# 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 SHELTER BELT 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 reasons additional temporary workspace is needed for pipeline construction.

- Paragraph 100 of the North Dakota Public Service Commission (PSC) Findings of Fact dated February 21, 2008, states:

  *"The Commission finds that, due to the size of pipe used for the Keystone Pipeline, the width of clear cuts through windbreaks and shelterbelts should be limited to 50 feet or less, and clear cuts through lengths of other wooded areas in excess of 50 feet shall be limited to 85 feet or less."*

- The PSC's Order, at paragraph 14, included the following condition:

  *"The width of the clear cuts through any windbreaks and shelterbelts shall be limited to 50 feet or less. The width of clear cuts through extended lengths of wooded areas shall be limited to 85 feet or less."*

- I am filing this affidavit in support of Keystone's request for approval of additional workspace in excess of the 50' approved at specific shelter belts in the PSC Order. Due to

the imminent approach of major construction crews, this affidavit requests approval for additional work space in shelter belts **only** in the first 20 miles of Spread 1 and a similar segment on Spread 2. Since welding on Spread 2 is already underway, this request covers the section from 5 miles to 25 miles into Spread 2 (reference the route maps in Exhibit A).

- 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 it believed it could construct safely and efficiently through shelterbelt areas with 50 feet of construction right of way. This testimony was given based on the understanding that contractors would utilize manual welding processes in North Dakota.

- Due to the high demand for pipeline construction in the US and shortage of skilled welders, the construction contractors elected to utilized mechanized welding. Mechanized welding requires the use of welding shacks to protect gas metal arc welding from wind and weather elements and the use of these shacks requires additional construction right of way width to facilitate its operation. Although Keystone has attempted, mechanized welding of the pipeline cannot be facilitated in the 50' ND PSC approved work area in shelter belts. Exhibit B represents actual measurements taken from Spreads 1 and 2 (measurements vary and are not exact) that result in a minimum average width of 57' if the terrain is flat, soil conditions are good and there is no groundwater. The maximum width could be as much as 67' and as little as 47'. It should be noted that 47' would be an absolute minimum and conditions are unlikely to result in minimum spacings for all equipment depicted in Exhibit B.

- Since the start of construction it has become apparent due, in part, to poor soil conditions and ground water (reference photographs in Exhibit C), that it is impossible for mechanized mainline welding to be completed in 50' of construction work space. In these areas it is also unlikely that manual mainline welding could be completed in 50' construction right of way either.

- Pipeline construction in these tight areas creates significant safety and environmental concerns as follows:

  - there is no room to place the line pipe further away from the unstable trench that results in pipe falling into the trench (this has happened twice already)
  - 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
  - in the event of an injured worker, access for an emergency vehicle transport could be delayed while construction equipment is moved to allow passage
  - topsoil segregation in tight areas of the ROW through tree lines and shelterbelts 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 tree rows and shelterbelts varies widely throughout the project route. A number of tree lines and shelterbelts have widely spaced trees, contain dead trees or snags, or contain leaning trees that represent a safety issue during construction of the project. The condition of tree rows and shelterbelts are noted in the table below. Photographs of the tree rows and shelterbelts crossed in the first segments of each spread are included in Exhibit D.

- Keystone is requesting PSC approval of up to 15' of additional work space at the following shelter belt crossings (an increase from 50' up to 65' work space):

| NORTH DAKOTA SHELTER BELT CROSSING TABLE | | |
|---|---|---|
| **MILE POST** | **PHOTOGRAPHS** | **Tree Line / Shelterbelt Condition** |
| MP 0.12 | Milepost 0.12 | Thin, scattered tree row with dead trees mixed. Estimate removal of 1 to 2 additional trees. |
| MP 0.78 | Milepost 0.78 | Tree row with mixture of young and mature trees. Estimate removal of additional 6 young to mature trees. |
| MP 0.90 | Milepost 0.90 | Single row tree line. Estimate removal of additional 6 to 8 trees. |
| MP 5.96 | Milepost 5.96 | Thin, sparse tree row. Estimate removal of additional 2 to 4 trees. |
| MP 7.64 | Milepost 7.64 | Dense tree line with mixture of young and mature trees. Estimate removal of additional 3 smaller trees. |
| MP 7.97 | Milepost 7.97 | Single row tree line. Estimate removal of 1 additional tree. |
| MP 8.50 | Milepost 8.50 | Very dense mature tree line. Estimate removal of 8 additional trees. |
| MP 9.00 | Milepost 9.00 | Single row tree line with spaced trees. Estimate removal of additional 3 trees. |
| MP 9.18 | Milepost 9.18 | Scattered well-spaced single row tree line. Estimate removal of additional 2-4 younger trees. |
| MP 9.33 | Milepost 9.33 | Thin single tree row. Estimate removal of 2 younger trees. |
| MP 9.49 | Milepost 9.49 | Mature tree line with one tree leaning into right of way. Estimate removal of 3 to 7 trees. |
| MP 10.00 | Milepost 10.00 | Thinner section of tree row. Estimate removal of additional 3 to 5 young and mature trees. |

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| MP 10.24 | Milepost 10.24 | Thinner single row tree line at the end of a tree row. No trees exist on the spoil side. Estimate 2 to 4 trees to be removed from working side. |
| MP 11.24 | Milepost 11.24 | Estimate removal of additional 3 to 5 trees. |
| MP 11.76 | Milepost 11.76 | Wider mature tree line with some trees leaning into right of way. Estimate removal of 3 to 6 trees. |
| MP 13.36 | Milepost 13.36 | Single line tree row with mixed dead trees. Estimate removal of approximately 5 older or dead trees. |
| MP 13.48 | Milepost 13.48 | Heavier tree row. Estimate removal of approximately 2 to 4 mature trees and some younger trees. |
| MP 13.60 | Milepost 13.60 | Thinner tree row with mixture of dead trees, younger trees and more mature trees. Estimate removal of additional 8 trees, including some young and dead trees. |
| MP 13.77 | Milepost 13.77 | Single line tree row. Estimate removal of approximately 6 trees. |
| MP 14.24 | Milepost 14.24 | Heavier tree row. Estimate removal of approximately 10 to 12 trees. |
| MP 130.88 | Milepost 130.88 | Heavier multiple tree rows including some dead or leaning trees. Estimate removal of 7 to 12 additional trees. |
| MP 133.31 | Milepost 133.31 | Single line tree row. Estimate removal of 6 to 8 additional trees. |
| MP 141.98 | Milepost 141.98 | Thinner tree row. Estimate removal of additional 3 to 5 trees. |
| MP 147.98 | Milepost 147.98 | Heavy multi-row tree line. Estimate removal of additional 12 to 18 trees. |
| MP 148.69 | Milepost 148.69 | Single row well-spaced tree line. Estimate removal of additional 2 to 4 trees. |
| MP 148.97 | Milepost 148.97 | Well-spaced tree line. Estimate removal of approximately 3 to 4 trees. |
| MP 149.66 | Milepost 149.66 | Thinner tree row with some dead trees. Estimate removal of additional 3 to 5 trees, including one dead tree. |
| MP 149.87 | Milepost 149.87 | Well spaced thin tree line. Estimate removal of additional 1 to 2 additional trees. |
| MP 150.03 | Milepost 150.03 | Older tree line. Estimate removal of additional 4 to 7 trees, including smaller/young trees. |

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| MP 153.23 | Milepost 153.23 | Single row tree line. Estimate removal of additional 2 to 3 trees. |
| MP 153.37 | Milepost 153.37 | Well-spaced single row tree line. Estimate removal of 1 to 3 additional trees. |

- Keystone has acquired 110' of construction right of way from all landowners including the shelterbelt areas.

- According to Condition 24 and 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 additional 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.

- From review of photographs in Exhibit D an additional 15' of work space will typically involve removing less than 3 to 5 trees in single tree line shelterbelt areas and 8 to 10 trees in wider shelterbelt 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 2:1 as required by the ND PSC Tree and Shrub Mitigation Agreement.

- Based upon this affidavit, Keystone is requesting permission to extend the workspace up to an additional 15' in all remaining shelter belt areas along the pipeline route in North Dakota.

- The daily construction progress reports for Spread 1A and 2A for June 22, 2008 are included in Exhibit E. Spread 1A mainline welding has not started but will start on June 30th. Spread 2A mainline welding has started and completed approximately 4 miles thru June 22.

- Keystone has complied and will continue to comply with the 50' work space requirements in shelterbelts per the ND PSC condition. However, Keystone is requesting expedited consideration of this request to increase the work space up to 65' in shelterbelt areas.

- It is my professional opinion that the additional temporary work space requested at the shelter belt areas identified in this affidavit are necessary to install the pipeline safely and with the least environmental impact to the land.

Dated this 24 day of June, 2008

LOYS A. GRAY, III

STATE OF Missouri )
) ss.
COUNTY OF Clay )

On the 24th day of June, 2008, before me personally appeared LOYS A. GRAY, III, known to me to be the same person described in and who executed the within and foregoing instrument and acknowledged to me that he executed the same

Debra A. Snodell

(SEAL)

Notary Public, State of Missouri
My Commission expires 2/21/09

DEBRA A. SNODELL
Notary Public-Notary Seal
State of Missouri, Clay County
Commission # 05669172
My Commission Expires Feb 21, 2009