

KEYSTONE XL PIPELINE PROJECT

0289-SD-P4-XXX.X-XXX.X-I

KEYSTONE XL PIPELINE PROJECT PIPELINE ROUTE VARIATION FORM	
1	VARIATION TYPE: Refinement: <input checked="" type="checkbox"/> Reroute: <input type="checkbox"/> Footprint: <input type="checkbox"/> Design: <input type="checkbox"/> Centerline: <input checked="" type="checkbox"/> Pump Station: <input checked="" type="checkbox"/> Valve Site: <input type="checkbox"/> CAR: <input type="checkbox"/>
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="Haakon, Jones"/> Quad Map: <input type="text" value="N/A"/> Township: <input type="text" value="Various"/> Range: <input type="text" value="Various"/> Aerial Map: <input type="text" value="See attached map sheets"/> Section: <input type="text" value="Various"/> Centerline: <input type="text" value="3/14/2012"/> MP: <input type="text" value="XXX.X"/> to <input type="text" value="XXX.X"/>
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p>This report consists of 2 proposed route refinements. These route refinements are proposed to slightly shift the CL to match the Facility Layout through Pump Stations. The reason for each route variation is listed in the "Supplemental Info" tab.</p> <p>The route variations have been proposed based on shapefiles received from the Facilities group, as well as pictometry and other aerals.</p> </div>
	DETAIL ROUTE VARIATION (Please describe route variation in detail): <div style="border: 1px solid black; padding: 5px; min-height: 100px;"> <p>Listed in "Supplemental Info" Tab.</p> <p>No new landowners have been affected by the proposed route variations. The tracts impacted are as follows:</p> <p>RV-0289-01 = 3 tracts impacted: ML-SD-HK-00450.000 (Mark & Patricia Hanrahan), ML-SD-HK-00460.000 (Seven Blackfoot Ranch, L.L.C.), and ML-SD-HK-00480.000 (Seven Blackfoot Ranch, L.L.C.)</p> <p>RV-0289-02 = 2 tracts impacted: ML-SD-JO-10295.000 (West Rio Land & Cattle LTD) and ML-SD-JO-10310.000 (Gary Ferdig, Trustee...)</p> </div>
	ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): <div style="border: 1px solid black; padding: 5px; min-height: 50px;"> <p>Listed in "Cost Analysis" Tab.</p> </div>
9	Originator: <input type="text" value="Engineering"/> Date: <input type="text" value="3/22/2012"/>
10	Received by: <input type="text"/> Date: <input type="text" value="3/22/2012"/> <i>Fax to: ?</i>
11	Assigned Tracking Number: <input type="text" value="0289-SD-P4-XXX.X-XXX.X-I"/>
12	Filed by: <input type="text"/> Date: <input type="text"/> <i>Fax to: ?</i>

Keystone XL Pipeline - Supplemental Information for Route Variation Report 0289

Prepared: 2012-03-22

RV ID	MP Start	MP End	State	County	Section	Township	Range	Original Length (ft)	Reroute Length (ft)	Change in Length (ft)	Max. Perp. Deviation (ft)	Reason for Variation	Brief Variation Description	Additional Impacts/Comments	Originator
0289-01	444.02	444.19	SD	Haakon	22, 23	05N	19E	925	925	0	5	To shift CL slightly to match the facility layout through PS-18 (Haakon). Alignment with the valve clusters.	Route variation starts near MP 444.0 and deviates ~7.5' east from CL. It continues in this direction for ~ 909 ft., then it turns slightly southeast and extends in this direction for ~ 15 ft. to rejoin the current CL near MP 444.2.		Engineering
0289-02	499.83	500.52	SD	Jones	01, 02	01S	27E	3,652	3,650	-2	20	To shift CL slightly to match the facility layout through PS-19 (Murdo). Alignment with the valve clusters.	Route variation starts near MP 499.8 and deviates ~8.5' northeast of current CL. It extends in this direction for ~3,654 ft after which it rejoins the current CL near MP 500.5.		Engineering

RV ID	Civil Survey Complete?	Civil Survey Needed (ft)	Moves Pump Station?	Moves Valve Site?	In Co-located Area?	Does route variation impact ABB areas?	Biological Survey Complete for Existing Corridor?	Cultural Survey Complete for Existing Corridor?	Biological Survey Complete for Proposed Corridor?	Cultural Survey Complete for Proposed Corridor?	Estimated Length Requiring new Environmental Surveys (ft)	Number of New Landowners impacted by reroute	Number of Landowners on current route impacted by reroute	Is the affected landowner a possible condemnation?	Number of tracts purchased on original route.	Does proposed route variation impact Tribal Lands?	Does proposed route variation impact any Federal/State Lands?
0289-01	NO	0	NO	NO	NO	NO	Yes	Yes	Yes	Yes	0	0	3		3	NO	NO
0289-02	NO	0	NO	NO	NO	NO	Yes	Yes	Yes	Yes	0	0	2		2	NO	NO

Keystone XL Pipeline - Cost Analysis for Route Variation Report 0289

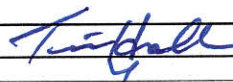
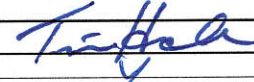


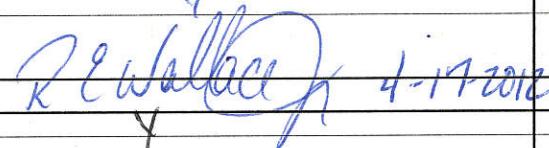
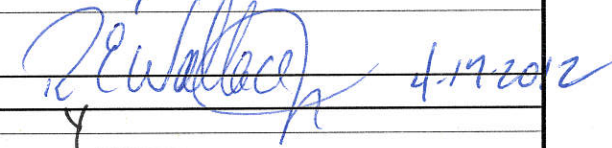
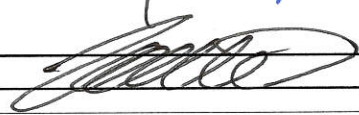
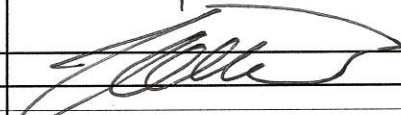

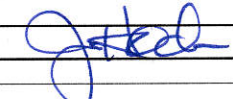
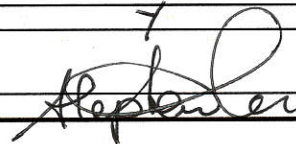
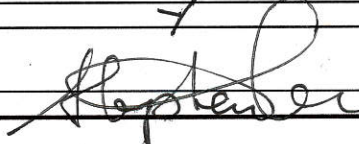
Prepared: 2012-03-22

RV ID	Additional length (ft)	Cost \$360/ft	Additional length of wetland construction (ft)	Cost \$195/ft	Additional length of side hill construction (ft)	Cost \$19/ft	Additional bore length (ft)	Cost \$540/ft	Additional Waterbody crossings	Cost (\$77,250/EA btw 10' - 19') (\$32,500/EA < 10')	Cost of Environmental survey (\$5,300/mile)	Cost of Civil survey (\$5,000/mile)	Approximate cost for land purchased on current centerline	Miscellaneous cost for additional impacts	Total Cost
0289-01	-0.1	\$ (25.56)	0	\$ -	0	\$ -		\$ -	0	\$ -	\$ -		\$ -		\$ (25.56)
0289-02	-2	\$ (673.34)	0	\$ -	0	\$ -		\$ -	0	\$ -	\$ -		\$ -		\$ (673.34)

Overall Estimated Costs of Routes Variations= \$ (698.90)

Keystone XL Pipeline - Approval form for Route Variation Report 0289

Prepared: 2012-03-22

RV ID		0289-01	0289-02
LAND (TransCanada) Tina Hall	Approval (Y/N)	Y	Y
	Comments		
	Signature		
ENGINEERING (TransCanada) Meera Kothari	Approval (Y/N)		
	Comments		
	Signature		
ENGINEERING (exp) Butch Wallace	Approval (Y/N)		
	Comments	R E Wallace 4-17-2012	R E Wallace 4-17-2012
	Signature		
ENVIRONMENTAL (exp) Jonathan Minton	Approval (Y/N)		
	Comments		
	Signature		
FACILITIES (TransCanada) Sandra Gigovic	Approval (Y/N)		
	Comments		
	Signature		
PROJECT MANAGEMENT - MONTANA (TransCanada) Alan Lietz	Approval (Y/N)		
	Comments		
	Signature		
PROJECT MANAGEMENT - SOUTH DAKOTA (TransCanada) James Odom	Approval (Y/N)	Y	Y
	Comments		
	Signature		
PROJECT MANAGEMENT - NEBRASKA (TransCanada) Robert Bradley	Approval (Y/N)		
	Comments		
	Signature		
KEYSTONE XL MANAGER (TransCanada) Steve Marr	Approval (Y/N)	Y	Y
	Comments		
	Signature		

Keystone XL Pipeline - Approval form for Route Variation Report 0289

Prepared: 2012-03-22

RV ID		0289-01	0289-02
LAND (TransCanada) Tina Hall	Approval (Y/N)		
	Comments		
	Signature		
ENGINEERING (TransCanada) Meera Kothari	Approval (Y/N)		
	Comments		
	Signature		
ENGINEERING (exp) Butch Wallace	Approval (Y/N)		
	Comments		
	Signature		
ENVIRONMENTAL (exp) Jonathan Minton	Approval (Y/N)		
	Comments		
	Signature		
FACILITIES (TransCanada) Sandra Gigovic	Approval (Y/N)	<i>Yes</i>	<i>No</i>
	Comments	<i>RV-0289-01 checked against PS-18 layout to be correct. Gigovic A</i>	<i>RV-0289-02 does not match the layout within TS-19. July 26 2012 Gigovic A (sketch attached)</i>
	Signature		
PROJECT MANAGEMENT - MONTANA (TransCanada) Alan Lietz	Approval (Y/N)		
	Comments		
	Signature		
PROJECT MANAGEMENT - SOUTH DAKOTA (TransCanada) James Odom	Approval (Y/N)		
	Comments		
	Signature		
PROJECT MANAGEMENT - NEBRASKA (TransCanada) Robert Bradley	Approval (Y/N)		
	Comments		
	Signature		
KEYSTONE XL MANAGER (TransCanada) Steve Marr	Approval (Y/N)		
	Comments		
	Signature		

Sandra Gigovic

From: Casuga, Hans Christian (Edmonton) [HansChristian.Casuga@WorleyParsons.com]
Sent: Thursday, July 26, 2012 2:49 PM
To: Sandra Gigovic
Cc: Omar Hasan; Lehmann, Ross (Edmonton)
Subject: RE: 4 NEW Proposed Reroutes - Impact Valves and PumpStations - South Dakota
Importance: High
Attachments: P-19 - TIE POINT LOCATION.pdf

Sandra,

I've checked the pipeline working centerline of the proposed re-route on PS-19 received as per email below, it doesn't match with the current layout for PS-19. See attached sketch.
For PS-18 the pipeline centerline matches the Station Layout.

Hans Christian L. Casuga

Piping Designer

Pipeline Systems Business Unit

Edmonton Operations, WorleyParsons Canada

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Mailing address: Suite 120, 5008-86th Street, Edmonton, AB, T6E 5S2, Canada

Building address: 10045 111 Street, Harley Court, 4th floor, Edmonton, AB T5K 2M5, Canada

www.worleyparsons.com

From: Sandra Gigovic [mailto:sandra_gigovic@transcanada.com]
Sent: Thursday, March 22, 2012 2:51 PM
To: Lehmann, Ross (Edmonton); Kia'i, Mehrdad (Edmonton); Casuga, Hans Christian (Edmonton); McDonald, Casey (Edmonton)
Cc: Petru Isac; Omar Hasan; Victor Cabrejo
Subject: FW: 4 NEW Proposed Reroutes - Impact Valves and PumpStations - South Dakota

Hi Ross,

It seems that the attached reroutes will impact our pump station and valve sites.

Please review and let me know the impact or if any additional info is required.

Thanks,

Sandra

From: Ysela Love [mailto:ysela.love@exp.com]
Sent: Thursday, March 22, 2012 2:07 PM
To: James Odom; Meera Kothari; Tina Hall; Butch Wallace; Jonathan Minton; Sandra Gigovic
Cc: Stephen Craycroft; Tim Irons; Lonnie Barber; keithbuckalew@aol.com; Phil Hammons; Dave Hill; Justin Preikschas; Brad Smith; Daniel Wallien; Zisi Santos (zisi.santos@universalpegasus.com); Wayne Wienstroer
Subject: 4 NEW Proposed Reroutes - Impact Valves and PumpStations - South Dakota

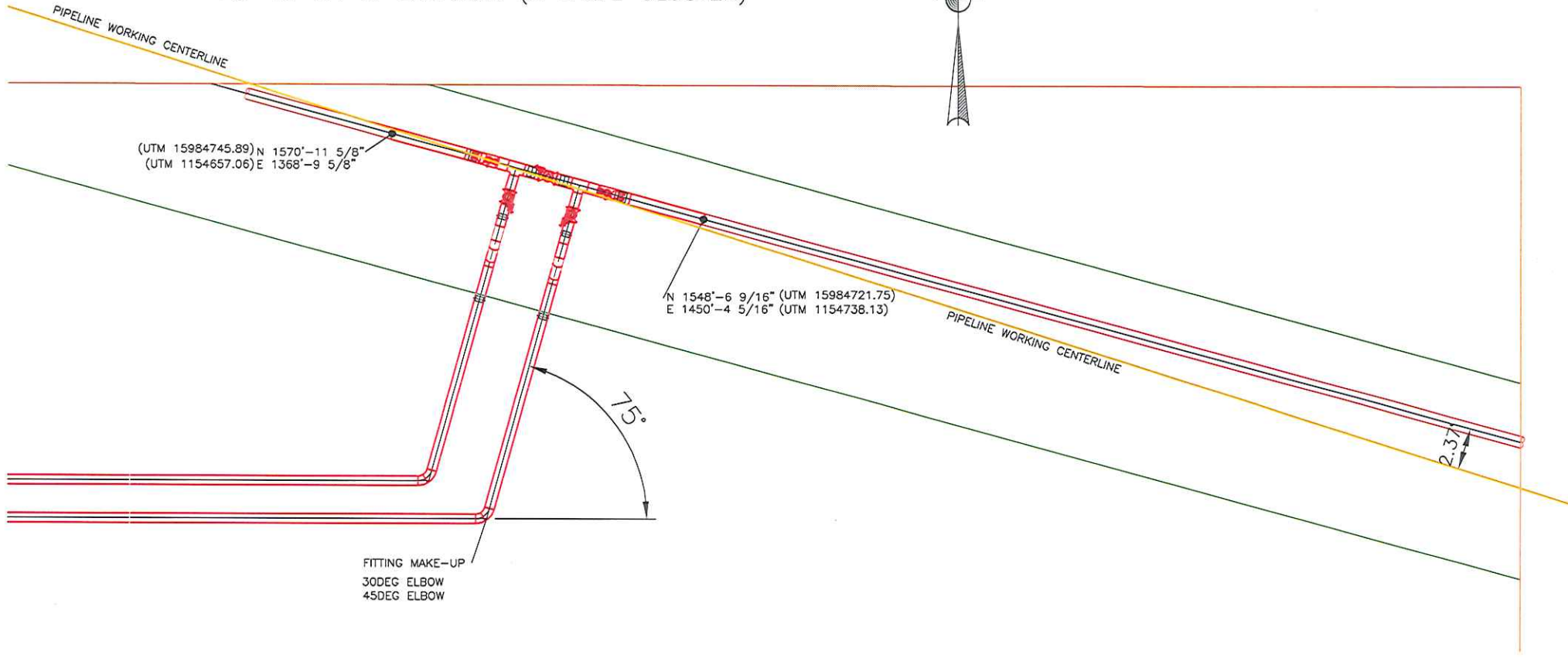
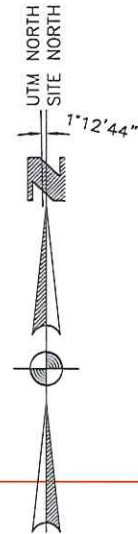
All –

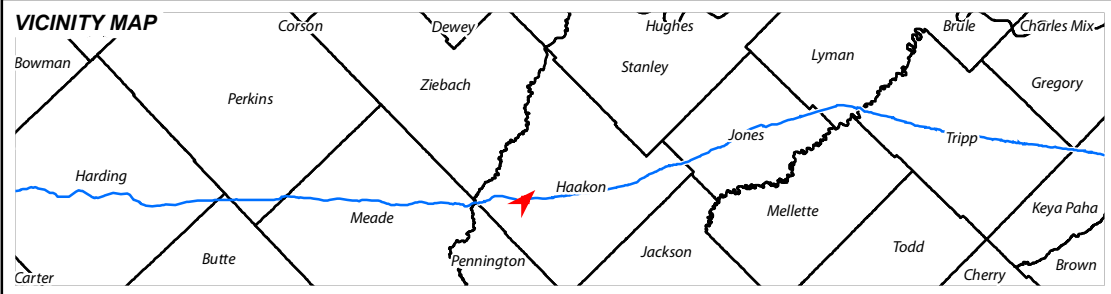
Please find attached 4 New Proposed Route Variations to the 03/14/2012 CL/footprint in South

7/26/2012

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PS-19 TIE-IN LOCATION (3 VALVE CLUSTER)





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
- ▬ CULVERT

KEYSTONE XL PROJECT

Proposed Route Variation 0289-01

COUNTY:	HAAKON	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW.	2012-03-21	

PRELIMINARY

DATE:	2012-03-21	PROJECTION:	NAD83 UTM14 N
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PREPARED BY:

exp Energy Services Inc.

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1300 Metropolitan Blvd.
Tallahassee, FL 32308
U.S.A.

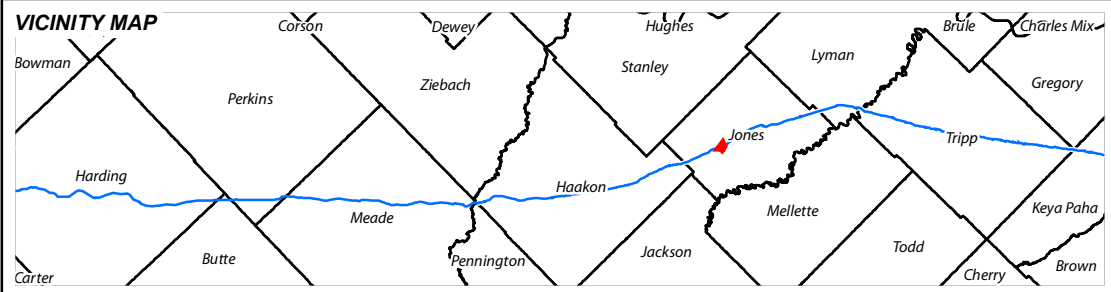
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- INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

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

KEYSTONE XL PROJECT

Proposed Route Variation 0289-02

COUNTY:	JONES	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	0	REVISION	ISSUED FOR REVIEW.
		DATE	2012-03-21

PRELIMINARY

DATE:	2012-03-21	PROJECTION:	NAD83 UTM14 N
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PREPARED BY:

exp Energy Services Inc.

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