

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE)
APPLICATION OF DAKOTA) HP14-002
ACCESS, LLC FOR AN ENERGY)
FACILITY PERMIT TO CONSTRUCT)
THE DAKOTA ACCESS PIPELINE)
PROJECT)

DIRECT TESTIMONY OF

MONICA HOWARD

ON BEHALF OF

DAKOTA ACCESS, LLC

DAKOTA ACCESS EXHIBIT 6

July 6, 2015

1 **Q. Please state your name and business address for the record.**

2 A. Monica Howard. 1300 Main Street, Houston, TX 77002.

3 **Q. Can you briefly describe your education and experience?**

4 A. I have a Bachelor's of Science in Reclamation, with a biological emphasis and minors in
5 Earth Science and Horticulture. I have over 15 years of environmental experience supporting the
6 energy industry. I am currently the Director of Environmental Sciences for Energy Transfer and
7 the Environmental Project Manager for Dakota Access Pipeline Project.

8 **Q. Which sections of the application are you responsible for?**

9 A. I am responsible for sections: 12. Alternatives; 13. Environmental Information; 14.
10 Effects on the Physical Environment; 15. Hyrdology; 16. Effects on Terrestrial Ecosystems; 17.
11 Effects on Aquatic Ecosystems; 18. Land Use; 20 Water Quality; 21. Air Quality; and parts of
12 23. Community Impact.

13 **Q. Please describe the permits in addition to the one sought in this application which**
14 **will be required for construction and operation of the pipeline.**

15 A. The table below lists the permits and clearances currently identified for the construction
16 of the Project within South Dakota.

Permits/Consultation List and Status for South Dakota Segment of DAPL			
Agency	Permit	Agency Action	Status as of June 2015
Federal			
U.S. Army Corps of Engineers, Omaha District – South Dakota Regulatory Office	Sections 404/401 Clean Water Act Nationwide Permit 12	Authorization of discharge of fill material into waters of the U.S., including wetlands	Submitted in December 2014, updated Pre-Construction Notification areas were submitted in April 2015. USACE review is ongoing.
	Section 10 Rivers and Harbors Act	Authorization of pipeline crossings of navigable waters of the U.S.	
	Section 106 Archaeological Resources Protection Act	Section 106 consultation through the Nationwide Permit 12 process	

Permits/Consultation List and Status for South Dakota Segment of DAPL			
Agency	Permit	Agency Action	Status as of June 2015
U.S. Fish and Wildlife Service, South Dakota Ecological Services Field Office	Endangered Species Act Section 7 Consultation	Consider lead agency findings of impacts on federally listed; provide Biological Opinion if the Project is likely to adversely affect federally listed or proposed species or their habitats	Topeka shiner is the only protected species potentially affected at three streams. No effect due to HDD and compliance with Programmatic BO for NWP in SD.
U.S. Fish and Wildlife Service, Sand Lake National Wildlife Refuge Complex	Wetland and Grassland Easements– Special Use Permit	Issuance of a one-time use permit, valid for 5 years, for construction of pipeline through protected features within U.S. Fish and Wildlife Service easements	Draft Environmental Assessment for Special Use Permit and right-of-way easement submitted to the USFWS in April 2015, USFWS provided comments in May 2015, the revised draft Environmental Assessment was submitted to the USFWS in June 2015. USFWS review is ongoing.
	Wetland and Grassland Easements– Right-of-Way easement	Issuance of a 30-year-term right-of-way easement after construction, for long-term maintenance and management of pipeline	
Farm Service Agency/Natural Resources Conservation Service	Crop Reserve Program	Authorization of crossing areas enrolled in the Crop Reserve Program	Consultation with the Farm Service Agency on areas enrolled in the Crop Reserve Program is ongoing. No permit required. To date we have secured easements on 12 of the 17 CRP easements crossed by the Project.
Pipeline and Hazardous Materials Safety Administration	49 CFR Part 194 and 195	Integrity Management Plan and Emergency Response Plan	Plans to be submitted in September 2016. No permit required.
State			
South Dakota Department of Environment and Natural Resources	National Pollutant Discharge Elimination System General Permit for Discharges of Hydrostatic Test Water (SDG070000)	Consider issuance of General Permit for hydrostatic test water discharge to waters of the U.S., construction dewatering to waters of the state	Anticipate submitting in October 2015 upon completion of the hydrostatic test plan.
	Surface Water Withdrawal Permit	Consider issuance of surface water withdrawal permit for temporary use	
	South Dakota Codified Law Sec 34A-18 Oil Spill Response Plan	Oil Spill Response Plan	To be submitted in September 2016. No permit required.
South Dakota Game Fish and Parks	State Listed Threatened and Endangered Species	Consultation on natural resources	Agency stated they would comment through the PUC process and that no formal authorization is required.
South Dakota State Historical Society, State Historic Preservation Office	Section 106 of National Historic Preservation Act	Review and comment on activities regarding jurisdictional cultural resources	Class III report submitted in June 2015. Federal agencies will be consulting directly with the SHPO in relation to jurisdictional crossings.
South Dakota Department of Transportation	Crossing Permits	Consider issuance of permits for crossing state highways	Currently completing applications and have planning meetings scheduled.
Local			
County Road Departments	Crossing Permits	Issuance of permits for crossing of county roads	Currently completing applications and have planning meetings scheduled.

Permits/Consultation List and Status for South Dakota Segment of DAPL			
Agency	Permit	Agency Action	Status as of June 2015
County and Local Authorities	Floodplain, Conditional Use, and building permits where required	Review under county approval process	Evaluating the need for respective permits, applications will be submitted as required.

17 **Q. Are there any other major industrial facilities that would contribute to cumulative**
18 **impacts?**

19 A. Dakota Access attempted to identify current and planned major industrial projects by
20 reviewing South Dakota Public Utilities Commission and Federal Energy Regulatory
21 Commission dockets as well as other publicly available online resources.

22 To date, no major projects within the Project vicinity have been identified through these
23 searches; therefore no adverse cumulative impacts are anticipated.

24 **Q. How did Dakota Access categorize land found along the pipeline?**

25 A. The PUC land use categories (*italic*) were defined as follows for the Project.

26 a. *Lands used primarily for row and non-row crops in rotation* are agricultural fields that
27 may be tilled but not irrigated. Primary row crops include corn, soybeans, sunflowers, and cereal
28 grains.

29 b. *Irrigated lands* are agricultural fields irrigated with center pivots, furrows, or flood
30 irrigation received from lateral ditches.

31 c. *Pasturelands and rangelands* include lands that may have been plowed at some time in
32 the past and replanted to pasture grasses. There is a high to moderate component of non-native
33 grasses.

34 d. *Haylands* include lands that have grass and alfalfa crops with evidence to suggest hay
35 production such as the presence of bales.

36 e. *Undisturbed native grasslands* are dominated by native grass species. Non-native plant

37 species may be present but are in low densities. It also includes restored grasslands dominated by
38 native grass species.

39 f. *Existing and potential extractive nonrenewable resources* include coal, uranium
40 lignite, and oil resources that are in the vicinity of the Project.

41 g. *Other major industries* include wind power development and energy transfer.

42 h. *Rural residences and farmsteads, family farms, and ranches* are individual farmsteads
43 and outbuildings, as well as farmstead windbreaks and shelterbelts.

44 i. *Residential* includes suburban and urban residential areas.

45 j. *Public, commercial, and institutional use* includes county roads, highways, and railroad
46 ROWs, commercial developments, schools, and churches. This category includes roadway
47 borrow ditches that may be vegetated.

48 k. *Municipal water supply and water sources for organized rural water systems* include
49 surface water reservoirs and groundwater wells that withdraw water for public water supplies.

50 **Q. Were any PUC land uses not documented along the pipeline?**

51 A. Four land use types were not documented along the proposed route, including existing
52 and potential extractive nonrenewable resources; other major industries; municipal water supply
53 and water sources for organized rural water systems; and noise sensitive land uses.

54 **Q. What effects are anticipated on surrounding land from operation or construction of
55 the pipeline?**

56 A. Permanent effects on surrounding land uses are not anticipated since the pipeline is
57 primarily a below ground structure with little land use conversion.

58 **Q. Did the project analyze the effects of the Pipeline on land uses and if so, what are the
59 impacts?**

60 A. The primary land use types impacted by the proposed Project are lands used for
61 agriculture. Predominant agricultural land uses within the Project area are as follows: row crop
62 agriculture, pastureland /rangeland, hayland, and irrigated land. A secondary use for many of the
63 land use types is hunting and recreation; this is discussed further within Community Impact
64 Section 23.1– Forecast of Impact on Community. Once installed, the pipeline will be below the
65 surface and will not affect normal agricultural or recreation activities.

66 The public, commercial, and institutional use are road and railroad ROWs, including the borrow
67 ditches. These areas crossed by the Project total a small percentage of the overall Project land
68 uses (2.2 percent), but occur frequently because of the section line road system in South Dakota

69 **Q. Does the project cross any public properties?**

70 A. The only public property crossed in South Dakota is a State School and Public Lands
71 tract, which is crossed for 2,783 feet in Campbell County.

72 The Project does not cross any federal or state-owned parks, recreation areas, or wildlife
73 management areas within South Dakota. An analysis of natural or scenic areas within the Project
74 corridor included designated scenic outlooks, viewing areas, recreational trail areas, preserves,
75 and byways. No designated natural or scenic areas were identified along the route.

76 **Q. What are the regional land forms in the project area?**

77 A. The state of South Dakota is generally equally divided east and west by the Missouri
78 River, with the western half of the state having greater topography than the eastern half of the
79 state. The project is located in the eastern half of the state where elevations can range from
80 1,000 feet to 2,000 feet. The portion of Project area located east of the Missouri River and west
81 of the James River is within the Glaciated Missouri Plateau of the Great Plains physiographic
82 province (U.S. Geological Survey [USGS], 2004a).

83 **Q. Have you included a topographic map of the project area?**

84 A. A topographic map of the Project area is included in Exhibit A2.

85 **Q. What geological features are in the project area?**

86 A. The Project is located in the Great Plains and Central Lowlands physiographic provinces
87 (USGS, 2004a), and lies within the glaciated portion of South Dakota. Surficial deposits within
88 this region are composed primarily of alluvium, eolian deposits, lacustrine sediments, moraine
89 (till), and outwash (USGS, 2005).

90 The bedrock geology is composed of Cretaceous and Precambrian aged rocks that formed in
91 marine environments (The Paleontology Portal, 2003).

92 Bedrock in the Project area crops out along the Missouri River bluffs, along many rivers and
93 creeks, and other areas where the glacial sediment has been removed by erosion.

94 **Q. Are any economic deposits found within the project area?**

95 A. Of South Dakota's primary non-fuel resources, approximately 69 percent of the total
96 non-fuel production value in 2011 originates from a combination of cement (portland), clays,
97 feldspar, gemstones, gold, gypsum, iron ore, lime, mica, silver, and stone (dimension granite).
98 Crushed stone amount to approximately 16 percent of the state's non-fuel production value,
99 while the remaining 15 percent comes from construction sand and gravel.

100 Campbell, Edmunds, Kingsbury, Lake, Lincoln, McPherson, Spink, and Turner Counties contain
101 construction sand and gravel. Minnehaha County contains construction sand and gravel, as well
102 as crushed stone. The SDGS Sand, Gravel, and Construction Aggregate Mining Interactive Map
103 did not identify industrial mining operations within one mile of the Project area; therefore, it is
104 not anticipated that the Project will impact mineral resources (SDGS 2014).

105 **Q. Please describe the soils found within the project area.**

106 A. Maps depicting the limits of the soil map units within the Project area are provided in
107 Exhibit A3. Exhibit C includes total crossing distance of each soil series unit, the acres impacted
108 by construction of the aboveground pump station, and the characteristics of each of the soil map
109 units within the Project area, including prime farmland, hydric properties, compaction potential,
110 erosion, restrictive soil layers, shallow bedrock, and revegetation properties.

111 **Q. Is there prime farmland located along the pipeline route?**

112 A. The U.S. Department of Agriculture (USDA) defines prime farmland as “land best suited
113 to food, feed, forage, fiber, and oilseed crops” (Natural Resources Conservation Service [NRCS],
114 2014).

115 Approximately 37 percent (99.9 miles) of the soils crossed by the pipelines are considered to be
116 prime farmland, and approximately 44 percent (120.5 miles) of the route is identified as farmland
117 of statewide importance.

118 The pump station in Spink County is located on 4.3 acres of prime farmland; however this
119 location is not under active cultivation.

120 **Q. Please describe the impacts to hydric soils from construction of the pipeline.**

121 A. The majority of the soils within the Project area are classified as hydric in Exhibit C,
122 some of which are prime farmland if drained. Soil compaction and rutting will likely result from
123 the operation of heavy equipment along the Project. The extent of soil compaction will depend
124 on the degree the soils are saturated, with the most severe compaction occurring where heavy
125 equipment is operated on highly saturated soils. Dakota Access will minimize these impacts by
126 implementing mitigation measures during construction such as the uses of timber mats or the use
127 of low ground weight bearing equipment. Decompaction in the form of ripping/tilling will take
128 place where needed during restoration.

129 **Q. Please describe any measures which the project is taking with regard to erosion.**

130 A. Soils with high erosion potential within the Project area were identified based on NRCS
131 designations of land capability class and subclass. The majority of the soils within the Project
132 area have low erosion potential. Various areas are characterized by steep slopes (slopes greater
133 than 8 percent) and are indicated as such in Exhibit C. To minimize or avoid potential erosion
134 impacts, Dakota Access will utilize erosion and sedimentation control devices as described in the
135 Project-specific SWPPP (Exhibit D).

136 Environmental Inspectors will be retained throughout construction to oversee and report on
137 construction compliance. The effectiveness of revegetation and permanent erosion control
138 devices will be monitored by Dakota Access' operating personnel during the long-term operation
139 and maintenance of the Project Facilities.

140 **Q. Are there any restrictive soil layers or shallow bedrock found along the pipeline**
141 **route?**

142 A. No shallow bedrock was identified within the Project area; however shallow Natric was
143 identified through desktop analysis and field surveys. Natric is a subsoil layer with a high
144 concentration of sodium salts. Dakota Access has retained an agricultural consultant to develop
145 specific mitigation measures for work in these areas.

146 **Q. How will the project revegetate the construction areas?**

147 A. Once the land contours are restored, a seed bed will be prepared in non-agricultural areas
148 and reseeded with appropriate seed mixed based on the time of year, landowner agreements, and
149 land managing agency recommendations. Additionally, any necessary additional erosion
150 protection measures will be implemented/installed including water berms, mulch, erosion control
151 mattiner, etc. Agricultural areas will be turned over to the farmer to resume agricultural

152 activities in agreement with the easements.

153 **Q. Are seismic hazards present and mitigated in the project area?**

154 A. Seismic hazards include earthquakes, surface faulting, and soil liquefaction. According
155 to the USGS Seismic Hazards maps for the U.S., the Project is situated in an area of very low
156 seismic probability; therefore no mitigation is proposed.

157 **Q. Is there karst terrain along the pipeline?**

158 A. Karst terrain results from the dissolution of highly soluble bedrock such as limestone and
159 dolomite. Areas with karst terrain are more susceptible to subsidence events (Galloway et al.,
160 2005). Karst occurs in approximately 47.5 miles of the Project ROW.

161 **Q. Are there areas of expected slope instability along the pipeline route?**

162 A. Slope instability occurs when unconsolidated soils and sediments located on steep slopes
163 become saturated, usually from a flooding event. Only one geologic formation is known to be
164 susceptible to landslides in the Project area, the Pierre Shale. Approximately 189 miles of the
165 Project area is located in Pierre Shale

166 **Q. Does the project expect construction constraints as a result of the land forms and
167 geology along the route?**

168 A. If shallow bedrock or boulders are encountered during construction that cannot be
169 economically excavated from the ROW by an excavator or rock trencher, blasting may need to
170 be utilized to assist in ditch excavation. In the unlikely event blasting is necessary; Dakota
171 Access has developed a Blast Plan for the Project which outlines best management practices to
172 minimize potential impacts due to blasting.

173 As outlined in Section 14.7– Seismic and Subsidence, desktop studies have identified a potential
174 for karst geology along certain portions of the route. Dakota Access will conduct pre-

175 construction training to educate personnel on the identification of karst features during
176 excavation. If karst features are identified along the route, Dakota Access will take steps to
177 ensure the integrity and safety of the pipeline, which may include realignment or specialized
178 construction techniques.

179 **Q. Has the pipeline examined the impacts to hydrology from construction?**

180 A. The following sections include information on the hydrology of the Project area including
181 drainage patterns, water uses, and hydrostatic testing.

182 **Q. Will the pipeline interfere with drainage patterns along the route?**

183 A. The pipeline is a below ground facility and therefore will not interrupt drainage patterns
184 within the Project area.

185 **Q. What are the sensitive area or water uses along the project route?**

186 A. Consultation with the SDDENR during the Project fatal flaws analysis identified Zone A
187 Wellhead Protection and Source Water areas within Minnehaha County. These areas define the
188 boundaries in which the land area contributes water to a well. These protection areas are in place
189 to protect the quality of local drinking water (SDDENR, 2014a). The baseline centerline
190 crossed/clipped two of these areas; however, through the reroute process Dakota Access has
191 successfully avoided crossing these protected areas.

192 The South Dakota Association of Rural Water Systems supports water uses including clean
193 drinking water and water for local agriculture and industries. These water uses are managed
194 throughout the state by districts based on region. The Project crosses seven rural water systems
195 within South Dakota including WEB, Mid Dakota, Kingbrook, Minnehaha, Lincoln, South
196 Lincoln, and the Lewis and Clark system which overlaps the majority of these water districts that
197 are located on the eastern border of the state, and continues into Iowa. Dakota Access is in

198 discussions with the rural water systems regarding appropriate methods and measures for
199 crossing their respective lines.

200 **Q. Will the project use surface water and/or ground water in construction or**
201 **operation?**

202 A. Dakota Access will utilize surface waters as a water source for hydrostatic testing in
203 agreement with the owners of the water rights and/or any state or federal permit. The exact
204 locations of the hydrostatic testing and discharge sites will be determined in coordination with
205 the selected contractor. Groundwater is not expected to be used during construction or operation.

206 **Q. Are there impacts to aquifers expected along the pipeline route?**

207 A. Groundwater is not currently proposed for use during construction and operation of the
208 Project. The trench will need to be dewatered occasionally where the shallow groundwater or
209 stormwater is pumped from the trench and discharged to a near-by upland to create a more
210 suitable working environmental for installing the pipeline. This effect of this pump and
211 discharge will be highly localized and is not anticipated to have impacts to the use of
212 groundwater in the immediate or general project area.

213 **Q. What water quality permits are expected for the project?**

214 A. Dakota Access is permitting the Project through the USACE nationwide permit program
215 for Section 404/10 of the Clean Water Act (CWA) impacts; specifically Nationwide Permit 12.
216 The SDDENR has previously issued Section 401 water quality certification for projects that
217 qualify for nationwide permit 12 coverage; Dakota will abide by all general and regional
218 conditions of the permits.

219 Under Section 303(d) of the CWA, states are required to identify waterbodies that are not
220 attaining their designated use(s) and develop total maximum daily loads (TMDLs), which

221 represent the maximum amount of a given pollutant that the a waterbody can assimilate and still
 222 meet its designated use(s). Three U.S. Environmental Protection Agency (EPA) 303(d) impaired
 223 waterbodies are crossed by the project: Turtle Creek, James River, and Big Sioux River.
 224 However all will crossed by HDD and additional impacts to these impaired waterbodies are not
 225 expected.

226 The general discharge permit for hydrostatic test water discharges will be sought as needed and
 227 conditions adhered too, direct discharges to waters are not proposed.

228 **Q. Please describe the terrestrial setting of the project.**

229 A. The Project area crosses the Great Plains Steppe Province and the Prairie Parkland
 230 (Temperate) Province ecoregions (USDA, 2014a). The western part of the Project area in South
 231 Dakota is located in the Great Plains Steppe Province and is characterized by rolling, flat plains.
 232 Elevations slope from approximately 2,500 feet from the west to 1,000 feet in the eastern section
 233 of this ecoregion. The majority of this region is made up of young glacial drifts and dissected till
 234 plains. Vegetation is mostly comprised of short and tallgrass prairie with not much woody
 235 vegetation. However, there are some scattered areas of eastern cottonwood (*Populus deltoids*)
 236 forested floodplains within this prairie dominated ecoregion (USDA, 2014b).

237 **Q. What are the vegetation community types found along the project route?**

238 A. The Project route crosses six terrestrial vegetation community types in South Dakota
 239 which largely mirror the PUC land use types and include pastureland/rangeland (18%), native
 240 grassland (<1%), hayland (7%), row-crop agriculture (71%), residences and farmsteads (<1%),
 241 and ROW corridors (2%). The predominant vegetation communities crossed are row-crop
 242 agriculture and pastureland/rangeland as depicted in the table below.

Vegetative Communities Crossed by the Project	
Counties	Vegetation Communities (acres)

Crossed (North to South)	Pastureland / Rangeland	Native Grassland	Hayland	Row-Crop Agriculture	Residences & Farmsteads	Right of Way Corridors
Campbell	222.3	30.1	102.4	189.0	1.5	15.5
McPherson	8.4	0.0	2.9	107.9	2.7	3.8
Edmunds	45.1	0.0	56.5	593.0	0.2	12.8
Faulk	73.4	0.0	47.2	420.2	4.0	12.7
Spink	182.5	0.0	42.7	461.7	2.1	19.3
Beadle	154.7	0.0	24.5	352.5	2.8	12.0
Kingsbury	73.4	0.0	29.7	303.0	1.2	9.3
Miner	23.2	0.0	0.7	242.0	9.3	6.9
Lake	59.6	0.0	26.3	268.0	1.0	6.8
McCook	2.6	0.0	4.3	19.6	0.1	0.7
Minnehaha	90.4	0.0	21.9	375.2	0.3	16.1
Turner	6.5	0.0	5.0	28.0	2.4	0.9
Lincoln	27.4	10.8	5.6	403.0	2.6	11.3
State Total	969.3 18 %	41.0 < 1%	369.5 7%	3763.1 71%	30.0 < 1%	128.1 2 %

243 **Q. Please describe the pastureland/rangeland crossed in South Dakota.**

244 A. The pastureland/rangeland vegetative community is primarily located in the northern
245 portion of the Project in South Dakota and includes lands that may have been plowed at some
246 time in the past and replanted to non-native pasture grasses. The primary land use is grazing by
247 livestock. This plant community has a high to moderate percent cover of non-native grasses.
248 Native grasses and forbs may be present but are not dominant and have low cover.

249 **Q. Please describe for us the native grassland community.**

250 A. The native grassland vegetative community includes grassland dominated by native
251 mixed grass and tall grass species. Non-native plant species may be present but in low
252 quantities. This land use includes undisturbed grasslands that may have been plowed at some
253 time in the past. It also includes restored grasslands dominated by native grass species. Native
254 grasslands were only identified in Campbell and Lincoln counties.

255 **Q. Please describe the hayland plant community.**

256 A. The hayland plant community is land that has been cropped for hay forage production.

257 **Q. Please describe row-crop agriculture.**

258 A. Row-crops are characterized by annual herbaceous vegetation planted for the production
259 of human consumption, animal feed, biofuel, or other specific purposes. Row-crop agriculture
260 accounts for the majority (71 percent) of the Project route.

261 **Q. Please describe the vegetation in residences and farmsteads.**

262 A. This vegetation community describes the rural residences and farmsteads, and suburban
263 residential land uses and may include farmsteads and outbuildings (including abandoned
264 farmsteads), farm windbreaks and shelterbelts, and maintained residential yards.

265 **Q. Please describe the vegetation along existing right-of-way corridors.**

266 A. These are road and railroad ROWs including the vegetated borrow ditches. Vegetation is
267 typically non-native planted vegetation, some native species are present and tract noxious species
268 can be present.

269 **Q. What are the noxious weeds?**

270 A. In addition to collecting data on the vegetative communities just described, Dakota
271 Access identified and collected data on areas of noxious weeds encountered along the route.
272 There are 7 noxious weeks published on the South Dakota state noxious weed list (South Dakota
273 Weed - Chapter 38-22). South Dakota counties also have noxious weed lists for species that are
274 locally problematic. Table 16.1-2 from the application lists the state and county listed noxious
275 weeds in South Dakota and is presented below.

Table Error! No text of specified style in document.-1 2014 South Dakota State and County Noxious Weeds			
Latin Name	Common Name	State	County
<i>Acroptilon repens</i>	Russian knapweed	X	
<i>Arctium minus</i>	*burdock		X

Table Error! No text of specified style in document.-1 2014 South Dakota State and County Noxious Weeds			
Latin Name	Common Name	State	County
<i>Artemisia absinthium</i>	*absinth wormwood		X
<i>Cardaria draba</i>	hoary cress / whitetop	X	
<i>Carduus acanthoides</i>	*plumeless thistle		X
<i>Carduus nutans</i>	*musk thistle		X
<i>Centaurea diffusa</i>	diffuse knapweed		X
<i>Centaurea maculosa</i>	spotted knapweed		X
<i>Cichorium intybus</i>	chicory		X
<i>Cirsium arvense</i>	*Canada thistle	X	
<i>Cirsium vulgare</i>	*bull thistle		X
<i>Conium maculatum</i>	*poison hemlock		X
<i>Convolvulus arvensis</i>	*field bindweed		X
<i>Cynoglossum officinale</i>	houndstongue		X
<i>Euphorbia esula</i>	*leafy spurge	X	
<i>Hyoscyamus niger</i>	black henbane		X
<i>Hypericum perforatum</i>	St. Johnswort		X
<i>Leucanthemum vulgare</i>	oxeye daisy		X
<i>Linaria dalmatica</i>	Dalmatian toadflax		X
<i>Linaria vulgaris</i>	*yellow toadflax		X
<i>Lythrum spp.</i>	purple loosestrife	X	
<i>Onopordum acanthium</i>	Scotch thistle		X
<i>Phragmites australis</i>	* <i>Phragmites</i> / common reed		X
<i>Polygonum sachalinense</i>	giant knotweed		X
<i>Potentilla recta</i>	sulfur cinquefoil		X
<i>Sonchus arvensis</i>	*perennial sowthistle	X	
<i>Tamarix spp.</i>	saltcedar	X	
<i>Tanacetum vulgare</i>	common tansy		X
<i>Tribulus terrestris</i>	puncturevine		X
<i>Verbascum thapsus</i>	common mullein		X
Source: South Dakota Department of Agriculture, 2014			
* Noxious weeds identified to date within the Project area.			

276 Dakota Access is collecting noxious weed species locations, and the size and percent canopy
277 cover of infestations during field surveys along the Project route. To date, a total of 12 species
278 of state and county noxious weeds were documented within the Project area (Table 16.1-2). The
279 overall percentage of canopy cover was low (3.4 percent) within areas where noxious weeds
280 were identified during field surveys. Canada thistle, field bindweed, and absinth wormwood

281 (*Atemisia absinthium*) are the common noxious weeds identified along the proposed route.

282 **Q. Please briefly describe the impacts to vegetation and any mitigation measures which**
283 **the project intends to adopt.**

284 A. Both temporary and permanent impacts to vegetation may occur as a result of the Project.

285 Row-crop agriculture and haylands will be temporarily disturbed and removed from production

286 during construction. However, agricultural production will resume during the growing season

287 following completion of the pipeline construction. Dakota Access will restore row-crop

288 agriculture and haylands to preconstruction conditions as soon as practicable following

289 construction in accordance with the Agricultural Impact Mitigation Plan (AIMP) (Exhibit D of

290 the application) and landowner agreements. Landowners will be compensated for crop losses,

291 short term reduced yields, and other damages resulting from the pipeline construction.

292 The proposed Project area includes limited areas of residences and farmsteads, including

293 windbreaks. The 50-foot pipeline permanent ROW will be kept clear of trees, to allow for

294 pipeline inspection and maintenance. Landowners will be compensated for loss to landscaping,

295 timber, etc. on areas impacted by the project. Disturbed areas outside the permanent ROW will

296 be revegetated with a recommended seed-mix and natural succession will allow the vegetation to

297 revert to preconstruction types. Tree and shrub replanting is not proposed.

298 The route crosses grasslands and pastureland/rangeland that are primarily used for grazing. This

299 grass-dominated land cover controls water runoff and sediment from directly entering

300 groundwater, nearby lakes, rivers ponds and streams while contributing to wildlife habitat and

301 livestock forage. Dakota Access will restore all grasslands as near to pre-construction conditions

302 as practicable. Where conservation programs are in place, Dakota Access will work in

303 accordance with the Natural Resource Conservation Service and Farm Service Agency regarding

304 reseeded and reclamation.

305 Dakota Access will incorporate topsoil segregation within agriculture, improved pasture, and
306 residential areas during construction. A maximum depth of 12 inches or to the depth of top soil
307 if less than 12 inches, or as agreed upon with the landowner, will be segregated. Unless
308 otherwise requested, topsoil will be stripped from over the pipeline trench and the adjacent
309 subsoil storage area. Segregated topsoil will be returned following backfilling of the subsoil,
310 ensuring preservation of topsoil within the construction area. This practice preserves the seed
311 bank within the topsoil and encourages revegetation within the ROW.

312 Reclamation and revegetation of grasslands and pastureland/rangeland may include soil
313 conditioning such as de-compaction when reseeded as necessary to improve vegetative re-
314 growth. Seed mixes will be developed based on data from pre-disturbance field surveys and with
315 input from the local NRCS.

316 Revegetation success will be monitored along the pipeline ROW in accordance with applicable
317 requirements.

318 **Q. What will be done regarding noxious weeds along the project?**

319 A. To mitigate the spread of any noxious weeds, BMPs and weed control practices during
320 construction and operation may be implemented; common measures include:

- 321 • Treating known noxious weed infestations prior to ground disturbance.
- 322 • Immediately reseeded following construction.
- 323 • Using weed-free seed in reclamation activities.
- 324 • Using weed-free erosion control materials.

325 Routine mowing of the permanent right-of-way can assist in weed control. Operation and
326 maintenance excavation activities should not exacerbate noxious weed conditions since

327 disturbances will be infrequent and isolated.

328 **Q. What types of terrestrial wildlife may be found along the pipeline route?**

329 A. The Project area provides foraging and sheltering habitat for many species of mammals,
330 raptors, and songbirds.

331 **Q. What impacts to wildlife are expected and what mitigation measures will be
332 adopted?**

333 A. Construction will be short-term and result in temporary and permanent impacts to
334 wildlife. Given the large percentage of agricultural development along the Project ROW, species
335 that may utilize the Project area are used to seasonal vegetation impacts. Displacement of more
336 mobile species from the corridor to adjacent similar habitat could occur during increased human
337 and equipment presence during the construction period. Causality to less mobile species may
338 take place during the clearing and grading phases of construction.

339 The Project area will be returned to pre-construction contours, land uses, and vegetation cover
340 after pipeline construction. There are very few trees along the project ROW, and where impacts
341 occur, they are typically associated with residences and shelterbelts; many of which are
342 comprised of fast growing non-native tree species.

343 **Q. Are there terrestrial sensitive, threatened and endangered species wildlife found
344 along the pipeline corridor?**

345 A. A comprehensive list of federal and state listed species within the counties crossed by the
346 Project, including habitat assessments and determinations of impact or effect on the species was
347 performed. Early coordination and informal consultation with the USFWS, the South Dakota
348 Natural Heritage Program (SDNHP), and South Dakota Game, Fish and Parks (SDGFP) was
349 initiated. Species occurrence records and designated critical habitat were obtained.

350 **Q. What impacts and mitigation measures if any, can be anticipated for sensitive,**
351 **threatened and endangered species?**

352 A. Based on completed survey data and assessment, no effect to protected terrestrial species
353 is anticipated. Dakota Access is continuing to consult with the resource agencies to obtain
354 concurrence with this determination prior to initiating construction.

355 **Q. Approximately how many waterbody crossings have been identified?**

356 A. Dakota Access has identified 279 waterbody crossings located within the Project
357 footprint. Of these, 10 are perennial, 105 are intermittent, 139 are ephemeral streams, and 25 are
358 ponds (open water). The MP, waterbody name, state water classification, and flow regime for
359 surface waters crossed or otherwise impacted by the Project can be found in Exhibit C.

360 The Project does not cross any waterbodies categorized as high-quality fisheries within South
361 Dakota. A total of three waterbodies crossed by the Project are categorized as low-quality, and
362 have warmwater fishery classifications: Turtle Creek (warmwater marginal), James River
363 (warmwater semipermanent), and Big Sioux River (warmwater semipermanent) (ARSD
364 74:51:01, 2014); all of which will be crossed via HDD.

365 **Q. What impacts to aquatic ecosystems are expected and what mitigation measures will**
366 **be implemented?**

367 A. Impacts to waterbodies that are open-cut will be limited to general crossing area during
368 the construction phase and include: increased sedimentation and turbidity; introduction of water
369 pollutants; or entrainment of fish. To reduce the possibility of potential impacts from a potential
370 release, Dakota Access will implement the Spill Prevention, Containment, and Countermeasures
371 Plan. No permanent long-term effects on water quality or fish communities are anticipated to
372 occur as a result of the construction or operation of the pipeline.

373 Dakota Access will minimize potential impacts to open-cut waterbodies by implementing best
 374 management practices, where necessary.

375 Maintenance activities within the Project area will likely be infrequent, short-term, isolated, and
 376 will not affect aquatic biota or their habitat

377 The pipeline trench will be excavated immediately prior to pipe installation to limit the duration
 378 of construction will be expedited to minimize impacts. Excavated materials will be stored no
 379 less than 10 feet from the edge of the waterbody and temporary erosion control devices will be
 380 utilized to prevent the sediment from reentering the waterbody. Additional temporary workspace
 381 will be set back a minimum of 30 feet from the waterbody where conditions allow and vegetation
 382 will remain in place along the banks for as long as practical prior to crossing to further filter
 383 sediment from entering the waterbody. Bridges will be installed to allow for maximum flow of
 384 the waterbodies, and down stream flow will be maintained throughout construction activities

385 The HDD crossing method will be utilized at all waterbody crossings greater than 100 feet wide,
 386 where required to avoid impacts to sensitive resources, and as needed for other constructability
 387 concerns. The HDD method allows for pipeline installation without excavating a trench. A
 388 HDD Contingency Plan has been prepared for construction. HDD crossings of wetlands and
 389 waterbodies are listed in the table below.

Wetland and Waterbody Horizontal Directional Drill Locations		
County	Waterbody Name	HDD Length
Faulk	Wetland	1,270
Spink	Turtle Creek	1,500
Spink	Wetland	1,650
Beadle	James River	3,227
Beadle	Wetland	1,194
Lincoln	Big Sioux River	2,350

390 **Q. What wetland vegetation types are found along the pipeline route?**

391 A. Wetlands are limited in extent to depression features (e.g., prairie potholes) and riparian

392 areas. Palustrine emergent (PEM) wetlands are the dominant wetland type throughout the
 393 Project area; there is one shrub scrub wetland and no forested wetlands.
 394 Table 17.2-1 below summarizes all wetlands within the Project area; this includes USACE
 395 jurisdictional wetlands and non-jurisdictional wetlands.

Summary of Wetlands Crossed by the Dakota Access Project by County			
County	PEM (acres)	PSS (acres)	Total (acres)
Beadle County	4.4	0	4.4
Campbell County	2.7	0	2.7
Edmunds County	8.3	0	8.3
Faulk County	7.0	0	7.0
Kingsbury County	5.0	0	5.0
Lake County	5.1	0	5.1
Lincoln County	1.4	0	1.4
McCook County	3.5	0	3.5
McPherson County	2.5	0	2.5
Miner County	2.5	0	2.5
Minnehaha County	5.0	0.6	5.6
Spink County	20.9	0	20.9
Turner County	0.2	0	0.2
Total	68.5	0.6	69.1

396 **Q. What impacts to wetlands are expected and how did Dakota Access work to**
 397 **minimize impacts?**

398 A. Dakota Access has designed the Project to avoid permanent fill in wetlands.
 399 Aboveground facilities have been sited within upland areas resulting in no permanent loss of
 400 wetlands. As wetland features were surveyed, minor route adjustments were made where
 401 practicable to avoid or minimize the impact. Some wetland impacts will be avoided by
 402 implementation of an HDD.
 403 Temporary impacts to wetlands that will be open cut will be limited to the construction phase
 404 and include disturbance of vegetation, potential for sedimentation, temporarily increased
 405 turbidity and related secondary effects.

406 **Q. What best management practice will be implemented to protect and restore them?**

407 A. Where impacts to wetlands are unavoidable, Dakota Access will implement BMPs to
408 ensure that the wetland is restored post-construction in accordance with applicable regulations and
409 permits. These BMPs include the following:

- 410 • Wetland boundaries will be clearly defined and marked prior to initiating construction in
411 the area.
- 412 • The minimum construction equipment necessary for pipeline installation will be utilized
413 within wetlands.
- 414 • If standing water or saturated soil conditions are present, or if construction equipment
415 will cause ruts or mixing of the topsoil and subsoil, construction equipment operating in
416 wetland areas would be limited to the use of low ground pressure equipment or normal
417 equipment operating from timber equipment mats.
- 418 • Limit tree stump removal and grading within wetlands to the area directly over the
419 pipeline, unless required for safe installation.
- 420 • Segregate topsoil from the area directly over the trench line in unsaturated soils.
- 421 • Use of trench plugs/breakers at wetland boundaries ensures that wetland hydrology is
422 restored following construction.
- 423 • Pre-construction contours will be restored along the pipeline ROW, allowing wetlands to
424 naturally revegetate.

425 **Q. What sensitive, threatened and endangered aquatic species might be found along**
426 **the route?**

427 A. A comprehensive list of all federal and state listed species within the counties crossed by
428 the Project, including habitat assessments and determinations of impact or effect on the species

429 was completed.

430 The USFWS South Dakota Ecological Field Office identified eight waterbodies crossed by the
431 Project that have Topeka shiner occurrences; including the James River, Shue Creek, Pearl
432 Creek, Middle Pearl Creek, Redstone Creek, Rock Creek, East Fork Vermillion River, and Big
433 Sioux River. An additional waterbody, the West Fork Vermillion River, was also identified for
434 occurrence; however, the project crosses in its headwaters where it is an emergent wetland with
435 no perennial flowing water and therefore not suitable habitat for the species. Some of these will
436 be crossed via HDD and avoid impacts to the species. All open cut crossing will take place in
437 accordance with the *Programmatic Biological Opinion for the Issuance of Selected Nationwide*
438 *Permits Impacting the Topeka Shiner in South Dakota* (October 2014) and result in no likely
439 adverse effects.

440 The northern river otter and whooping crane have SDNHP species occurrence records within one
441 mile of the Project. The northern river otter has been documented in the James and Big Sioux
442 Rivers (SDNHP, 2014 and SDGFP, 2014c) within the Project area; however, both of these rivers
443 will be crossed via HDD so potential impacts to the northern river otter will be avoided. The
444 Project area is within the migratory range of the whooping crane; however, this stop-over species
445 is highly mobile and would likely avoid construction areas for the vast similar and suitable
446 habitat throughout the area and region, therefore no effect on this species is anticipated.
447 No other aquatic threatened, or endangered aquatic species or their critical habitat has been
448 reported within two miles of the Project. Pending final results of field surveys and input from
449 resource agencies, appropriate mitigation and protection measures will be implemented to
450 minimize potential impacts.

451 **Q. What air quality impacts are expected from the pipeline construction or operation?**

452 A. Air quality impacts along the pipeline include potential air emissions during both
453 construction and operation of the pipeline. Dakota Access will comply with all federal and state
454 air quality regulations that are applicable to the proposed facilities along the pipeline and will
455 take necessary steps to ensure that they do not cause an exceedance of any air quality standard.
456 There is one proposed pump station along the pipeline; however, if the potential to emit is below
457 25 tons per year of each of the relevant criteria pollutants, a source is exempt from obtaining
458 either a construction or operating permit in South Dakota. Emissions from the pump station are
459 anticipated to be well below this threshold; additionally emissions from all launcher/receiver and
460 main line valve sites will be well below the threshold. Therefore, no air permits are being
461 sought.

462 **Q. How has the project planned for its impacts on cultural resources?**

463 A. Cultural resources surveys were conducted for the Project in accordance with Section 106
464 of the National Historic Preservation Act and the guidelines set forth by the South Dakota State
465 Historical Society to identify and record the extent and temporal affiliation of archaeological
466 resources and assess the potential eligibility for inclusion in the National Register of Historic
467 Places (NRHP).
468 In August of 2014, consultation was initiated with the South Dakota State Historic Preservation
469 Office (SHPO), and a scope of work was submitted and approved that detailed the Level III
470 intensive survey plan for the Project. It included a survey plan for the Pre-construction
471 Notification (PCN) permit areas defined by the lead Federal agency (USACE-Omaha District),
472 provided a tiered survey approach for high and moderate probability areas as delineated through
473 extensive background research, and the survey of any identified NRHP properties to comply with
474 SDCL 1-19A-11.1. To provide additional information to the SHPO, GIS modeling based on

475 environmental factors and known cultural resources was used to create a predictive model for
476 locations of unidentified cultural resources.

477 **Q. Were literature reviews conducted and if so, what were the results?**

478 A. Prior to initiating fieldwork for the proposed project route and all reroutes/route
479 modifications, literature reviews were conducted. No properties listed in the NRHP are located
480 within 1-mile of the Project centerline. Within one mile, 215 previous surveys, 148
481 archaeological sites, 397 historical structures and, eight cemeteries were noted. Two of these
482 resources, both railroad segments, are eligible for inclusion in the NRHP; one which is not
483 within the Project footprint and will be not be impacted and the other is the grade bed for the
484 historic Great Northern Railroad in Spink County.

485 **Q. Has the project performed archaeological investigations?**

486 A. Archaeological investigations were conducted from August through November 2014 and
487 March through July of 2015. Fieldwork consisted of pedestrian reconnaissance, shovel test
488 excavation and test unit excavation. The artifacts collected during this survey were washed,
489 analyzed, and catalogued. As of July 1 2015, all high and moderate probability areas have been
490 surveyed in addition to low probability areas where access was permitted for a total of 97.7% of
491 the route.

492 Surveys of three previously recorded sites (39CA85, 39ED53, 39BE85) listed as unassessed
493 were re-surveyed and not relocated.

494 Three stream crossings in the Project were determined by the Level III survey to have the
495 potential for buried cultural deposits. Deep trenching was conducted at these locations following
496 a SHPO approved scope of work. The results of the trenching were negative for cultural
497 material.

498 **Q. Are any sites found along the project eligible for inclusion in the NRHP?**

499 A. As of July 2015, a total of 55 cultural resources consisting of 50 archaeological sites and
500 two historical districts and three individual structures were documented within the Project
501 footprint. Of these, 42 sites have been recommended to be not eligible for inclusion in the
502 NRHP. These sites consist of artifact scatters, isolated finds, or historic sites that do not possess
503 adequate data or integrity to meet NRHP criteria. The three relocated sites discussed in the
504 previous response remain unevaluated. The remaining ten sites consisting of two newly recorded
505 prehistoric stone circle sites, two revisited prehistoric sites (39BE29/39BE94/39BE95; 39LN21),
506 and six historic railroad/railroad bed segments have been recommended as eligible for inclusion
507 in the NRHP. Reroutes have been evaluated to avoid impacts for the newly recorded prehistoric
508 stone circle sites in Campbell County. Additionally, sites 39BE29/39BE94/39BE95 and 39LN21
509 will be avoided by HDD.

510 In South Dakota, all railroads are considered eligible for inclusion in the NRHP. Upon
511 consultation with the SHPO it was determined that a construction trench could be excavated
512 across the bed, but the bed must be reconstructed at the conclusion of construction.
513 Photographic documentation and a brief context for each of these sites was determined to be an
514 appropriate mitigation measure for the portion of the railroad beds impacted by the project.
515 Dakota Access will comply with the excavation and restoration of these beds; therefore the
516 impact would be negligible.

517 **Q. Have reports of the investigations been prepared? If so, how will they be utilized?**

518 A. Reports detailing the results of the comprehensive field investigations were prepared in
519 accordance with the SHPO Guidelines submitted to the SHPO in June 2015 for review, no
520 comments have been received to date. An Unanticipated Discovery Plan was also submitted to

521 the SHPO.

522 **Q. Does this conclude your written pre-filed direct testimony?**

523 A. Yes.

524

525

526

527 Dated this _____ day of July, 2015

528

529 _____

530 Monica Howard