

CONFIDENTIAL

Valve and Pump Station Relocation Rationale Keystone Pipeline Project March 22, 2007

LINE	Old MP - mi -	New MP - mi -	COUNTY	STATE	OBJECT	OBJECT ID	RATIONALE FOR RELOCATION
KEYSTONE MAINLINE							
ML	5.592	5.592	Cavalier	ND	VALVE	V-01	
ML	8.220	8.220	Pembina	ND	VALVE	V-02	
ML	16.756	16.756	Pembina	ND	VALVE	V-03	
ML	19.518	19.518	Pembina	ND	VALVE	V-04	
ML	33.032	33.032	Walsh	ND	PUMP STATION	PS-15	
ML	-	49.450	Walsh	ND	VALVE	V-47	New Valve: Check valve which protects Lankin PA and surface water HCA on South Park River below Hammel Reservoir
ML	75.916	75.916	Nelson	ND	PUMP STATION	PS-16	
ML	123.411	123.411	Steele	ND	PUMP STATION	PS-17	
ML	167.219	167.219	Barnes	ND	VALVE	V-05	
ML	170.222	170.222	Ransom	ND	PUMP STATION/ PIGGING FACILITY	PS-18	
ML	179.601	179.601	Ransom	ND	VALVE	V-06	
ML	184.696	184.696	Ransom	ND	VALVE	V-07	
ML	-	201.879	Sargent	ND	VALVE	V-51	New Valve: Valve will protect downstream aquifer located between MP 203-217
ML	216.820	216.820	Dickey	ND	PUMP STATION	PS-19	
ML	-	239.939	Marshall	SD	VALVE	V-48	New Valve: Valve reduces distance between facilities to reduce overall maximum spill volumes
ML	262.161	262.161	Day	SD	PUMP STATION	PS-20	
ML	-	276.398	Clark	SD	VALVE	V-52	New Valve: valve will protect downstream aquifer located between MP 278-290
ML	292.908	292.908	Clark	SD	VALVE	V-08	
ML	300.932	300.932	Clark	SD	VALVE	V-09	
ML	308.950	309.038	Clark	SD	PUMP STATION	PS-21	Pump station was moved across street out of Clark County and into Beadle County
ML	-	330.761	Kingsbury	SD	VALVE	V-49	New Valve: Valve reduces distance between facilities to reduce overall maximum spill volumes
ML	353.501	353.501	Miner	SD	VALVE	V-10	
ML	356.820	356.820	Miner	SD	PUMP STATION	PS-22	
ML	365.864	372.225	Hanson	SD	VALVE	V-11	Moves V-11 to protect aquifer located between MP 358-371
ML	391.765	387.673	McCook	SD	VALVE	V-12	Moves V-12 to north side of Wolf Creek ESA
ML	404.853	404.853	Hutchinson	SD	PUMP STATION/ PIGGING FACILITY	PS-23	
ML	420.790	417.485	Yankton	SD	VALVE	V-13	Moves V-13 further north from James River ESA to capture tributary of James River
ML	422.548	-	Yankton	SD	VALVE	V-14	Eliminated V-14, V-15 will serve as valve on the north side of the Missouri River, protecting James River, Beaver Creek, and HCAs associated with the James and Missouri rivers area
ML	434.066	429.912	Yankton	SD	VALVE	V-15	Moves V-15 further north of Yankton PA, protecting James River, Beaver Creek, and HCAs associated with the James and Missouri rivers area
ML	438.754	444.093	Cedar	NE	VALVE	V-16	Move V-16 further downstream to protect Yankton, Surface DW USA and multiple Missouri River ESAs
ML	452.691	452.691	Cedar	NE	PUMP STATION	PS-24	
ML	499.099	499.099	Stanton	NE	PUMP STATION	PS-25	
ML	505.375	505.375	Stanton	NE	VALVE	V-17	
ML	532.146	532.146	Colfax	NE	VALVE	V-18	
ML	533.131	537.311	Colfax	NE	VALVE	V-19	Moves V-19 south, closer to Platte River and its ESAs
ML	540.926	-	Colfax	NE	VALVE	V-20	Remove V-20, V-19 will serve as valve for Platte River ESAs
ML	542.845	546.361	Butler	NE	VALVE	V-21	Move V-21 outside of Deer Creek which flows into Platte River ESAs
ML	549.536	549.536	Butler	NE	PUMP STATION	PS-26	
ML	572.026	572.026	Seward	NE	VALVE	V-22	
ML	576.086	576.086	Seward	NE	VALVE	V-23	
ML	587.284	587.284	Seward	NE	VALVE	V-24	
ML	591.748	591.748	Saline	NE	VALVE	V-25	
ML	601.802	601.802	Saline	NE	PUMP STATION	PS-27	It avoids the need for longer new overhead transmission lines and lowers the cost of the power infrastructure for the project.
ML	-	611.819	Saline	NE	VALVE	V-53	New Valve to decrease spacing between PS-27 and PS-28 and the Ogallala Aquifer
ML	625.800	625.800	Jefferson	NE	DENSITOMETER	D-1	
ML	637.301	637.301	Jefferson	NE	PUMP STATION/ PIGGING FACILITY	PS-28	
ML	658.030	654.954	Marshall	KS	VALVE	V-26	Move V-26 further east to protect Deer Creek as well as North Elm Creek ESA

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ML	660.157	667.520	Marshall	KS	VALVE	V-27	Move V-27 further west to protect North Elm Creek ESA and its tributaries
ML	681.925	681.925	Nemaha	KS	VALVE	V-28	
ML	688.198	688.198	Nemaha	KS	PUMP STATION	PS-29	
ML	690.271	698.876	Nemaha	KS	VALVE	V-29	Move V-29 (check valve) to the east of multiple surface and ground water USA buffers and also protects downstream transport along South Fork Big Nemaha River or Harris Creek
ML	-	718.343	Brown	KS	VALVE	V-54	New Valve: Valve will help isolate multiple aquifers upstream and downstream
ML	736.837	736.837	Doniphan	KS	PUMP STATION/ PIGGING FACILITY	PS-30	It avoids the need for longer new overhead transmission lines and lowers the cost of the power infrastructure for the project.
ML	747.475	741.502	Doniphan	KS	VALVE	V-30	Move V-30 further east of tributaries that flow into Missouri River ESAs
ML	749.834	749.834	Buchanan	MO	VALVE	V-31	
ML	760.962	756.000	Buchanan	MO	VALVE	V-32	Move V-32 further east to help protect tributaries that flow into Missouri River ESAs and also move east of Agency PA
ML	763.841	763.841	Buchanan	MO	VALVE	V-33	
ML	782.330	784.057	Clinton	MO	PUMP STATION	PS-31	It avoids the need for longer new overhead transmission lines and lowers the cost of the power infrastructure for the project.
ML	829.799	829.799	Carroll	MO	PUMP STATION	PS-32	
ML	839.502	839.502	Carroll	MO	VALVE	V-34	
ML	843.546	847.080	Chariton	MO	VALVE	V-35	Move V-35 to isolate aquifer and incorporate Salt Creek into isolation area
ML	859.748	859.748	Chariton	MO	VALVE	V-36	
ML	864.679	864.679	Chariton	MO	PUMP STATION	PS-33	
ML	-	883.644	Randolph	MO	VALVE	V-50	New Valve: Valve reduces distance between facilities to reduce overall maximum spill volumes
ML	903.804	898.923	Audrain	MO	PUMP STATION	PS-34	It avoids the need for longer new overhead transmission lines and lowers the cost of the power infrastructure for the project.
ML	918.380	918.380	Audrain	MO	VALVE	V-37	
ML	919.965	919.965	Audrain	MO	VALVE	V-38	
ML	947.536	944.581	Montgomery	MO	PUMP STATION	PS-35	It avoids the need for longer new overhead transmission lines and lowers the cost of the power infrastructure for the project.
ML	970.398	968.192	Lincoln	MO	VALVE	V-39	Move V-39 east of Troy PA
ML	972.803	972.803	Lincoln	MO	VALVE	V-40	
ML	980.898	980.898	Lincoln	MO	VALVE	V-41	
ML	984.865	984.865	St. Charles	MO	PUMP STATION	PS-36	Pump station will be co-located with Central Electric substation, eliminating the need for transmission power lines
ML	-	999.770	St. Charles	MO	VALVE	V-46	New Valve: Valve to protect east side of multiple ESAs (Missouri and Mississippi rivers) and surface and ground water drinking water USAs near Mississippi River
ML	1012.078	1012.078	St. Charles	MO	DENSITOMETER	D-2	
ML	1019.876	1015.119	St. Charles	MO	VALVE	V-42	Move V-42 next to Highway 67 to provide better access to valve in case of flooding
ML	1022.756	1022.756	Madison	IL	PUMP STATION/ PIGGING FACILITY	PS-37/ WOOD RIVER TERMINAL	
ML	1044.945	1044.945	Madison	IL	VALVE	V-43	
ML	1049.814	1049.814	Bond	IL	PUMP STATION	PS-38	
ML	1065.465	1065.465	Bond	IL	VALVE	V-44	
ML	1074.951	1074.951	Fayette	IL	VALVE	V-45	
ML	1077.925	1077.925	Marion	IL	PUMP STATION/ PIGGING FACILITY	PATOKA TERMINAL	

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LINE	Old MP - mi -	New MP - mi -	COUNTY	STATE	OBJECT	OBJECT ID	RATIONALE FOR RELOCATION
CUSHING EXTENSION							
CE	15.581	15.581	Washington	KS	VALVE	V-01	
CE	-	36.664	Clay	KS	VALVE	V-14	New Valve: Valve would isolate multiple aquifers
CE	49.971	49.971	Clay	KS	VALVE	V-02	
CE	53.867	53.866	Clay	KS	VALVE	V-03	
CE	74.043	67.445	Dickinson	KS	VALVE	V-04	Move V-04 north of multiple groundwater USAs and Chapman PA also moved upstream of Chapman Creek
CE	77.087	77.090	Dickinson	KS	VALVE	V-05	
CE	94.398	94.398	Dickinson	KS	PUMP STATION	CE30	
CE	113.443	102.466	Marion	KS	VALVE	V-06	Move V-06 to protect downstream side of multiple ESAs of Lyon Creek and upstream side of Mud Creek ESA, also multiple DW USAs
CE	117.453	121.507	Marion	KS	VALVE	V-07	Move V-07 downstream to protect Marion PA and Clear and Cottonwood Creeks surface water USA
CE	-	145.862	Butler	KS	VALVE	V-15	New Valve: Valve will reduce gap between V-07 and PS-CE32
CE	183.470	183.470	Cowley	KS	PUMP STATION	CE32	
CE	194.537	194.537	Cowley	KS	VALVE	V-08	
CE	10210.580	10210.580	Cowley	KS	VALVE	V-09	
CE	10224.554	10224.554	Kay	OK	DENSITOMETER	D-1-CE	
CE	228.389	228.389	Kay	OK	PUMP STATION	CE33	
CE	235.934	235.934	Kay	OK	PIGGING FACILITY	PONCA CITY TERMINAL	
CE	244.763	244.763	Noble	OK	VALVE	V-10	
CE	-	256.571	Noble	OK	VALVE	V-13	New Valve: valve protects south side of surface water USA and terrestrial ESAs at Sooner Lake and HCAs associated with Arkansas River
CE	284.333	278.242	Payne	OK	VALVE	V-11	Move V-11 further north of Cimarron River ESA and associated surface water USA
CE	279.442	279.442	Payne	OK	PAD CENTROID	D-2-CE	
CE	285.462	285.462	Payne	OK	VALVE	V-12	
CE	291.770	291.770	Payne	OK	PIGGING FACILITY	CUSHING TERMINAL	

LINE	MP - mi -	New MP - mi -			OBJECT	OBJECT ID	RATIONALE FOR RELOCATION
HCS	10217.579	10217.579	Sargent	SD	PUMP STATION	PS-19-ALT	
BCR	10981.245	10981.245	St. Charles	MO	PUMP STATION	PS-36-ALT	
BCR	10986.029	10986.029	St. Charles	MO	VALVE	V-41-ALT	
WR	11025.437	11025.437	Madison	IL	PUMP STATION/ PIGGING FACILITY	PS-37-ALT/ WOOD RIVER TERMINAL	