

BEFORE THE NEBRASKA PUBLIC SERVICE COMMISSION

IN THE MATTER OF THE APPLICATION) APPLICATION NO. OP-0003
OF TRANSCANADA KEYSTONE)
PIPELINE, LP FOR ROUTE APPROVAL)
OF THE KEYSTONE XL PIPELINE)
PROJECT PURSUANT TO THE MAJOR)
OIL PIPELINE SITING ACT)
_____)

REBUTTAL TESTIMONY OF
JOHN BEAVER

STATE OF MONTANA)
) ss.
COUNTY OF LEWIS & CLARK)

1 **Q: Are you the same John Beaver who provided written testimony dated February**
2 **13, 2017 as part of the Application in this matter?**

3 A: Yes.

4 **Q: Are you familiar with the Construction Mitigation and Reclamation Plan for the**
5 **Keystone XL Pipeline?**

6 A: Yes. I assisted in the preparation of that plan.

7 **Q: Have you read the testimony of Thomas David Hayes filed by the national**
8 **resource intervenors?**

9 A: Yes.

10 **Q: Did you read Dr. Hayes' testimony regarding the alleged significant increase in the**
11 **impermeability of Nebraska soils due to construction of the proposed Keystone XL**
12 **Pipeline along the Preferred Route.**

13 A: Yes.

14 **Q: Will the construction of the Keystone XL Pipeline along the Preferred Route**
15 **significantly increase the impermeability of Nebraska soils?**

16 A: No.

17 **Q: Why not?**

18 A: Keystone has developed and specifically designed a plan to segregate topsoil and to
19 relieve any compaction from subsoils that have received substantial construction traffic.

20 **Q: Is that plan in the CMRP?**

21 A: Yes.

22 **Q: Which section?**

23 A: 4.11.1.

24 **Q: How was that plan developed?**

25 A: Keystone used industry Best Management Practices (“BMP”), which have been
26 developed to address pipeline construction problems that were much more prevalent in
27 1986, when Ramsey & Burgess published the paper upon which Dr. Hayes relies.

28 **Q: Can you give some examples?**

29 A: Yes. Ramsey & Burgess prescribe salvaging topsoil prior to construction, and the
30 CMRP requires that in section 4.3.

31 **Q: Any other examples?**

32 A: Yes. Ramsey & Burgess prescribe decompacting with a deep ripping technique.
33 Section 4.11.1 of the CMRP states that deep ripping will be used as a method to relieve
34 decompaction. Also, Ramsey & Burgess prescribe not working on soils that are
35 excessively wet, and the CMRP, section 2.18, specifies measures and mandates the
36 avoidance of excessively wet soil conditions. Ramsey & Burgess prescribe erosion
37 control berms, and the CMRP addresses erosion control in sections 4.5 and 4.11.5,
38 including using berms. Ramsey & Burgess also suggest avoiding fragile soil resources,
39 and the Preferred Route is the best alternative in that regard.

40 **Q: In your experience, have these techniques proved to be effective?**

41 A: Yes. For example, on both the Keystone Mainline and the Keystone II these techniques
42 were used, and there has been little-to-no reports of diminished productivity of
43 agricultural land.

44 **Q: Have mitigation and reclamation best management practices been developed in**
45 **the pipeline construction industry?**

46 A: Yes.

47 **Q: Are those BMPs adopted in the CMRP?**

48 A: Yes.

49 **Q: Can you explain how the BMPs are addressed in the CMRP?**

50 A. The CMRP and other environmental regulatory documents achieve the following goals
51 outlined in Neville's publication, that was cited by Dr. Hayes, through a variety of
52 BMPs, including:

- 53 • Goal 1: Avoid Sensitive Landscape Features and Habitats: The preferred route
54 avoids the NDEQ-defined Sand Hills and uses horizontal direction drilling to avoid
55 important rivers and riparian areas.
- 56 • Goal 2: Minimize the Disturbance: The Preferred Route significantly reduces the
57 Project's footprint in native habitats compared to the NDEQ-defined Sand Hills
58 route, and it reduces the overall footprint compared to the Mainline Alternative.
- 59 • Goal 3: Conserve Prairie Soils: Prairie soils are conserved by avoiding most
60 prairie grasslands and through topsoil conservation and decompaction measures
61 described in the CMRP.

- 62 • Goal 4: Conserve Prairie Vegetation: Prairie vegetation is conserved by avoiding
63 most native grasslands, re-spreading the native seedbank within stored topsoil, and
64 implementing proven reclamation measures with appropriate, site-adapted, native
65 species as agreed upon by regulatory agencies.
- 66 • Goal 5: Conserve Prairie Wildlife and Fisheries Habitat: Keystone has extended
67 considerable effort to identify and minimize impacts to important, sensitive, and/or
68 rare wildlife and fisheries habitat as documented in numerous baseline reports,
69 mitigation measures, and regulatory commitments.
- 70 • Goal 6: Conserve Historical Resources: Keystone has completed numerous
71 historical and cultural surveys and consulted with state and federal historic offices
72 and experts and with tribes willing to meet and discuss their concerns.
- 73 • Goal 7: Conserve Grazing Capacity: Keystone is committed to restoring
74 equivalent capability to the pipeline right-of-way to ensure continued grazing
75 capacity.
- 76 • Goal 8: Set the Stage for Eventual Restoration: The topsoil conservation
77 techniques, erosion control measures, and native revegetation seed mixtures
78 Keystone employs are proven to result in a stable right-of-way that is capable or
79 regenerating native species, including numerous beneficial volunteer species, over
80 time.
- 81 • Goal 9: Prevent the Spread of Non-native Invasive Species: Keystone is
82 committed to preventing and managing the spread of invasive species. Keystone
83 has developed a noxious weed management plan which has been reviewed by

84 county weed supervisors in Nebraska. BMPs such as clean equipment, pretreatment
85 of weeds, and post-construction monitoring and treatment are described in the plan.

86 **Q: How are the BMPs used to accomplish these goals.**

87 A: There are a number BMPs which can be used to accomplish the goals, and a
88 comprehensive review of the CMRP, pre-construction survey reports, regulatory
89 requirements, the NEPA analysis, the USFW's Biological Opinion, and the FSEIS
90 reflects that the BMPs are already incorporated into the plans and specifications for the
91 Keystone XL pipeline along the Preferred Route.

92 **Q: Have you read Dr. Hayes' testimony regarding the restoration of native prairie**
93 **soils?**

94 A: Yes.

95 **Q: Do you agree with Dr. Hayes?**

96 A: No.

97 **Q: Why not?**

98 A: Keystone has avoided most areas of native prairie with the Preferred Route. Those sites
99 that would be crossed are primarily small, isolated prairie fragments between pivot
100 irrigated fields or cropland. In addition, research on plant and soil succession shows
101 that impacts to native prairie soil and vegetation are neither irretrievable nor
102 irreversible. Finally, implantation of the well-designed and agency-reviewed
103 construction/reclamation units will ensure that impacts to native prairie are neither
104 irretrievable nor irreversible, and that native prairie soil and vegetation productivity
105 will be restored within a few years.

106 **Q: Will native prairie soils be irrevocably or permanently damaged?**

107 A. No. Impacts from the Keystone project to native prairie soils and vegetation would not
108 be irretrievable nor irreversible, terms that connote a permanent commitment of
109 resources. The nature of reclamation and ecological succession is to move towards
110 more developed systems. This succession is demonstrated both in research and in
111 reclamation planning for the project. Research on the re-establishment and restoration
112 of native prairie has found that:

- 113 • “re-establishment of the perennial cover of grasslands on former cropland reduced
114 soil erosion, improved soil structure through increased aggregate stabilization,
115 increased Carbon inputs due to development of dense root biomass, and increased
116 microbial diversity and activity, approaching levels in native prairie” (Kremer and
117 Anderson 2008).
- 118 • Prairie restoration improved soil pore parameters and decreased bulk density
119 within 15 years of restoration on a field that had been farmed for at least 100
120 years prior to restoration (Udawatta et al. (2008)). Restoration on this site used
121 several of the same native grasses, such as side-oats, grama, little bluestem, and
122 Indian grass that would be used on the Keystone XL project. In addition,
123 revegetation of the Keystone right-of-way would occur within a few months of
124 disturbance, not after 100 years of disturbance; consequently, revegetation on the
125 project will be much more similar to undisturbed conditions in much less than 15
126 years.

127 **Q:** What efforts has Keystone made to ensure native prairie is restored?

128 **A:** Construction/reclamation units have been designed to conserve topsoil, prevent erosion,
129 and revegetate the right-of-way with locally-adapted, native species that occur in native

130 prairies of Nebraska. Construction/reclamation units are specific to different land uses
131 and vegetation communities and include types such as mixed grassland, tall grassland,
132 improved pasture and hayland, cropland, forest, etc. Data for each unit are based on
133 field survey information, the CMRP, and extensive agency consultation. In particular,
134 Keystone has consulted with local experts with specific experience in habitat
135 restoration in Nebraska including: Mike Kucera (Nebraska State Resource
136 Conservationist – NRCS), Cam Loerch (Nebraska State Soil Scientist – NRCS), Gerry
137 Steinauer (Nebraska Natural Heritage Program – Botanist/Ecologist), Mike Fritz
138 (Nebraska Natural Heritage Program – Zoologist), Dr. Dave Wedin (University of
139 Nebraska-Lincoln – Ecosystem Ecologist), and Dr. Jerry Volesky (University of
140 Nebraska-Lincoln – Extension Range and Forage Specialist). Keystone consulted with
141 these experts on several occasions to ensure that soil conservation and revegetation
142 measures will restore native prairie within a few years.

143 **Q: Does the Applicant have a plan to manage weeds?**

144 A: Yes, Keystone has worked with each County Weed Board to prepare a plan which
145 addresses the species likely to be present, measures to prevent spreading during
146 construction, and reclamation and monitoring measures to ensure that weeds are not
147 spread along or through the right-of-way.

John Beaver

John Beaver

Subscribed and sworn to before me this 7th day of July, 2017.

Julia T. Gerlach

Notary Public

