

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

TransCanada Keystone Pipeline, LP
30-Inch Crude Oil Pipeline/Cavalier to
Sargent Ctys

Case No, PU-06-421

TESTIMONY OF LOYS A. GRAY, III

IN SUPPORT OF EXTRA WORK SPACE IN FORESTED AREAS

LOYS A. GRAY, III, BEING FIRST DULY SWORN, ON OATH, DEPOSES AND STATES, AS FOLLOWS

- I have previously submitted a copy of my resume with my educational background and qualifications.
- Over the past 30 years I have served in various pipeline engineering and construction management positions including engineering manager, construction manager and project director on a variety of large diameter pipeline projects throughout the United States and in foreign countries. The larger projects range from 200 to 2,500 miles in length with diameters from 30 to 40 inches. Since the mid 1990s, a significant portion of my work has been in pipeline construction management and I am very familiar with the need for sufficient work space to safely and efficiently install large diameter pipelines.
- I have provided both written and verbal testimony to the PSC regarding Keystone's Application for a certificate of corridor compatibility and route permit and regarding the need for additional temporary workspace in forested areas at stream and road crossings.
- Keystone's Application requested a 110-foot wide normal construction right of way and additional work space at topographical features including roads, railroads, streams, and other areas requiring additional workspace, to facilitate normal pipeline construction activities. During the PSC hearings, Keystone presented testimony that 85 feet of construction right of way in forested areas at certain streams was not sufficient for construction of a large diameter pipeline and that additional temporary workspace was needed to ensure that the work could be performed safely in those areas.
- The PSC's Order, at paragraph 13, included the following condition:

"If Keystone needs additional construction work space at stream or river crossings and would like to clear more than an 85 feet width of trees, Keystone shall submit a clearing plan with the Commission to be approved prior to start of construction. The plan shall indicate the width of the cut (up to 135 feet) and the distance from the crossing (number of feet on each side of the crossing) that is needed."
- I previously provided an affidavit requesting additional workspace in forested areas at stream and road crossings and provided testimony at informal hearings on May 13, 2008, May 21, 2008 and May 27, 2008. The PSC, in some instances, required alterations to the requested workspace but did grant approval of additional workspace on May 30, 2008 for the following 22 locations:

MP 13.12 Unnamed Creek
MP 16.13 Tributary to Tongue River
MP 17 Unnamed Creek
MP 21.44 Unnamed Creek
MP 22.7 Unnamed Creek
MP 23.7 Cart Creek
MP 24.7 Unnamed Creek
MP 29.4 North Branch Park River
MP 31.8 Unnamed Creek
MP 33.3 Unnamed Stream and Middle Branch Park River
MP 34.8 Unnamed Creek
MP 35.3 Unnamed Creek
MP 36.3 Unnamed Creek
MP 37.2 Unnamed Creek
MP 38.1 Unnamed Creek
MP 42.7 Unnamed Stream
MP 46.4 North Branch Forest River
MP 49.2 Unnamed Stream
MP 54.8 Middle Branch Forest River
MP 107.1 Bored Crossing of 5th Street NE
MP 123.6 Bored Crossing of 11th Street SE
MP 212.6 Bored Crossing of 97th Street

- During the informal hearings I testified that I was concerned that Keystone's requests as well as the PSC's decisions were being made from drawings without consideration of actual field conditions and, although I would accept any relief the Commission would grant for additional workspace, that Keystone would request further relief during construction if site conditions warranted it.
- Since the start of construction it has become apparent that the pipeline cannot be installed without substantive additional work transferring soils from the stream crossing area or installation of sheet piling to facilitate the installation of the pipeline. Although no crossings have been excavated at this time, other excavations in upland areas are indicative of poor soil conditions and high groundwater that may make installation of the pipeline extremely difficult in locations limited to 85 feet of workspace. Reference photographs included in Exhibit A.
- Henkels & McCoy's, Keystone's Contractor for Spread 1, Project Manager, Mr. George Tisdale reviewed each of the forested stream crossings in the field the week of July 21, 2008 and determined that based on site-specific conditions at these crossing locations that six of these stream crossings would require additional workspace in order to construct these areas using normal pipeline construction practices and enhancing the safety of workers and protection of the environment.
- Pipeline construction in these tight areas creates significant safety and environmental concerns as follows:
 - typically, with sufficient work space, a stream crossing can be excavated and the pipe installed in one work day. Without sufficient workspace, the time to transfer the soils to storage areas away from the stream or drive sheet piling can increase construction time in the stream to several days. It has been proven that the most important mitigation to environmental impacts to streams of pipeline construction is minimizing the duration of time while working at the stream.

- there is no room to bring the line pipe in along side the potentially unstable trench that could result in the pipe and equipment falling into the trench
 - there is very little room for pipeline construction equipment and vehicles to pass between the pipe and tree line exposing the pipe and the equipment/vehicles to damage from contact
 - excavations are very close to the base of trees, increasing the possibility of high winds felling trees during work onto the right of way
 - topsoil segregation in tight areas of the ROW through treed areas results in the potential loss of topsoil resources by topsoil and subsoil mixing and topsoil falling into the trench. Limited spaces do not permit proper separation of topsoil and subsoil piles.
- The condition of trees in wooded areas varies widely throughout the project route. A number of wooded areas at streams are in poor condition and are not dense, mature wood lots. Photographs of the wooded areas are included in Exhibit A.
 - In accordance with paragraph 13, Keystone is requesting PSC approval of the clearing plans and additional work space shown on the drawings attached in Exhibit B for forested areas at the following streams or road crossings:

NORTH DAKOTA FORESTED CROSSING TABLE

MILE POST	CROSSING	JUSTIFICATION
MP 29.4	North Branch Park River	Extra work space required to store a significant volume of spoil generated from increased depth and length of extra depth ditch at the crossing that is required to address potential scour depth and lateral migration of the River respectively.
MP 31.8	Unnamed Creek	Extra work space required to store a significant volume of spoil generated from grading of steep slopes on both sides of the crossing and a substantial length of extra depth ditch at the crossing that is required to address potential lateral migration of the stream.
MP 35.3	Unnamed Creek	Extra work space required to store a significant volume of spoil generated from grading of steep slopes on both sides of the crossing and a substantial length of extra depth ditch at the crossing that is required to address potential lateral migration of the stream.
MP 42.7	Unnamed Stream	Extra work space require to store a significant volume of spoil generated from grading of the steep slopes on both sides of the crossing and a substantial length of extra depth ditch at the crossing that is required to address potential lateral migration of the stream.
MP 46.4	North Branch Forest River	Extra work space required to store a significant volume of spoil generated from grading of the steep slope on the north side of the crossing and a substantial length of extra depth ditch at the crossing that is required to address potential lateral migration of the River.

MP 54.8	Middle Branch Forest River	Extra work space require to store a significant volume of spoil generated from grading of steep slopes on both sides of the River and increased depth and length of extra depth ditch at the crossing that is required to address potential scour depth and lateral migration of the River respectively.
MP 212.6	Bored Crossing of 97 th Street	Extra work space required to store a significant volume of spoil generated by excavating safe bore and receiving pits. Because workers will operate in the excavation, safety considerations require the trench walls to be appropriately sloped, resulting in a significantly larger and wider excavation, with resulting large spoil volumes generated.

- Keystone has acquired 110' of construction right of way from all landowners including the shelterbelt areas.
- According to paragraph 24 of the PSC Order and item 11 of the Tree and Shrub Mitigation Specifications, Keystone must reforest the temporary workspace where additional width of trees is cleared. Therefore, over a period of a few years, the temporary work space as well as the construction right of way will be re-vegetated and there will be no permanent impact to the forested areas. Keystone will reforest the additional temporary work space requested in this affidavit at a ratio of 5 trees replaced to 1 removed instead of the ratio of 2:1 as required by the ND PSC Tree and Shrub Mitigation Agreement.
- Pipeline construction is well underway on Spread 1A and Spread 2A as can be evidenced by the daily construction progress reports for Spread 1A and Spread 2A for July 25, 2008 included in Exhibit C. Spread 1A clearing has progressed over 80 miles and mainline welding over 17 miles. Spread 2A clearing has progressed over 77 miles and mainline welding over 33 miles.
- Keystone has complied with and will continue to comply with the work space requirements in wooded areas at the stream and road crossings per the construction plans previously approved by the ND PSC. Specialty crews to install stream crossings will begin this work by the week of August 4th. Due to this imminent work, Keystone is respectfully requesting expedited consideration of this request to increase the workspace in the referenced wooded areas at the selected stream and road crossings.
- It is my professional opinion that the additional temporary work space at the selected stream and road crossings depicted on the site specific drawings included in Exhibit B is necessary to install the pipeline safely and with the least environmental impact to the stream.

