

## Overview of the Valve and Pump Station Relocation Rationale

### March 2007

Keystone is continually evaluating its pipeline system to identify methods that can reduce potential impacts to the environment. As part of that ongoing analysis, Keystone has relocated some valves and pump stations and has added additional valves in key locations. This submittal identifies these modifications and provides the rationale for the changes.

### Pump Stations

Since Keystone initially sited the pump stations, supplemental information has been gathered from electrical power utilities. As a result, seven pump stations have been relocated. Keystone discussed the pump stations' specific electric power requirements with local utility providers. Based on the information obtained from these providers, Keystone has moved pump stations #31 and #36 so that they will now be located adjacent to substations. Minor adjustments were made to the locations of pump stations #27, #30, #34, and #35 to reduce the length of transmission power lines required. Relocation of pump station #27 also moved the site out of native grasslands and into pasture lands. Similarly, relocation of pump station #30 moved the site out of a creek bed. Additionally, pump station #21 was relocated across the road, from Clark and into Beadle County, in an effort to equitably distribute the tax benefits among the affected counties.

### Valves

Keystone has evaluated the location of valves through an iterative process involving regulatory, environmental, and HCA considerations. While U.S. Department of Transportation (USDOT) regulations stipulate the minimum number of valves required to protect environmental resources, Keystone has elected to add additional valves to further segment the pipeline, increasing the ability of Keystone to isolate the pipeline in the unlikely event of a pipeline spill.

Initially, valves were placed in locations as required by federal regulations (49 CFR 195), including on either sides of large rivers and in areas to protect drinking water reservoirs. Further analysis has been subsequently conducted to determine if other sensitive resources could be protected by shifting these initial valve sites (while still complying with federal regulations) or by the addition of new valves. Keystone evaluated valve locations in relation to environmental resources, including HCAs and shallow aquifers.

After initial valve locations were identified, a preliminary evaluation of USDOT-defined HCAs was conducted by Keystone (Appendix B of the Keystone Risk Assessment). This evaluation identified and ranked HCAs that could be potentially affected by a pipeline spill. Upon completion of the HCA evaluation, valve locations were re-assessed to determine where relocation (while still complying with federal regulations) or the addition of new valves could mitigate potential risk to HCAs.

These revised locations were then compared to the location of shallow groundwater aquifers (as identified in Data Request #1). Valve locations were again re-assessed to determine where relocation (while still complying with federal regulations and providing protection of HCAs) or the addition of new valves could mitigate potential risk to shallow aquifers.

Finally, additional valves were added to reduce the length of pipe between isolating valves, particularly in those areas where spill volumes and frequencies were predicted to be higher than other areas. Appendix A of the Risk Assessment discusses the process used to identify those areas. However, these sites are not specifically identified due to Homeland security issues.

The results of this iterative process are provided in **Table 1**, Valve and Pump Station Relocation Rationale.