input type="text"/> EA	\$ - \$ 77,250/EA
	Less than 10'	<input type="text"/> EA	\$ - \$ 32,500/EA
	Additional survey required:		
	Civil:	<input type="text" value="0.00"/> mile	\$ - \$ 5,000/mile
	Cultural:	<input type="text" value="0.42"/> mile	\$ 1,049.77 \$ 2,500/mile
	Biological:	<input type="text" value="0.42"/> mile	\$ 1,175.75 \$ 2,800/mile
	Miscellaneous costs saved or added due to route variation from ADDITIONAL IMPACTS listed above:		\$ (250,000)
	Overall estimated costs of the route variation:	<input type="text" value="\$ (191,041.22)"/> (See "Additional Impacts" above)	

4 LAND / TransCanada Tina Hall	
a) Is a new landowner affected by the proposed variation?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
b) Is the affected landowner/tract a possible condemnation?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
c) Does proposed route variation impact Tribal Lands?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
d) Does proposed route variation impact any Federal/State Lands?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
-If yes, name type (i.e. USFWS, BLM, etc.): <input type="text" value="State of South Dakota"/>	
e) Is proposed realignment outside the easement/workspace?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
f) Is realignment proposed to satisfy landowner request?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
-If yes, name of landowner(s)/track number(s): <input type="text"/>	
g) Has all the evaluation criteria been examined/provided for this specific discipline?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
If no, please explain why: <input type="text"/>	
5 ENGINEERING/CONSTRUCTION - TransCanada Meera Kothari	
a) Maximum deviation perpendicular to proposed alignment:	<input type="text" value="330"/> ft.
b) Does variation (CL) (including workspaces) falls within 500 ft. MDEQ Corridor?	Yes <input type="text" value="N/A"/> No <input type="checkbox"/>
c) Has the centerline been staked for construction?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
d) Does route variation affect HDD crossing alignment?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
e) Is realignment proposed for engineering/construction reasons?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
f) Will the route variation require the relocation of a pump station?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
g) Has all the evaluation criteria been examined/provided for this specific discipline?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
If no, please explain why: <input type="text"/>	
6 ENVIRONMENTAL / TransCanada Sandra Barnett	
a) Has the corridor been environmentally surveyed?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
b) Has the proposed variation been environmentally surveyed?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
c) Does proposed route variation impact Sage Grouse areas?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
d) Does route variation impact ABB areas?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
e) Was variation proposed to satisfy environmental issues?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
f) Was realignment proposed to satisfy agency request?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
-If yes, name of agency(s): <input type="text"/>	
g) Environmental features:	
Added (+): <input type="text"/>	Subtracted (-): <input type="text"/>
Wetland ID # for newly impacted wetlands: <input type="text"/>	
h) Has all the evaluation criteria been examined/provided for this specific discipline?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
If no, please explain why: <input type="text"/>	
7 ENGINEERING / FACILITIES AND HYDRAULICS (if applicable) Sandra Gigovic	
a) Will the route variation require the relocation of a pump station?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
b) Will route variation impact hydraulics?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
c) Are additional valves required at HCA's or water crossing?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
d) Has all the evaluation criteria been examined/provided for this specific discipline?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
If no, please explain why: <input type="text"/>	
8 STAKEHOLDER RELATIONS / TCPL (if applicable) Bud Andersen	
a) Does the variation result in any new stakeholders?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
b) Does the variation require follow-up with specific stakeholder groups?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
c) Was the variation proposed to satisfy stakeholder request?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
-If yes, please specify issue type (as it aligns to stakeholder database): <input type="text"/>	
d) Has all the evaluation criteria been examined/provided for this specific discipline?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
If no, please explain why: <input type="text"/>	
9 Originator: <input type="text" value="Environmental"/> Date: <input type="text" value="7/10/2013"/>	10 Received by: <input type="text"/> Date: <input type="text"/> Fax to: ?
11 Assigned Tracking Number: <input type="text" value="0515-SD-P4-346.6-347.2-S"/>	12 Filed by: <input type="text"/> Date: <input type="text"/> Fax to: ?

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KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM		
Date: 7/10/2013	Tracking Number: 0515-SD-P4-346.6-347.2-S	
Description: The primary reason for this route variation is to avoid impacting eligible prehistoric cultural site (SN # 39HN1202 or C710HA009) by shifting the CL/workspaces southwest, thus avoiding the need for treatment/mitigation measures.	MP: 346.6 to 347.2	Originated By: Environmental
	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"/>	
Comments:	Date: 7-16-13	
	If Rejected Why? Will require new certified Plats for	
TransCanada - Engineering Meera Kothari	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date: 7/11/13	
	If Rejected Why?	
Exp - Engineering Kevin McGlynn	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date:	
	If Rejected Why?	
TransCanada - Environmental Sandra Barnett	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date: 7/23/13	
	If Rejected Why? Pending Survey	
Stantec - Risk Assessment Heidi Tillquist	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date:	
	If Rejected Why?	
TransCanada - Facilities Sandra Gigovic	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date:	
	If Rejected Why? See p 2	
TransCanada - PM (Montana) Alan Lietz	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date:	
	If Rejected Why?	
TransCanada - PM (South Dakota) James Odom	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date: 20 Aug-13	
	If Rejected Why?	
TransCanada - PM (Nebraska) Robert Bradley	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date:	
	If Rejected Why?	
TransCanada - Area Manager Steve Marr	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments:	Date:	
	If Rejected Why?	
Forward to: Tina Hall <input type="checkbox"/> Sandra Barnett <input type="checkbox"/> James Odom <input type="checkbox"/> Meera Kothari <input type="checkbox"/> Heidi Tillquist <input type="checkbox"/> Robert Bradley <input type="checkbox"/> Kevin McGlynn <input type="checkbox"/> Sandra Gigovic <input type="checkbox"/> Steve Marr <input type="checkbox"/> Alan Lietz <input type="checkbox"/>		

0515-SD-P4-346.6-347.2-S

the state of SD
Treats

KEYSTONE XL PIPELINE PROJECT

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM	
Date: <u>7/10/2013</u> Comments: <u>The primary reason for this route variation is to avoid impacting eligible paleontologic cultural sites (681 & 369N1202 or C710H4008) by shifting the CI workspaces southwest, thus avoiding the need for treatment/mitigation measures.</u>	Track Number: <u>0515-SD-P4-346.8-347.2-S</u> MP: <u>346.8</u> to <u>347.2</u> Originated By: <u>Environmental</u> Variation Form Allowed: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Project Name: <u>The Hill</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Maple Knob</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Keya Moccasin</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Stark Ranch</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Held Forest</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Stark Ranch</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date: <u>2014</u>
Project Name: <u>Alm Dale</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Stark Ranch</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Robert Bradley</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Project Name: <u>Stark Ranch</u> Comments:	Variation: <input type="checkbox"/> Approved <input type="checkbox"/> Rejected Date:
Approved By: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Kevin Moccasin	Approved By: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Robert Bradley Steve Mar

0515-SD-P4-346.8-347.2-S

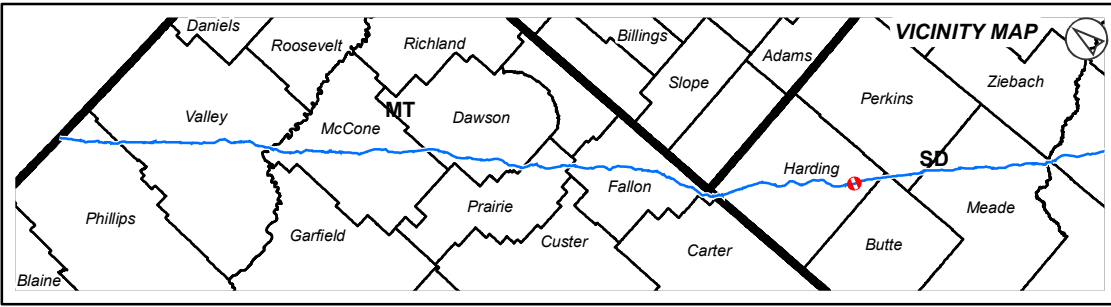
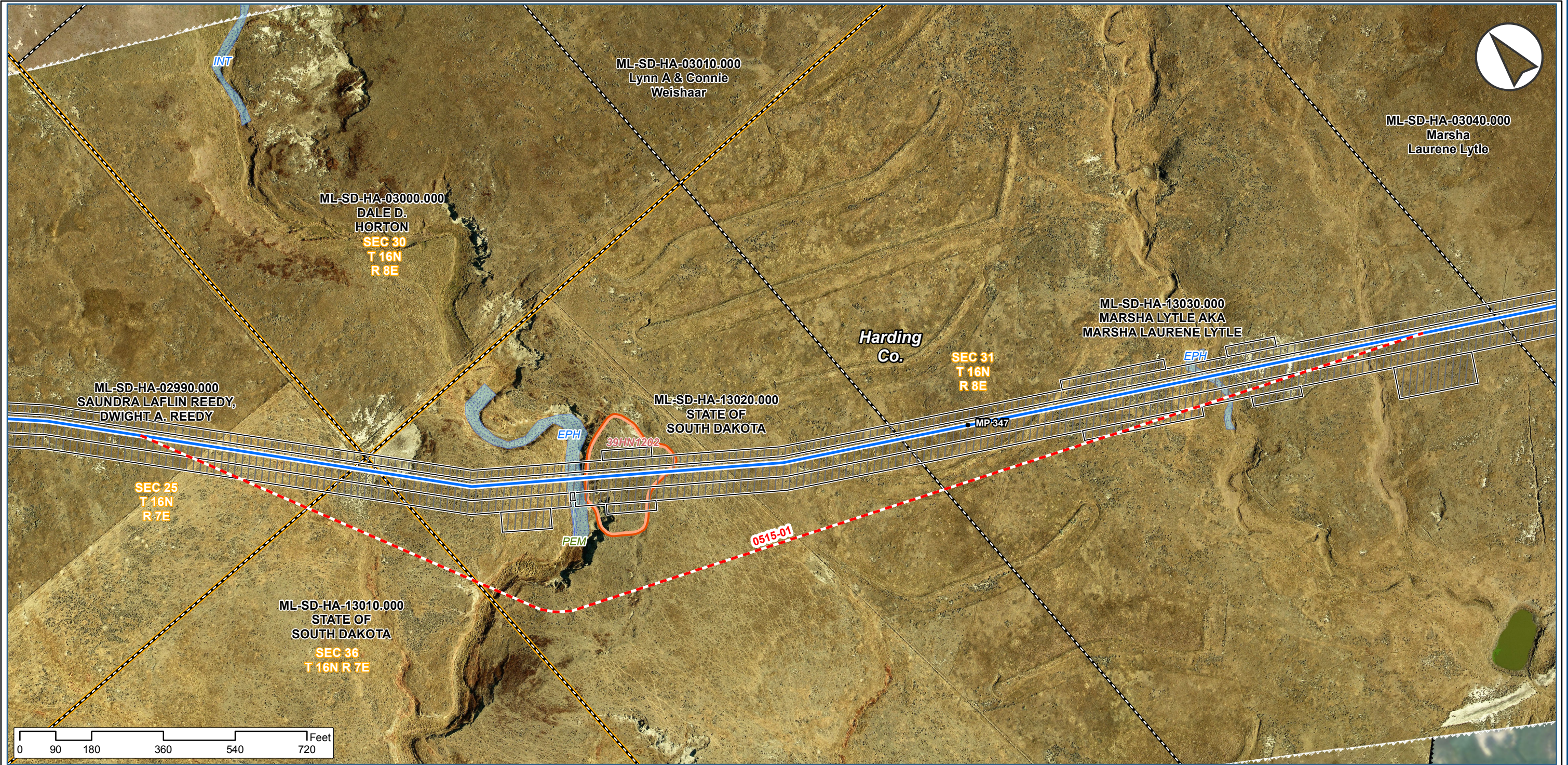
2014

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0515-SD-P4-346-6-347-2-S

KEYSTONE XL PIPELINE PROJECT ROUTE VARIATION AUTHORIZATION FORM		
Date: <u>7/10/2013</u>	Tracking Number: <u>0515-SD-P4-346-6-347-2-S</u>	
Description: <u>The primary reason for this route variation is to avoid impacting eligible prehistoric cultural site (SN # 38HN1202 or C710HA009) by shifting the CL/workspaces southwest, thus avoiding the need for treatment/mitigation measures.</u>	MP: <u>346.6</u> to <u>347.2</u>	
	Originated By: <u>Environmental</u>	
	Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<u>TransCanada - Land</u> Tina Hall	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	<i>Tina Hall</i> Date: <u>8-21-13</u>	
	If Rejected Why? <input type="text"/>	
<u>TransCanada - Engineering</u> Meera Kothari	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	Date: <input type="text"/>	
	If Rejected Why? <input type="text"/>	
<u>Exp - Engineering</u> Kevin McGlynn	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	<i>K McGlynn</i> Date: <u>8-21-13</u>	
	If Rejected Why? <input type="text"/>	
<u>TransCanada - Environmental</u> Sandra Barnett	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	<i>Sandra Barnett</i> Date: <u>8/21/13</u>	
	If Rejected Why? <u>Pending Survey</u>	
<u>Stantec - Risk Assessment</u> Heidi Tillquist	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	Date: <input type="text"/>	
	If Rejected Why? <input type="text"/>	
<u>TransCanada - Facilities</u> Sandra Gigovic	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	Date: <input type="text"/>	
	If Rejected Why? <input type="text"/>	
<u>TransCanada - PM (Montana)</u> Alan Lietz	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	Date: <input type="text"/>	
	If Rejected Why? <input type="text"/>	
<u>TransCanada - PM (South Dakota)</u> James Odom	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	<i>J Odom</i> Date: <u>21-Aug-13</u>	
	If Rejected Why? <input type="text"/>	
<u>TransCanada - PM (Nebraska)</u> Robert Bradley	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	Date: <input type="text"/>	
	If Rejected Why? <input type="text"/>	
<u>TransCanada - Area Manager</u> Steve Marr	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/>	
Comments: <input type="text"/>	Date: <input type="text"/>	
	If Rejected Why? <input type="text"/>	
Forward to: Tina Hall <input type="checkbox"/> Meera Kothari <input type="checkbox"/> Kevin McGlynn <input type="checkbox"/>	Sandra Barnett <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"/>

MOC #	Mile Post	Tracks	Approved	Rejected	Comments	Recommendations
0515-SD-P4-346.6-347.2-S	346.6-347.22	ML-SD-HA-02990	X		Pending Survey	
		ML-SD-HA-03000	X		Pending Survey	
		ML-SD-HA-13010	X		Pending Survey	
		ML-SD-HA-13020	X		Pending Survey	
		ML-SD-HA-13030	X		Pending Survey	
0514-SD-P4-362-362.6	362-362.6	ML-SD-BU-00120	X		Pending Survey	
		ML-SD-PE-00010	X		Pending Survey	
0484-MT-P4-260.3-260.8-S	260.3-260.8	ML-MT-FA-00610	X		Pending Survey	
		ML-MT-FA-00620	X		Pending Survey	
0472-MT-P4-167.9-168.2-S	167.9-168.2	ML-MT-DA-00095	X		Pending Survey	



LEGEND

- Milepost
- Valve
- Power Pole
- Centerline (2012-11-18)
- Route Variation
- Access Road
- Overhead Power Line
- Cultural Site
- Workspace
- Wash Station
- Property Parcel
- Section Line
- County Line
- Waterbody
- Wetland
- MDEQ Corridor

KEYSTONE XL PROJECT
PROPOSED ROUTE VARIATION

COUNTY:	HARDING	DRAWN BY:	RJM
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW.	2013-06-27	

PREPARED BY:
exp Energy Services Inc.
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U.S.A.
www.exp.com

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• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •