

No. 21-

IN THE
Supreme Court of the United States

DAKOTA ACCESS, LLC,

Petitioner,

v.

STANDING ROCK SIOUX TRIBE, ET AL.,

Respondents.

**On Petition For A Writ Of Certiorari
To The United States Court Of Appeals
For The District Of Columbia Circuit**

**APPENDIX TO PETITION
FOR A WRIT OF CERTIORARI
VOLUME I OF III**

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APPENDIX A

**United States Court Of Appeals
For The District Of Columbia Circuit**

Argued November 4, 2020 Decided January 26, 2021

No. 20-5197

STANDING ROCK SIOUX TRIBE, ET AL.,
APPELLEES

v.

UNITED STATES ARMY CORPS OF ENGINEERS,
APPELLANT

DAKOTA ACCESS LLC,
INTERVENOR

Consolidated with 20-5201

Appeals from the United States District Court
for the District of Columbia
(No. 1:16-cv-01534)

James A. Maysonett, Attorney, U.S. Department of Justice, argued the cause for appellant United States Army Corps of Engineers. With him on the briefs were *Jeffrey Bossert Clark*, Assistant Attorney General, *Jonathan D. Brightbill*, Principal Deputy Assistant Attorney General, *Eric A. Grant*, Deputy Assistant Attorney General, and *Andrew C. Mergen* and *Erica M. Zilioli*, Attorneys.

Miguel A. Estrada argued the cause for appellant Dakota Access LLC. With him on the briefs were *William S. Scherman* and *David J. Debold*.

Wayne K. Steneljem, Attorney General, Office of the Attorney General for the State of North Dakota, and *Matthew A. Sagsveen*, Solicitor General, were on the brief for *amicus curiae* the State of North Dakota.

Tim Fox, Attorney General, Office of the Attorney General for the State of Montana, *Curtis T Hill, Jr.*, Attorney General, Office of the Attorney General for the State of Indiana, *Thomas M. Fisher*, Solicitor General, *Tom Miller*, Attorney General, Office of the Attorney General for the State of Iowa, *Derek Schmidt*, Attorney General, Office of the Attorney General for the State of Kansas, *Daniel Cameron*, Attorney General, Office of the Attorney General for the Commonwealth of Kentucky, *Jeff Landry*, Attorney General, Office of the Attorney General for the State of Louisiana, *Doug Peterson*, Attorney General, Office of the Attorney General for the State of Nebraska, *Dave Yost*, Attorney General, Office of the Attorney General for the State of Ohio, *Jason Ravensborg*, Attorney General, Office of the Attorney General for the State of South Dakota, *Patrick Morrisey*, Attorney General, Office of the Attorney General for the State of West Virginia, and *Bridget Hall*, Attorney General, Office of the Attorney General for the State of Wyoming, were on the brief for *amici curiae* the States of Indiana, Montana, and 9 other states in support of appellants.

David H. Coburn, *Joshua H. Runyan*, *Richard S. Moskowitz*, *Tyler J. Kubik*, *Stephen J. Obermeier*, *Wesley E. Weeks*, *John P. Wagner*, *Steven M. Kramer*,

Steven P. Lehotsky, and *Michael B. Schon*, were on the brief for *amici curiae* American Fuel & Petrochemical Manufacturers, et al. in support of appellants.

Jared R. Wigginton and *Kent Mayo* were on the brief for *amici curiae* North Dakota Farm Bureau, et al.

Christopher O. Murray was on the brief for *amicus curiae* for appellant North Dakota Water Users Association in support of appellants.

Jan Hasselman argued the cause for appellees Standing Rock Sioux Tribe, et al. With him on the brief were *Patti A. Goldman*, *Nicole E. Ducheneaux*, *Jennifer S. Baker*, *Rollie E. Wilson*, *Jeffrey Rasmussen*, *Michael L. Roy*, *Jennifer P. Hughes*, and *Elliott A. Milhollin*, *Jeremy J. Patterson* entered an appearance.

Joel West Williams was on the brief for *amici curiae* the Great Plains Tribal Chairmen's Association, et al. in support of appellees.

Maura Healey, Attorney General, Office of the Attorney General for the Commonwealth of Massachusetts, *Seth G. Schofield*, Senior Appellate Counsel, *Xavier Becerra*, Attorney General, Office of the Attorney General for the State of California, *Jamie B. Jefferson* and *Joshua R. Purtle*, Deputy Attorneys General, *Kathleen Jennings*, Attorney General, Office of the Attorney General for the State of Delaware, *Christian Douglas Wright*, Director of Impact Litigation, *Aaron M. Frey*, Attorney General, Office of the Attorney General for the State of Maine, *William Tong*, Attorney General, Office of the Attorney General for the State of Connecticut, *Clare Kindall*, Solicitor General,

Kwame Raoul, Attorney General, Office of the Attorney General for the State of Illinois, *Brian E. Frosh*, Attorney General, Office of the Attorney General for the State of Maryland, *Dana Nessel*, Attorney General, Office of the Attorney General for the State of Michigan, *Elizabeth Morrisseau*, Assistant Attorney General, *Gurbir S. Grewal*, Attorney General, Office of the Attorney General for the State of New Jersey, *Letitia James*, Attorney General, Office of the Attorney General for the State of New York, *Aaron Ford*, Attorney General, Office of the Attorney General for the State of Nevada, *Hector Balderas*, Attorney General, Office of the Attorney General for the State of New Mexico, *Ellen Rosenblum*, Attorney General, Office of the Attorney General for the State of Oregon, *Paul Garrahan*, Attorney-in-Charge, *Steven Novick*, Special Assistant Attorney General, *Peter F. Neronha*, Attorney General, Office of the Attorney General for the State of Rhode Island, *Tricia K. Jedele*, Special Assistant Attorney General, *Robert W. Ferguson*, Attorney General, Office of the Attorney General for the State of Washington, *Noah Guzzo Purcell*, Solicitor General, *Leevin T Camacho*, Attorney General, Office of the Attorney General for the Territory of Guam, *Thomas J. Donovan, Jr.*, Attorney General, Office of the Attorney General for the State of Vermont, *Nicholas F. Persampieri*, Assistant Attorney General, *Karl A. Racine*, Attorney General, Office of the Attorney General for the District of Columbia, *Loren L. AliKhan*, Solicitor General, *Jacqueline R. Bechara*, Appellant Litigation Fellow, and *Sarah Utley* were on the brief for *amici curiae* States of Massachusetts, et al. in support of appellees.

Douglas P. Hayes was on the brief for *amici curiae* Sierra Club, et al. in support of appellees.

Kenneth Rumelt and *James G. Mui Thy* were on the brief for *amicus curiae* Members of Congress in support of appellees.

Mary Kathryn Nagle was on the brief for *amicus curiae* National Indigenous Women's Resource Center, Inc. in support of appellees.

Before: TATEL and MILLETT, *Circuit Judges*, and SENTELLE, *Senior Circuit Judge*.

Opinion for the Court filed by *Circuit Judge* TATEL.

TATEL, *Circuit Judge*: Lake Oahe, created when the United States Army Corps of Engineers flooded thousands of acres of Sioux lands in the Dakotas by constructing the Oahe Dam on the Missouri River, provides several successor tribes of the Great Sioux Nation with water for drinking, industry, and sacred cultural practices. Passing beneath Lake Oahe's waters, the Dakota Access Pipeline transports crude oil from North Dakota to Illinois. Under the Mineral Leasing Act, 30 U.S.C. § 185, the pipeline could not traverse the federally owned land at the Oahe crossing site without an easement from the Corps. The question presented here is whether the Corps violated the National Environmental Policy Act, 42 U.S.C. § 4321, by issuing that easement without preparing an environmental impact statement despite substantial criticisms from the Tribes and, if so, what should be done about that failure. We agree with the district court that the Corps acted unlawfully, and we affirm the court's order vacating the easement while the

Corps prepares an environmental impact statement. But we reverse the court’s order to the extent it directed that the pipeline be shut down and emptied of oil.

I.

“In order to ‘create and maintain conditions under which man and nature can exist in productive harmony,’ the National Environmental Protection Act (NEPA), 42 U.S.C. § 4331(a), requires any federal agency issuing a construction permit, opening new lands to drilling, or undertaking any other ‘major’ project to take a hard look at the project’s environmental consequences, *id.* § 4332(2)(C)” *National Parks Conservation Association v. Semonite*, 916 F.3d 1075, 1077 (D.C. Cir. 2019). “To this end, the agency must develop an environmental impact statement (EIS) that identifies and rigorously appraises the project’s environmental effects, unless it finds that the project will have ‘no significant impact.’” *Id.* (quoting 40 C.F.R. § 1508.9(a)(1)). “If *any* ‘significant’ environmental impacts might result from the proposed agency action[,] then an EIS must be prepared *before* agency action is taken.” *Grand Canyon Trust v. FAA*, 290 F.3d 339, 340 (D.C. Cir. 2002) (quoting *Sierra Club v. Peterson*, 717 F.2d 1409, 1415 (D.C. Cir. 1983)). Preparing an EIS is a significant undertaking, requiring the agency to “consult with and obtain the comments of” other relevant agencies and publish a “detailed statement” about the action’s environmental effects. 42 U.S.C. § 4332(2)(C).

“Whether a project has significant environmental impacts, thus triggering the need to produce an EIS,

depends on its ‘context’ (regional, locality) and ‘intensity’ (‘severity of impact’).” *National Parks*, 916 F.3d at 1082 (quoting 40 C.F.R. § 1508.27 (2018)). The operative regulations (since amended, Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43,304 (July 16, 2020)) enumerate ten factors that “should be considered” in assessing NEPA’s “intensity” element. 40 C.F.R. § 1508.27(b) (2019). “Implicating any one of the factors may be sufficient to require development of an EIS.” *National Parks*, 916 F.3d at 1082. This case concerns the fourth factor— “[t]he degree to which the effects on the quality of the human environment are likely to be highly controversial.” 40 C.F.R. § 1508.27(b)(4) (2019).

The Dakota Access Pipeline (DAPL), nearly 1,200 miles long, is designed to move more than half a million gallons of crude oil from North Dakota to Illinois each day. *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers (Standing Rock III)*, 255 F. Supp. 3d 101, 114 (D.D.C. 2017). DAPL crosses many waterways, including Lake Oahe, an artificial reservoir in the Missouri River created when the Corps constructed a dam in 1958. The dam’s construction and Lake Oahe’s creation flooded 56,000 acres of the Standing Rock Reservation and 104,420 acres of the Cheyenne River Sioux Tribe’s trust lands. *Id.* The Tribes now rely on Lake Oahe’s water for drinking, agriculture, industry, and sacred religious and medicinal practices. *Id.* As the Standing Rock Sioux Tribe explained:

Lake Oahe is the source of life for the Tribe.
It provides drinking water for over 4,200 peo-

ple on the Reservation. It is the source of water for irrigation and other economic pursuits central to the Tribal economy. And it provides the habitat for fish and wildlife on the Reservation upon which tribal members rely for subsistence, cultural, and recreational purposes. Moreover, the Tribe's traditions provide that water is more than just a resource, it is sacred—as water connects all of nature and sustains life.

Letter from Dave Archambault II, Chairman, Standing Rock Sioux Tribe, to Lowry A. Crook, Principal Deputy Assistant Secretary for Civil Works, Office of the Assistant Secretary for the Army, and Col. John Henderson, P.E., District Commander, U.S. Army Corps of Engineers—Omaha District (Mar. 24, 2016), Appendix (A.) 318.

Oil pipelines crossing federally regulated waters like Lake Oahe require federal approval. *See Standing Rock III*, 255 F. Supp. 3d at 114. In June 2014, Dakota Access, formed to construct and own DAPL, notified the Corps that it intended to construct a portion of DAPL under Lake Oahe, just half a mile north of the Standing Rock Reservation. *Id.* To do so, Dakota Access needed, among other things, a real-estate easement from the Corps under the Mineral Leasing Act (MLA), 30 U. S. C. § 185.

In December 2015, the Corps published and sought public comment on a Draft Environmental Assessment (EA) finding that the construction would have no significant environmental impact. *Standing Rock III*, 255 F. Supp. 3d at 114-15. The Tribes sub-

mitted comments voicing a range of concerns. Relevant here, the Tribes contended that the Corps had insufficiently analyzed the risks and consequences of an oil spill.

Two federal agencies also raised concerns. The Department of the Interior requested that the Corps prepare an EIS given the pipeline's potential impact on trust resources, criticizing the Corps for "not adequately justify[ing] or otherwise support[ing] its conclusion that there would be no significant impacts upon the surrounding environment and community." Letter from Lawrence S. Roberts, Acting Assistant Secretary—Indian Affairs, U.S. Department of the Interior, to Brent Cossette, U.S. Army Corps of Engineers, Omaha District (Mar. 29, 2016), A. 385-86. The Environmental Protection Agency (EPA) registered its concern that the Draft EA "lack[ed] sufficient analysis of direct and indirect impacts to water resources," though it requested additional information and mitigation in the EA rather than preparation of an EIS. Letter from Philip S. Strobel, Director, NEPA Compliance and Review Program Office of Ecosystems Protection and Remediation, EPA, to Brent Cossette, U.S. Army Corps of Engineers, Omaha District (Jan. 8, 2016), Reply Supplemental Appendix 1. But after becoming aware of the pipeline's proximity to the Standing Rock reservation, EPA supplemented its comments to note that, while it agreed with the Corps that there was "minimal risk of an oil spill," it worried, based on its "experience in spill response," that a break or leak could nonetheless significantly affect water resources. Letter from Philip S. Strobel, Director, NEPA Compliance and Review Program, Office of Ecosystems Protection and Remediation, EPA, to

Brent Cossette, U.S. Army Corps of Engineers, Omaha District (Mar. 11, 2016), A. 389-90.

On July 25, 2016, the Corps published its Final EA and a “Mitigated Finding of No Significant Impact” (Mitigated FONSI). The Mitigated FONSI explained that, given the Corps’s adoption of various mitigation measures, including horizontal directional drilling, the Lake Oahe crossing would not “significantly affect the quality of the human environment” and that an EIS was therefore unnecessary.

Shortly after the Final EA’s release, Standing Rock sued the Corps for declaratory and injunctive relief under NEPA (and several other federal laws not at issue in this appeal). *Standing Rock III*, 255 F. Supp. 3d at 116-17. Dakota Access and the Cheyenne River Sioux Tribe intervened on opposing sides, and Cheyenne River filed a separate complaint adding additional claims. *Id.* at 117. Though the district court denied the Tribes’ request for a preliminary injunction on September 9, 2016, the Departments of Justice, Interior, and the Army immediately issued a joint statement explaining that the Corps would not issue an MLA easement and that construction would not move forward until the Army could determine whether reconsideration of any of its previous decisions was necessary. *Id.*

Following that statement, Standing Rock submitted several letters to the Assistant Secretary of the Army for Civil Works, who oversees the portion of the Corps’s mission that includes issuing permits for pipelines like DAPL. Those letters raised concerns about the EA’s spill risk analysis. The tribe also submitted

an expert review of the EA from an experienced pipeline consultant who concluded that the assessment was “seriously deficient and [could not] support the finding of no significant impact, even with the proposed mitigations.” Accufacts Review of the U.S. Army Corps of Engineers Environmental Assessment for the Dakota Access Pipeline (Oct. 28, 2016), A. 837-46. Following the Corps’s internal review, the Assistant Secretary stood by her prior decision, but nonetheless concluded that the historical relationship between the affected tribes and the federal government “merit[ed] additional analysis, more rigorous exploration and evaluation of reasonable siting alternatives, and greater public and tribal participation and comments.” Memorandum from Jo-Ellen Darcy, Assistant Secretary of the Army (Civil Works) (Dec. 4, 2016), A. 260; *see Standing Rock III*, 255 F. Supp. 3d at 117-18.

During the ensuing review, both Standing Rock and the Oglala Sioux Tribe submitted additional comments and analysis. The Corps solicited Interior’s opinion on the pipeline, Interior’s Solicitor responded with a recommendation that the Corps prepare an EIS, and the Secretary of the Army for Civil Works issued a memorandum directing the Army not to grant an easement prior to preparation of an EIS. *See Standing Rock III*, 255 F. Supp. 3d at 118-19. On January 18, 2017, the Assistant Secretary of the Army for Civil Works published in the Federal Register a notice of intent to prepare an EIS. *See* Notice of Intent to Prepare an EIS in Connection with Dakota Access, LLC’s Request for an Easement to Cross Lake Oahe, North Dakota, 82 Fed. Reg. 5,543 (Jan. 18, 2017).

Two days later, a new administration took office, and the government’s position changed significantly.

In a January 24 memorandum, the President directed the Secretary of the Army to instruct the Corps and the Assistant Secretary for Civil Works to expedite DAPL approvals and consider whether to rescind or modify the Notice of Intent to Prepare an EIS. Memorandum of January 24, 2017, Construction of the Dakota Access Pipeline, 82 Fed. Reg. 8,661 (Jan. 30, 2017). The Army in turn concluded that the record supported granting an easement and that no EIS or further supplementation was necessary.

The Corps granted the easement on February 8, 2017, and after the district court denied Cheyenne River's motion for a preliminary injunction and temporary restraining order, both the Tribes and the Corps moved for partial summary judgment on several claims. The district court concluded that the Corps's decision not to issue an EIS violated NEPA by failing to adequately consider three issues: whether the project's effects were likely to be "highly controversial," the impact of a hypothetical oil spill on the Tribes' fishing and hunting rights, and the environmental-justice effects of the project. *Standing Rock III*, 255 F. Supp. 3d at 111-12. It accordingly remanded the matter to the agency to address those three issues. *Id.* at 160-61.

After the Corps completed its remand analysis in February 2019, the parties again moved for summary judgment, with the Tribes arguing that the Corps failed to remedy its NEPA violations and pressing several other non-NEPA claims. *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers (Standing Rock V)*, 440 F. Supp. 3d 1, 11 (D.D.C. 2020). Based on its examination of four topics of criticism out of "many . . . to choose from," *id.* at 17, the district court concluded

that “many commenters in this case pointed to serious gaps in crucial parts of the Corps’ [s] analysis,” demonstrating that the easement’s effects were “likely to be highly controversial,” *id.* at 26 (internal quotation marks omitted). It therefore remanded to the agency for it to complete an EIS but reserved the question whether the easement should be vacated during the remand. *Id.* at 29-30. Following additional briefing, the court concluded that vacatur was warranted, *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers (Standing Rock VII)*, 471 F. Supp. 3d 71, 87 (D.D.C. 2020), and ordered that “Dakota Access shall shut down the pipeline and empty it of oil by August 5, 2020,” Order, *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, No. 16-cv-01534-JEB, at 2 (D.D.C. July 6, 2020), ECF No. 545.

The Corps and Dakota Access now appeal the district court’s order remanding for preparation of an EIS, as well as its separate order granting vacatur of the pipeline’s MLA easement and ordering that the pipeline be shut down. While this appeal was pending, a motions panel denied the Corps’s request to stay the vacatur of the easement but granted its request to stay the district court’s order to the extent it enjoined the pipeline’s use. Order, *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, No. 20-5197, at 1 (D.C. Cir. Aug. 5, 2020) (August 5 Order).

II.

The Corps, together with Dakota Access, challenges the district court’s conclusion that the effects of the Corps’s easement decision were “likely to be highly controversial” under NEPA. A decision is “highly controversial,” we explained in *National Parks*

Conservation Association v. Semonite, if a “substantial dispute exists as to the size, nature, or *effect* of the major federal action.” 916 F.3d at 1083 (internal quotation marks omitted). But not just any criticism renders the effects of agency action “highly controversial.” Rather, “*something more* is required for a highly controversial finding besides the fact that some people may be highly agitated and be willing to go to court over the matter.” *Id.* (internal quotation marks omitted).

In *National Parks*, we clarified what more is required. There, we considered the Corps’s decision to forgo an EIS before approving a permit authorizing an electrical infrastructure project in a historically significant area. “[T]he Corps’s assessment of the scope of the Project’s effects ha[d] drawn consistent and strenuous opposition, often in the form of concrete objections to the Corps’s analytical process and findings, from agencies entrusted with preserving historical resources and organizations with subject-matter expertise.” *Id.* at 1086. Because those criticisms reflected “the considered responses . . . of highly specialized governmental agencies and organizations” rather than “the hyperbolic cries of . . . not-in-my-backyard neighbors,” we found the effects of the Corps’s decision “highly controversial.” *Id.* at 1085-86. “[R]epeated criticism from many agencies who serve as stewards of the exact resources at issue, not to mention consultants and organizations with on-point expertise, surely rises to more than mere passion.” *Id.* at 1085. And while the Corps “did acknowledge and try to address [those] concerns,” that was not enough to put the controversy to rest. *Id.* at 1085-86. “The question is not

whether the Corps attempted to resolve the controversy, but whether it succeeded.” *Id.* Indeed, an EIS is perhaps especially warranted where an agency explanation confronts but fails to resolve serious outside criticism, leaving a project’s effects uncertain. “Congress created the EIS process to provide robust information in situations . . . where, following an environmental assessment, the scope of a project’s impacts remains both uncertain and controversial.” *Id.* at 1087-88.

The Corps and Dakota Access advance two arguments: that, in relying on *National Parks*, the “district court applied the wrong legal standard,” Appellant’s Br. 14, and that the Corps adequately addressed the four specific disputes on which the district court relied in finding the effects of the Corps’s easement decision likely to be highly controversial. We disagree as to both.

The Corps offers two bases for distinguishing this case from *National Parks*. First, it argues that here, in contrast to in *National Parks*, “the Corps’ [s] efforts to respond to the Tribes’ criticisms were not ‘superficial.’” Appellant’s Br. 19. That distinction, however, rests on an inaccurate description of *National Parks*. Contrary to the Corps’s claim that we deemed “superficial and inadequate” the Corps’s response to criticisms, we pointedly explained that we took “no position on the adequacy of the Corps’s alternatives analyses.” *National Parks*, 916 F.3d at 1088. Instead, we noted only that other agencies had expressed concerns about the superficiality and inadequacy of the Corps’s efforts. *Id.* Furthermore, the Corps’s position that a response to criticism suffices so long as it is not “su-

perfidious” is hard to square with our statement in *National Parks* that “[t]he question is not whether the Corps attempted to resolve the controversy, but whether it succeeded.” *Id.* at 1085-86. The decisive factor is not the volume of ink spilled in response to criticism, but whether the agency has, through the strength of its response, convinced the court that it has materially addressed and resolved serious objections to its analysis, a matter requiring us to delve into the details of the Tribes’ criticisms—to which we shall turn momentarily.

As a second basis for distinguishing *National Parks*, the Corps emphasizes that the “opposition here has come from the Tribes and their consultants, not from disinterested public officials.” Appellant’s Br. 20. But the Tribes are not, as Dakota Access suggested at oral argument, “quintessential . . . not-in-my-backyard neighbors.” Oral Arg. Tr. 97:17-18. They are sovereign nations with at least some stewardship responsibility over the precise natural resources implicated by the Corps’s analysis. “Indian tribes within Indian country are,” the Supreme Court has declared, “a good deal more than private, voluntary organizations.” *Merrion v. Jicarilla Apache Tribe*, 455 U.S. 130, 140 (1982) (internal quotation marks omitted). Rather, they are “domestic dependent nations that exercise inherent sovereign authority over their members and territories” and the resources therein. *Oklahoma Tax Commission v. Citizen Band Potawatomi Indian Tribe of Oklahoma*, 498 U.S. 505, 509 (1991) (internal quotation marks omitted); see also *New Mexico v. Mescalero Apache Tribe*, 462 U.S. 324, 335 (1983) (“We have held that tribes have the

power to manage the use of [their] territory and resources by both members and nonmembers”); *Merrion*, 455 U.S. at 140 (“Indian tribes . . . are unique aggregations possessing attributes of sovereignty over both their members and their territory.” (internal quotation marks omitted)).

The Tribes’ unique role and their government-to-government relationship with the United States demand that their criticisms be treated with appropriate solicitude. Of course, as the Corps points out, the Tribes are not the federal government. But in *National Parks*, we emphasized the important role played by entities other than the federal government. There, criticism came from “highly specialized governmental agencies and organizations,” including the Virginia Department of Historic Resources and several conservation groups. *National Parks*, 916 F.3d at 1084-85; see also *North Carolina v. Federal Aviation Administration*, 957 F.2d 1125, 1131-33 (4th Cir. 1992) (finding “legitimate controversy” present where “[s]tate, local and federal officials, interested individuals,” and a federal agency “expressed concern”); *Foundation for North American Wild Sheep v. U.S. Department of Agriculture*, 681 F.2d 1172, 1182 (9th Cir. 1982) (finding that criticism from “conservationists, biologists,” two state agencies, and “other knowledgeable individuals” demonstrated the existence of “precisely the type of ‘controversial’ action for which an EIS must be prepared”); *Friends of the Earth, Inc. v. U.S. Army Corps of Engineers*, 109 F. Supp. 2d 30, 43 (D.D.C. 2000) (finding that a project was “genuinely and extremely controversial” where “three federal agencies,” “one state agency,” and the public “all

disputed the Corps[‘s] evaluation”). The Tribes are of at least equivalent status.

With the proper legal framework in mind, we turn to the four disputed facets of the Corps’s analysis that the district court found involved unresolved scientific controversies for purposes of NEPA’s “highly controversial” factor.

DAPL’s Leak Detection System

The district court found that serious unresolved controversy existed concerning the effectiveness of DAPL’s leak detection system. Specifically, it found that the 2012 Pipeline and Hazardous Materials Safety Administration (PHMSA) study submitted with Standing Rock’s expert report “indicated an 80% failure rate in the type of leak-detection system employed by DAPL.” *Standing Rock V*, 440 F. Supp. 3d at 18. The court went on to note that “the system was not even designed to detect leaks that constituted 1% or less of the pipe’s flow rate,” which could amount to 6,000 barrels a day. *Id.* Because the Corps “failed entirely to respond to” those deficiencies, the court found that the Corps had not succeeded in resolving the controversy presented by the study. *Id.* at 17-18.

On appeal, the Corps correctly points out that the 2012 PHMSA study does not reflect an 80% “failure rate.” Rather, the study indicates that in 80% of all incidents where it was in use and “functional,” the “computational pipeline monitoring” (CPM) system used by DAPL was not the first system to detect a leak. That the CPM system was commonly eclipsed by visual identification, however, casts serious, unaddressed doubt on the Corps’s statement that the system will “detect the pressure drop from a pipeline

rupture within seconds.” Appellant’s Br. 21 (internal quotation marks omitted). As the PHMSA study explains, “CPM systems by themselves did not appear to respond more often than personnel . . . or members of the public passing by the release incident.” U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Final Report Leak Detection Study 2-11 (Dec. 10, 2012). The Corps has failed to address the apparent disconnect, suggested by the PHMSA study, between the CPM system’s historic performance and the agency’s representations about its future utility. Indeed, the Corps acknowledges that it “did not explicitly discuss the 2012 PHMSA report” in its review. Appellant’s Br. 22. The consequences of that oversight are especially significant since DAPL is buried deep underground and visual identification is therefore unlikely to make up for deficiencies in the CPM system, as it apparently has in the incidents included in the PHMSA study.

Attempting to discount the significance of the Corps’s failure to consider the 2012 PHMSA study, the Corps and Dakota Access observe that the study included older pipelines and that the type of pinhole leaks the study suggests the CPM system might initially miss are rare. But as the district court noted, the Tribes’ expert observed that “more recent investigations” corroborated the study’s leak detection data. *Standing Rock V*, 440 F. Supp. 3d at 17 (internal quotation marks omitted). The Corps’s failure to address the study cannot be justified by the mere fact that the study’s data set includes *some* older pipelines.

As for the rarity of pinhole leaks, the Tribes pointed to “numerous examples of pipelines that

leaked for hours or days after similar detection systems failed.” Appellees’ Br. 27. In one such instance, DAPL’s own operator spilled 8,600 barrels of oil during a 12-day-long slow leak in 2016, even though the monitoring system in use there showed the exact same type of “detectable meter imbalance” that the Corps here claims will quickly alert DAPL’s operators to a slow leak. *See* Supplemental Appendix (S.A.) 317-18. That same year, at another pipeline buried deep underground in North Dakota, an operator’s leak detection system “registered an imbalance” and “notified the control room”—but the control room “misinterpreted its own data[.]” PHMSA, Post-Hearing Decision Confirming Corrective Action Order, Belle Fourche Pipeline Co. 5 (Mar. 24, 2017), https://primis.phmsa.dot.gov/comm/reports/enforce/documents/520165013H/520165013H_HQ%20Post%20Hearing%20Decision%20Confirming%20CAO_03242017.pdf. That led to a slow release of more than 12,600 barrels of oil into a nearby creek over at least a two-day period, until it was discovered by a rancher at the release site. *Id.* at 1-2; S.A. 711. So there is ample reason to believe that the magnitude of harm from such a leak could be substantial.

Appearing to acknowledge those troubling examples, the Corps discounts their significance by asserting that leaks will eventually be found. But how rapidly such leaks would be detected and their potential severity are key factors underlying the Corps’s EA and precisely the issues called into question by the Tribes’ unaddressed criticism. We also note that the volume of a one percent spill from a pinhole leak would double if the volume of oil placed in the pipeline

were itself to double. And DAPL's operator has represented to its investors that it intends to double the amount of oil it places in the pipeline as early as this coming summer. *See Illinois approves expansion of Dakota Access oil pipeline*, Reuters, Oct. 15, 2020, <https://www.reuters.com/article/us-energy-transfer-oil-pipeline-illinois-idUSKBN2702DL>. In any event, when asked why the EA did not evaluate the potential consequences of an undetected slow pinhole leak, the Corps responded that "there was no particular reason" it did not do so. Oral Arg. Tr. 12:8-9, *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, No. 16-cv-01534-JEB (D.D.C. Mar. 18, 2020), ECF No. 498. The Tribes' criticisms therefore present an unresolved controversy requiring the Corps to prepare an EIS.

DAPL's Operator Safety Record

The district court found that the Corps's decision to rely in its risk analysis on general pipeline safety data, rather than DAPL's operator's specific safety record, rendered the effects of the Corps's decision highly controversial. We agree.

To analyze the Corps's risk assessment, Standing Rock retained as an expert "an attorney, investigator, and process safety practitioner with many decades of experience." Holmstrom Decl. ¶ 1, S.A. 79-80. The expert explained that "PHMSA data shows Sunoco," DAPL's operator, "has experienced 276 incidents in 2006-2016," which the expert described as "one of the lower performing safety records of any pipeline operator in the industry for spills and releases." *Id.* ¶ 9.

Here, as in the district court, "[t]he Corps focuse[s] its responses on defending the operator's performance record itself rather than on justifying its decision to

not incorporate that record into its analysis.” *Standing Rock V*, 440 F. Supp. 3d at 19. In so doing, the Corps and Dakota Access make two arguments.

First, the Corps emphasizes that “70% of [DAPL’s] operator’s reported accidents on other pipelines were minor and limited to the operator’s property.” Appellant’s Br. 31. But that does nothing to address the “[t]wo central concerns” on which the district court based its decision: “(1) the 30% of spills—about 80 of them—that were *not* limited to operator property; and (2) the criticism that the spill analysis should have incorporated the operator’s record.” *Standing Rock V*, 440 F. Supp. 3d at 20. For its part, Dakota Access argues that while Sunoco’s number of leaks is high, its number of spills per mile of pipeline operated “is in line with industry averages.” Intervenor’s Br. 22. Not only has Dakota Access failed to identify record evidence supporting that assertion, the relevant evidence that does exist suggests a serious risk that Sunoco’s record is worse than the industry average. The Corps’s own analysis concluded that, industry-wide, there were 0.953 onshore crude oil accidents per 1,000 miles of pipeline in 2016 and 0.848 in 2017. U.S. Army Corps of Engineers, Analysis of the Issues Remanded by the U.S. District Court for the District of Columbia Related to the Dakota Access Pipeline Crossing at Lake Oahe 13 (Aug. 31, 2018). By contrast, Dakota Access’s expert explained that Energy Transfer, Sunoco’s parent company following a merger, experienced 1.42 “reportable incidents per 1,000 miles of pipeline”—after a 50% decline in incidents on Sunoco lines since 2017. Second Godfrey Decl. ¶ 7, A. 1612. If anything, comparing that figure to the industry-wide average understates the safety gap between

Sunoco and other operators because, as Dakota Access and its expert observe, Sunoco is “one of the largest pipeline operators,” Intervenor’s Br. 22, and its own incidents are included in the average. *See* Appellant’s Br. 32 (“The Corps also considered PHMSA’s historical data on oil spills, which necessarily includes this operator’s safety record.”).

Nor are we persuaded by the Corps’s second argument, that it had no need at all to address the operator safety controversy. Though the Corps may have considered “other objective measures of the operator’s safety practices,” Appellant’s Br. 31, the cited materials—industry-wide spill data and a questionnaire about Sunoco’s safety practices—fall short of resolving the controversy. The Corps contends that its “decision to use all data on oil spills, and not just the operator’s safety record, is the kind of technical judgment that is entrusted to the agency and entitled to deference from the Court.” Appellant’s Br. 32. That is not at all clear. For example, it would be strange indeed if we were to defer to the Federal Aviation Administration’s decision to renew the operating certificate of an airline with an extremely poor safety record on the basis that the airline industry, on average, is safe. The Supreme Court, moreover, has “frequently reiterated that an agency must cogently explain why it has exercised its discretion in a given manner,” *Motor Vehicle Manufacturers Ass’n of the United States, Inc. v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 48 (1983), and the Corps has made no effort to do so here. To treat the Corps’s unadorned plea for deference as a sufficient basis for ignoring well-reasoned expert criticism would vitiate *National Parks*.

Winter Conditions

The district court found the Corps's response insufficient to resolve criticism of the agency's "failure to consider the impact of harsh North Dakota winters on response efforts in the event of a spill." *Standing Rock V*, 440 F. Supp. 3d at 20. In particular, the Tribes' experts explained that shut-off valves might be more prone to failure and response efforts hindered by freezing conditions. Elaborating, Oglala's expert explained that "winter conditions create significant difficulties" because, among other things, "workers require more breaks and move slower due to the bundling of clothing," "daylight hours are shorter," and "slip-trip-fall risk increases significantly." Earthfax Report at 7, A. 830.

The Corps argues that it had no need to engage in a quantitative evaluation of a winter spill scenario because its non-quantitative response was adequate. Appellant's Br. 29-30. In the Corps's view, it adequately considered winter conditions by noting that ice coverage could "have a mixed effect on efforts to contain an oil spill" and by ordering DAPL's operator to conduct winter spill response training exercises at Lake Oahe as a condition of the easement. Appellant's Br. 29. But the Corps's passing reference to winter conditions' "mixed" effects, without more, provides little comfort. The Corps's point might have been more forceful had the agency estimated just how much time during a spill would be saved by the oil-containing properties of ice and compared that to the additional time required to identify oil pockets and adjust work methods to extreme conditions. Indeed, it seems that such an analysis is precisely what the Tribes believe the Corps ought to have done, and such a reasoned

weighing of the evidence would have been entitled to substantial deference. But instead, faced with serious expert criticism, the Corps simply declared the evidence “mixed” and offered no attempt at explaining its apparent conclusion that winter’s countervailing effects measured out to zero. Moreover, we agree with the district court that while winter response training may be “prudent and perhaps a good avenue for producing data as to how exactly winter conditions would delay response efforts,” such exercises do “not get to the point of addressing the concern that the spill model does not currently take that kind of data into account.” *Standing Rock V*, 440 F. Supp. 3d at 21.

The Corps next argues that the Tribes failed to present a “specific alternative methodology” for incorporating winter conditions into its spill response modeling. Appellant’s Br. 30. But the fact that an established methodology for assessing the consequences of a unique type of risk is not readily apparent to commenters hardly means an agency can discount relevant, serious criticism of its method of analysis. Although the Corps emphasizes in its brief that “no one has identified any way to calculate exactly how much more difficult” a clean-up would be during winter, Appellant’s Br. 30, our review “is limited to the grounds that the agency invoked when it took the action,” *Department of Homeland Security v. Regents of the University California*, 140 S. Ct. 1891, 1907 (2020) (internal quotation marks omitted), and the Corps does not suggest that, during its environmental review process, it actually applied its technical expertise to consider whether it was possible to identify such a method. Had the Corps considered the problem and

concluded that no comprehensive analysis was possible, that might have amounted to “successfully” resolving the controversy. But the Corps cannot foist its duty to consider such technical matters onto commenters who point out valid deficiencies.

Worst Case Discharge

The district court considered the “largest area of scientific controversy” to be “the worst-case-discharge estimate for DAPL used in the spill-impact analysis.” *Standing Rock V*, 440 F. Supp 3d at 21. The regulations set forth a detailed formula for calculating the worst-case discharge, 49 C.F.R. § 194.105(b)(1), but we need not delve into its specifics here. “The idea,” the district court succinctly explained, “is to calculate the maximum amount of oil that could possibly leak from the pipeline before a spill is detected and stopped.” *Standing Rock V*, 440 F. Supp. 3d at 21.

According to the Corps, we need not consider the Tribes’ criticisms because “an accident leading to a full-bore rupture of the pipeline is extremely unlikely” and, in any event, no statute or regulation required the Corps to calculate the worst-case discharge at all. Appellant’s Br. 26. The thrust of both arguments is that because the Corps need not have calculated a worst-case discharge in the first place, it is unimportant whether it did so in a reasonable manner. But we agree with the district court that because the Corps chose to perform such a calculation and then relied on it throughout its analysis, it cannot dispel serious doubts about its methods by explaining that it could have forgone such a calculation in the first place. *See Sierra Club v. Sigler*, 695 F.2d 957, 966 (5th Cir. 1983) (“The purpose of judicial review under

NEPA is to ensure the procedural integrity of the agency's consideration of environmental factors in the EIS and in its decision to issue permits. If the agency follows a particular procedure, it is only logical to review the agency's adherence to that procedure, not to some altogether different one that was not used."). We therefore turn to the Tribes' criticisms of the Corps's calculations.

The Corps estimated that, for purposes of a worst-case discharge, it would take 9 minutes to detect a leak and 3.9 minutes to close the shut-down valves. Appellant's Br. 26-27. Before the district court, the Corps suggested that its nine-minute figure included one minute of detection time, with the remaining eight minutes devoted to shutting down the mainline pumps. *Standing Rock V*, 440 F. Supp. 3d at 23. But as the district court observed, the Tribes pointed to "many experts who commented that hours, rather than minutes, were more accurate figures for the [worst-case discharge]." *Id.* The Tribes' expert explained that "[m]ajor spill incidents typically occur with multiple system causes, when people, or equipment, or systems do not function exactly as they are expected to." Holmstrom Decl. ¶ 11, S.A. 83. The Corps's explanation that its response time estimates were mildly conservative does not begin to explain its choice to ignore the real-world possibility of significant human errors or technical malfunctions, *see supra* at 18-19, in calculating what it claimed was a worst-case estimate. Although the PHMSA formula did not require the Corps to model a complete doomsday scenario in which every possible human error and technical malfunction occurs simultaneously, we agree with the district court that the Corps's failure to

explain why it declined to consider any such eventualities leaves unresolved a substantial dispute as to its worst-case discharge calculation.

The Corps also argues that, even if, as the Tribes claim, some aspects of the model are unduly optimistic, the model is nonetheless sufficiently conservative because it assumes the pipeline lies directly on top of the water rather than beneath ninety-two feet of overburden. Appellant's Br. 25-26. In effect, the Corps tries to defend its decision to develop a model that assumes away significant risks by explaining that, despite those omissions, it analyzed an imaginary pipeline of *roughly* equivalent risk to DAPL—one laying directly on top of Lake Oahe, but with superior leak detection and shut-down valve systems. The Corps, however, never explains why its one conservative assumption accurately counterbalances the particular risks the Tribes identify. Accordingly, the model's assumption that DAPL lies directly on the water fails to resolve the controversies raised by the Tribes' criticisms.

* * *

Having determined that several serious scientific disputes mean that the effects of the Corps's easement decision are likely to be "highly controversial," we turn to one other issue before considering the appropriate remedy. The Corps and Dakota Access repeatedly urge that, whatever the merits of the Tribes' criticisms, the Corps's easement decision cannot be highly controversial because the risk of a spill is exceedingly low and because the pipeline's location deep

underground provides protection against the consequences of any spill. That argument faces two major hurdles.

First, the claimed low risk of a spill rests, in part, on the Corps's use of generalized industry safety data and its optimism concerning its ability to respond to small leaks before they worsen—precisely what the Tribes' unresolved criticisms address. Second, as our court made clear in *New York v. Nuclear Regulatory Commission*, 681 F.3d 471,478-79 (D.C. Cir. 2012), “[u]nder NEPA, an agency must look at both the probabilities of potentially harmful events and the consequences if those events come to pass.” *Id.* at 148. A finding of no significant impact is appropriate only if a grave harm’s “probability is so low as to be remote and speculative, or if the combination of probability and harm is sufficiently minimal.” *Id.* at 147-48 (internal quotation marks omitted). Doing away with the obligation to prepare an EIS whenever a project presents a low-probability risk of very significant consequences would wall off a vast category of major projects from NEPA’s EIS requirement. After all, the government is not in the business of approving pipelines, offshore oil wells, nuclear power plants, or spent fuel rod storage facilities that have any material prospect of catastrophic failure. In this case, although the risk of a pipeline leak may be low, that risk is sufficient “that a person of ordinary prudence would take it into account in reaching a decision” to approve the pipeline’s placement, and its potential consequences are therefore properly considered here. *Sierra Club v. FERC*, 827 F.3d 36, 47 (D.C. Cir. 2016) (quoting *City of Shoreacres v. Waterworth*, 420 F.3d 440,453 (5th Cir. 2005)).

III.

This brings us to the Corps’s challenge to the district court’s remedy, and specifically to its orders (1) requiring that the Corps prepare an EIS, (2) vacating the easement pending preparation of an EIS, and (3) ordering that the pipeline be shut down and emptied of oil.

As already explained, “[i]mplicating any one of the [intensity] factors may be sufficient to require development of an EIS.” *National Parks*, 916 F.3d at 1082. Dakota Access argues that because implicating the “highly controversial” factor does not itself *mandate* preparation of an EIS, the district court erred in ordering the Corps to prepare one. In *National Parks*, however, we ordered the Corps to prepare an EIS where, as here, it “failed to make a ‘convincing case’ that an EIS is unnecessary.” *Id.* at 1087 (quoting *Myersville Citizens for a Rural Community, Inc. v. FERC*, 783 F.3d 1301, 1322 (D.C. Cir. 2015)). *National Parks* thus forecloses the idea that we must ordinarily remand to the agency to weigh the intensity factors anew whenever we find that it improperly analyzed one of them.

That *National Parks* involved multiple intensity factors is at most a superficial distinction between this case and *National Parks*. For one thing, as explained above, the effects of the Corps’s easement decision are “highly controversial” in *four* distinct respects, and we see no good reason for treating differently a decision that implicates multiple significance factors and a decision that implicates a single factor in several important ways. Moreover, both *National*

Parks and this case present “precisely” the circumstances in which Congress intended to require an EIS, namely “where, following an environmental assessment, the scope of a project’s impacts remains both uncertain and controversial.” *Id.* at 1087-88. Finally, as in *National Parks*, the “context” of this case—“a place of extraordinary importance to the Tribes, a landscape of profound cultural importance, and the water supply for the Tribes and millions of others”—weighs in favor of requiring an EIS. Appellees’ Br. 40-41. And in at least one sense, the case for ordering production of an EIS is stronger here than in *National Parks* or the cases on which Dakota Access relies, Intervenor’s Br. 29-30, given that, unlike in those cases, the district court has already given the Corps an opportunity to resolve the Tribes’ serious criticisms and it failed to do so.

The Corps and Dakota Access next argue that, even if the district court properly ordered the Corps to prepare an EIS, the court abused its discretion by vacating the pipeline’s easement in the interim. “The ordinary practice,” however, “is to vacate unlawful agency action,” *United Steel v. Mine Safety & Health Administration*, 925 F.3d 1279, 1287 (D.C. Cir. 2019) (citing 5 U.S.C. § 706(2)), and district courts in this circuit routinely vacate agency actions taken in violation of NEPA. *See, e.g., Humane Society of the United States v. Johanns*, 520 F. Supp. 2d 8, 37 (D.D.C. 2007) (observing that vacatur is the “standard remedy” for an “action promulgated in violation of NEPA”); *Greater Yellowstone Coalition v. Bosworth*, 209 F. Supp. 2d 156, 163 (D.D.C. 2002) (“[P]laintiffs . . . seek a vacatur of the permit . . . until the [agency] complies with NEPA. As a general matter, an agency action

that violates the APA must be set aside. . . . Based on this authority, I shall vacate the permit”).

“While unsupported agency action normally warrants vacatur, [a] court is not without discretion” to leave agency action in place while the decision is remanded for further explanation. *Advocates for Highway and Auto Safety v. Federal Motor Carrier Safety Administration*, 429 F.3d 1136, 1151 (D.C. Cir. 2005) (citation omitted). In *Allied-Signal, Inc. v. U.S. Nuclear Regulatory Commission*, 988 F.2d 146 (D.C. Cir. 1993), our court set forth the two factors governing that exercise of discretion: “The decision whether to vacate depends on the seriousness of the order’s deficiencies (and thus the extent of doubt whether the agency chose correctly) and the disruptive consequences of an interim change that may itself be changed.” *Id.* at 150-51 (internal quotation marks omitted). The “seriousness” of a deficiency, we have explained, is determined at least in part by whether there is “a significant possibility that the [agency] may find an adequate explanation for its actions” on remand. *Williston Basin Interstate Pipeline Co. v. FERC*, 519 F.3d 497, 504 (D.C. Cir. 2008). “We review the district court’s decision to vacate . . . for abuse of discretion.” *Nebraska Department of Health & Human Services v. Department of Health & Human Services*, 435 F.3d 326, 330 (D.C. Cir. 2006).

As to the first factor, the district court concluded that the Corps was unlikely to resolve the controversies on remand because the court had previously remanded without vacatur for just that purpose and the Corps had nonetheless failed to resolve them. *Standing Rock VII*, 471 F. Supp. 3d at 79-80. The court also

explained that the Corps focused on the wrong question: whether, on remand, it would be able to justify its easement decision rather than its decision to forgo an EIS. *Id.* at 81. (“Looking at the first *Allied-Signal* factor, the Court does not assess the deficiency of the ultimate decision itself—the choice to issue the permit—but rather *the deficiency of the determination that an EIS was not warranted.*” (internal quotation marks omitted)).

With respect to the disruptive consequences of vacatur, the district court understood that shutting down pipeline operations would cause Dakota Access and other entities significant economic harm. But for four reasons it concluded that those effects did not justify remanding without vacatur. First, the Corps’s expedited timeline for preparing an EIS “would cabin the economic disruption of a shutdown.” *Id.* at 84. Second, though economic disruption is properly considered, it is not commonly a basis, standing alone, for declining to vacate agency action. *Id.* at 84-85. Third, Dakota Access’s approach would subvert NEPA’s objectives. “[I]f you can build first and consider environmental consequences later, NEPA’s action-forcing purpose loses its bite.” *Id.* at 85. And finally, the countervailing risk of a spill—difficult to quantify in part because of the Corps’s failure to prepare an EIS—counseled in favor of vacatur. *Id.* at 85-86. The district court discounted as “inconclusive” Dakota Access’s evidence that if DAPL were inoperative, more oil would be transported by rail, a riskier alternative. *Id.* at 87.

On appeal, Dakota Access takes primary responsibility for arguing against vacatur. It contends first that the Corps can “easily substantiate its easement

decision on remand even if it must prepare an EIS.” Intervenor’s Br. 33. But that is not the question. As the district court explained, the question is whether the Corps is likely to justify its issuance of a FONSI and refusal to prepare an EIS. Dakota Access argues that *Heartland Regional Medical Center v. Sebelins*, 566 F.3d 193 (D.C. Cir. 2009), supports its contrary view that the *Allied-Signal* factors look to whether an agency can justify the action the court is considering whether to vacate, rather than the challenged procedural decision. There, we sought to determine whether an earlier district court decision had, by declaring a regulatory requirement invalid for failing to consider certain public comments, necessarily vacated the regulation. In making that determination, we concluded that the *Allied-Signal* factors would have directed remand without vacatur. *Id.* at 197-98. But because the agency had not elected to forgo a procedural requirement (in that case, notice and comment), only one agency action—the decision to promulgate the challenged rule—was implicated at all. *Heartland Regional* therefore says nothing one way or the other about the proper focus of the *Allied-Signal* inquiry in cases, like this one, where we confront a distinct challenge to an agency’s decision to forgo a major procedural step in its path to its ultimate action. *Cf. id.* at 199 (“Failure to provide the required notice and to invite public comment—in contrast to the agency’s failure here adequately to explain why it chose one approach rather than another for one aspect of an otherwise permissible rule—is a fundamental flaw that normally requires vacatur of the rule.” (internal quotation marks omitted)). Besides, the district court’s view is more sensible.

Consider the consequences of Dakota Access’s contrary approach. If, when an agency declined to prepare an EIS before approving a project, courts considered only whether the agency was likely to ultimately justify the approval, it would subvert NEPA’s purpose by giving substantial ammunition to agencies seeking to build first and conduct comprehensive reviews later. If an agency were reasonably confident that its EIS would ultimately counsel in favor of approval, there would be little reason to bear the economic consequences of additional delay. For similar reasons, an agency that bypassed required notice and comment rulemaking obviously could not ordinarily keep in place a regulation while it completed that fundamental procedural prerequisite. *See Daimler Trucks North America LLC v. EPA*, 737 F.3d 95, 103 (D.C. Cir. 2013) (“[T]he court typically vacates rules when an agency ‘entirely fail[s]’ to provide notice and comment” (quoting *Shell Oil Co. v. EPA*, 950 F.2d 741, 752 (D.C. Cir. 1991))). When an agency bypasses a fundamental procedural step, the vacatur inquiry asks not whether the ultimate action could be justified, but whether the agency could, with further explanation, justify its decision to skip that procedural step. Otherwise, our cases explaining that vacatur is the default response to a fundamental procedural failure would make little sense.

Even were we to consider the Corps’s odds of ultimately approving the easement, our case law still instructs that a failure to prepare a required EIS should lead us to doubt that the ultimate action will be approved. In *Oglala Sioux Tribe v. U.S. Nuclear Regulatory Commission*, 896 F.3d 520 (D.C. Cir. 2018), we explained that because NEPA is a “purely procedural

statute,” where an agency’s NEPA review suffers from “a significant deficiency,” refusing to vacate the corresponding agency action would “vitate” the statute. *Id.* at 536 (internal quotation marks omitted). As we made clear, “[p]art of the harm NEPA attempts to prevent in requiring an EIS is that, without one, there may be little if any information about *prospective* environmental harms and potential mitigating measures.” *Id.* (internal quotation marks omitted). Put another way, *Oglala* strongly suggests that where an EIS was required but not prepared, courts should harbor substantial doubt that ‘the agency chose correctly’ regarding the *substantive* action at issue—in this case, granting the easement. *Id.* at 538 (quoting *Allied-Signal*, 988 F.2d at 150-51). The Corps resists the proposition that *Oglala* cautions against applying *Allied-Signal* in NEPA cases, but that is not the point. The point is that *Oglala*’s application of those factors suggests that NEPA violations are serious notwithstanding an agency’s argument that it might ultimately be able to justify the challenged action.

As for vacatur’s consequences, Dakota Access contends that while the district court “acknowledged the severe economic disruption that vacatur would cause,” it “wrongly discounted those severe consequences” and “credit[ed] remote, unsubstantiated harms.” Intervenor’s Br. 35. But in reviewing for abuse of discretion, we “consider whether the decision maker failed to consider a relevant factor, whether he [or she] relied on an improper factor, and whether the reasons given reasonably support the conclusion.” *Kickapoo Tribe of Indians of Kickapoo Reservation in Kansas v. Babbitt*, 43 F.3d 1491, 1497 (D.C. Cir. 1995) (alteration in original) (internal quotation marks omitted).

In doing so, we may not “substitute our judgment for that of the trial court, so we cannot decide the issue by determining whether we would have reached the same conclusion.” *United States v. Mathis—Gardner*, 783 F.3d 1286, 1288 (D.C. Cir. 2015) (citation omitted) (internal quotation marks omitted). Dakota Access believes that the district court’s assessment of a shutdown’s economic impacts was far too rosy and that the court “ignored” a shutdown’s environmental consequences. But the court considered all important aspects of the issue and reasonably concluded that the harms were less severe than the Corps and Dakota Access suggested. In view of the discretion owed the district court and the seriousness of the NEPA violation, Dakota Access has given us no basis for concluding that the district court abused its discretion in applying the *Allied-Signal* factors. See *National Parks Conservation Association v. Semonite*, 925 F.3d 500, 502 (D.C. Cir. 2019) (“[The district] court is best positioned to . . . make factual findings[] and determine the remedies necessary to protect the purpose and integrity of the EIS process.”); *Stand Up for California! v. U.S. Department of Interior*, 879 F.3d 1177, 1190 (D.C. Cir. 2018) (“[T]he district court acted well within its discretion in finding vacatur unnecessary to address any harm the defect had caused.”).

In any event, Dakota Access’s assessment of vacatur’s consequences is undercut significantly by the fact that we agree that the district court’s shutdown order cannot stand.

On August 5, 2020, a motions panel of this court ordered that “to the extent the district court issued an injunction by ordering Dakota Access LLC to shut down the Dakota Access Pipeline and empty it of oil

by August 5, 2020, the injunction be stayed.” August 5 Order at 1. Relying on the Supreme Court’s decision in *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139 (2010), the panel explained that “[t]he district court did not make the findings necessary for injunctive relief.” August 5 Order at 1 (“[B]efore issuing an injunction in a [NEPA] case, ‘a court must determine that an injunction should issue under the traditional four-factor test.’” (quoting *Monsanto*, 561 U.S. at 158)).

The Tribes argue that an injunction was unnecessary because vacatur itself “invalidat[ed] the underlying easement,” thus requiring the “suspension of pipeline operations pending compliance with NEPA.” Appellees’ Br. 73-74. That is the view the district court appeared to adopt, *Standing Rock VII*, 471 F. Supp. 3d at 88 (requiring, after vacating the pipeline’s easement, “the oil to stop flowing and the pipeline to be emptied within 30 days”), and that approach finds some support in our case law. For instance, in *Sierra Club v. FERC*, 867 F.3d 1357, 1379 (D.C. Cir. 2017), we vacated a pipeline authorization due to a NEPA violation and appeared to assume that vacatur encompassed an end to construction. Likewise in *National Parks*, we appeared to accept the parties’ assumption that vacating Corps-issued construction permits would require ceasing construction of the challenged electrical towers or tearing them down. See *National Parks*, 925 F.3d at 502.

The Tribes’ approach, however, cannot be squared with *Monsanto*, which should caution against reading too far into our tacit approval of shutdown orders in prior cases. If a district court could, in every case, effectively enjoin agency action simply by recharacter-

izing its injunction as a necessary consequence of vacatur, that would circumvent the Supreme Court's instruction in *Monsanto* that "a court must determine that an injunction *should* issue under the traditional four-factor test." 561 U.S. at 158. In fact, the Tribes have already moved for a permanent injunction in the district court during the pendency of this appeal, and that motion is fully briefed.

Furthermore, *Sierra Club* and *National Parks* differ from this case in a subtle but important way. Those cases involved challenges to agency authorizations of the very activities the court assumed would end. Vacating a construction permit in *National Parks*, for instance, naturally implied an end to construction. Here, in contrast, we affirm the vacatur of an easement authorizing the pipeline to cross federal lands. With or without oil flowing, the pipeline will remain an encroachment, leaving the precise consequences of vacatur uncertain. In fact, the parties have identified no other instance—and we have found none—in which the sole issue before a court was whether an easement already in use (rather than a construction or operating permit) must be vacated on NEPA grounds. That makes this case quite unusual and cabins our decision to the facts before us.

It may well be—though we have no occasion to consider the matter here—that the law or the Corps's regulations oblige the Corps to vindicate its property rights by requiring the pipeline to cease operation and that the Tribes or others could seek judicial relief under the APA should the Corps fail to do so. But how and on what terms the Corps will enforce its property rights is, absent a properly issued injunction, a matter for the Corps to consider in the first instance, though

we would expect it to decide promptly. To do otherwise would be to issue a *de facto* outgrant without engaging in the NEPA analysis that the Corps concedes such an action requires. See Oral Arg. Tr. 36:14-15 (“The Corps’[s] regulations contemplate that an outgrant would require a NEPA analysis.”). Although the district court was attuned to the discretion owed the Corps, see *Standing Rock VII*, 471 F. Supp. 3d at 88 (“Not wishing to micromanage the shutdown, [the court] will not prescribe the method by which DAPL must [make the flow of oil cease].”), we nonetheless conclude that it could not order the pipeline to be shut down without, as required by *Monsanto*, making the findings necessary for injunctive relief.

IV.

For the foregoing reasons, we affirm the district court’s order vacating DAPL’s easement and directing the Corps to prepare an EIS. We reverse to the extent the court’s order directs that the pipeline be shut down and emptied of oil.

So ordered.

APPENDIX B

ENVIRONMENTAL ASSESSMENT

Dakota Access Pipeline Project
Crossings of Flowage Easements
and Federal Lands

Prepared on behalf of:

U.S. Army Corps of Engineers — Omaha District
1616 Capitol Avenue, Suite 9000
Omaha, NE 68102

July 2016

* * *

EXECUTIVE SUMMARY

In accordance with the National Environmental Policy Act (NEPA) and implementing regulations, the following Environmental Assessment (EA) has been prepared to evaluate the effects of the United States Army Corps of Engineers (USACE), Omaha District (District) granting permission to Dakota Access, LLC (Dakota Access) to place a portion of the Dakota Access Pipeline Project (DAPL Project) on federal real property interests acquired and managed for the Garrison Dam/Lake Sakakawea and Oahe Dam/Lake Oahe Projects in North Dakota. Section 14 of the Rivers and Harbors Act of 1899, codified 33 U.S.C. Section 408 (Section 408), authorizes the Corps to grant permission to Dakota Access to modify federal flood control and navigation projects, provided the modifications are not injurious to the public interest and will not impair the usefulness of the projects. The EA addresses the purpose and need of the pipeline, as well as the location and method of installation of the pipeline, but the analysis is limited to the effects of allowing the pipeline to cross federal flowage easements near Lake Sakakawea and federally owned lands at Lake Oahe in North Dakota, to determine whether the placement of the pipeline on federal real property interests is injurious to the public interest or will impair the usefulness of the federal projects.

This EA was prepared by Dakota Access on behalf of the Corps in compliance with the NEPA Act of 1969; the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-1508); Corps of Engineers Regula-

tion ER 200-2-2 (33 CFR Part 230), and related environmental compliance requirements, including the Section 106 of the National Historic Preservation Act (Section 106). Tribes, Tribal Historic Preservation Offices, State Historic Preservation Offices, the Advisory Council on Historic Preservation, and interested parties were consulted by representatives from Dakota Access and the Corps Omaha District as required by the Programmatic Agreement and the National Historic Preservation Act.

This EA was prepared in accordance with CEO regulations in Section 1506.5(a) and 1506.5(b), which allow an applicant to prepare an EA for federal actions. The Corps has independently evaluated and verified the information and analysis undertaken in this EA and takes full responsibility for the scope and content contained herein.

The Corps published a draft EA on December 8, 2015, on the U.S. Army Corps of Engineers (USACE) Omaha District website (<http://www.nwo.usace.army.mil/Missions/CivilWorks/Planning/ProjectReports.aspx>) and hard copies were made available at public libraries in Bismarck, Williston, and Pierre. Additionally, notifications were made to cooperating agencies, other federal, state and local agencies, and signatory and non-signatory Tribes to the Omaha Corps District Programmatic Agreement.

The Corps received comments from 20 reviewers in response to the Draft EA, primarily from individuals believed to be members of the Standing Rock Sioux Tribe, and two sets of comments from EPA. These comments relate to topics in the EA. The Corps fully considered and responded to these comments. There

is no new, significant information on environmental effects as a result of these comments. As such, neither a supplemental nor a revised EA will be published for further public review nor are additional NEPA compliance actions required prior to the Corps making a decision on the proposed action.

Impacts on the environment resulting from the placement of the pipeline on federal real property interests is anticipated to be temporary and not significant as a result of Dakota Access's efforts to avoid, minimize, and mitigate potential impacts. Dakota Access will comply with all applicable local, state, and federal regulations and permits associated with the construction and operation of the pipeline, which is not expected to have any significant direct, indirect, or cumulative impacts on the environment.

1.0 INTRODUCTION

Dakota Access is proposing to construct a new crude oil pipeline that would provide transportation service from the Bakken and Three Forks plays in North Dakota through portions of South Dakota and Iowa to a terminus in Patoka, Illinois (Figure 1). In coordination with the U.S. Army Corps of Engineers, the Applicant, Dakota Access, LLC (Dakota Access), as the non-federal representative for compliance with the NEPA of 1969, the CEO Regulations (40 CFR 1500-1508), Corps of Engineers Regulation ER 200-2-2 (33 CFR Part 230), and related environmental compliance requirements, prepared this Environmental Assessment to analyze whether the Corps could grant Section 408 permissions for the placement of Dakota Access Pipeline Project (DAPL Project) on federal

flowage easements near the upper end of Lake Sakakawea, and federally owned lands at Lake Oahe in North Dakota (“the Requester’s Preferred Alternative” or “Proposed Action”). Areas that are potentially impacted by construction and/or operation of the Proposed Action are referred to herein as the Project Area.

1.1 DAPL Project

The DAPL Project is an approximately 1,100-mile long crude oil pipeline project beginning near Stanley, North Dakota, and ending at Patoka, Illinois. The DAPL project, as proposed and being evaluated herein, would cross federal flowage easements near the upper end of Lake Sakakawea north of the Missouri River in Williams County, North Dakota, and federally owned lands at Lake Oahe in Morton and Emmons counties, North Dakota. The EA analysis is limited to these portions of the pipeline only.

1.2 Purpose and Need

The purpose and need of the federal action is to determine whether USACE may grant permission for Dakota Access to place the pipeline on federal real property interests acquired and managed by USACE for the Garrison Dam/Lake Sakakawea and Oahe Dam/Lake Oahe projects. Section 408 authorizes the Corps to grant permission to Dakota Access to modify federal flood control and navigation projects, provided the modifications are not injurious to the public interest and will not impair the usefulness of the projects. The EA addresses the purpose and need of the pipeline, as well as the location and method of installation of the pipeline, but the analysis is limited to the effects

of allowing the pipeline to cross federal flowage easements near the upper end of Lake Sakakawea and federally owned lands at Lake Oahe in North Dakota.

1.3 Authority and Scope of the EA

The proposed crossings of Corps-owned lands and easements would require the Corps to grant the Section 408 permissions as well as real estate outgrants. Therefore, the scope of this EA is limited to the crossings of Corps-owned lands and flowage easements. As noted below, separate Corps authorizations are being sought for Section 404, Section 10, and Section 408 crossings on other portions of the DAPL route. Those actions are not discussed in the EA.

The Proposed Action does not qualify for a Categorical Exclusion from NEPA documentation as defined by ER 200-2-2, 4 March 1998 paragraph 9. Thus, this EA has been prepared as required under NEPA to determine potential impacts that may occur as result of implementing the Proposed Action. If it is determined that no significant impacts would be incurred after implementing the mitigation measures described within this document, the USACE would issue a finding of no significant impact (FONSI). If it is determined that significant impacts would be incurred as a result of construction and/or operations of the Proposed Action, an environmental impact statement (EIS) would be prepared to further evaluate the Proposed Action under NEPA.

This effect analysis is being completed in accordance with CEO regulations in Section CFR 1506.5(b), which allow an applicant to prepare an EA for a federal action in coordination with the lead federal

agency (i.e., Corps). The Corps will use the information in the EA to make a final determination whether to grant the required Section 408 permissions using the information contained herein. The Corps independently evaluated and verified the information and analysis undertaken in this EA and takes full responsibility for its scope and content.

2.0 ALTERNATIVES

Dakota Access proposes the DAPL Project to efficiently and safely transport at least 570,000 barrels of crude oil per day (bpd) from the Bakken and Three Forks production region in North Dakota to a crude oil market hub located near Patoka, Illinois, and ultimately to refineries located in the Midwest and the Gulf Coast, where 80% of the U.S. refining capabilities exist. Because the Corps can only grant permission for the modification of a federal project if it would not be injurious to the public interest, the EA evaluated alternatives to the construction of the pipeline as a whole, as well as the alignment of the pipeline and method for installation on federal property. The alternatives were compared using the proposed purpose of the DAPL project. The EA also analyzed the potential for the pipeline to impair the usefulness of the federal projects.

2.1 Alternatives Considered but Eliminated from Detailed Analysis

2.1.1 Alternative 1—Modification of Existing Infrastructure

There are no other major interstate pipelines that would meet the purpose and need of the Project. The

DAPL Project would be Energy Transfer's (Company's) first asset in the state. For this reason, the manipulation of operating pressures or additional of pump stations to increase transport capacity in pipelines or altering existing infrastructure to increase storage and transport capacity are not viable options to meet the purpose and need of the Project.

2.1.2 Alternative 2 — Trucking Transportation Alternative

While trucking is instrumental in the gathering and distribution of crude on a limited scale, trucking as an alternative for transporting volume of crude oil the distances planned for the DAPL Project is not viable. Based on data recorded by the North Dakota Pipeline Authority as recently as November of 2015, approximately 1% of the crude oil in the Williston Basin is transported via truck out of the Williston Basin due to a lack of transport capacity (Kringstad, 2016). Factors such as road safety, roadway capacity, and a lack of reliability due to seasonal constraints, in addition to other logistical issues involving availability of labor force, trailer truck capacity, and economics, all contribute to truck transportation not being a realistic alternative.

A sharp increase in traffic on North Dakota roads as a result of the rapid expansion in the number of commercial trucks linked to the oil industry speaks to the issues associated with road safety. In 2012, the Federal Motor Carrier Safety Administration reported a traffic fatality rate in North Dakota of 0.48 per million vehicle miles traveled, with 48 deaths involving a bus or large truck, far surpassing any other state (U.S. Department of Transportation [DOT],

2014). In the pre-boom years of 2001 to 2005, there was an average of only 13 annual deaths involving commercial trucks. Furthermore, the economic cost of severe truck crashes has more than doubled between 2008 and 2012. Much of the increase in the fatality rate can be attributed to the energy production boom, along with the fact that the state's infrastructure still consists of single-lane, rural, and unpaved roads in many areas (Bachman, 2014). Harsh winter weather and seasonal road restrictions compromise the reliability of truck transportation even further. Based on the above, a pipeline is a safer and more economical alternative than trucking for the volumes transported and distances covered by the DAPL Project.

Assuming the average oil tanker truck is capable of holding about 220 barrels of oil, the transportation of the initial capacity of the proposed Project (450,000 bpd), would require a total of 2,045 ($450,000/220$) full trucks to depart the proposed tank terminals daily, and more than 85 ($2,045/24$) trucks would have to be filled every hour with a 24-hour/day operation. Time spent in transit, loading/offloading, and additional time for maintenance would add to the number of trucks needed to offset for the DAPL Project. For a trucking mode, an increase in daily truck traffic would lead to an increase in the degradation of public roads as well as contribute to the noise pollution adjacent to the roads. For both truck and rail modes, an increase in exhaust would be anticipated due to truck and locomotive combustion. An increase in air pollution would also be anticipated from potential releases during the filling operations for trucks or rail cars.

Analysis of infrastructure considerations (the burden of thousands of additional trucks on county, state,

and interstate highways, as well as the loading and offloading facilities that would have to be constructed which would incur their own environmental impacts), economic considerations (e.g., labor costs, purchase and maintenance of hauling equipment, fuel, public infrastructure, etc.), and reliability considerations (e.g., weather, mechanical, manpower, road closures) all contribute to making the truck transportation alternative unviable.

2.1.3 Alternative 3 — Rail Transportation Alternative

Reliance on rail as a transportation method in the Williston Basin has drastically increased in recent years, carrying a negligible percentage of the overall market share as recently as 2010 to nearly 60% of the overall market share by mid-2014 (Nixon, 2014). The rise in the use of rail as a primary transportation method has been driven in large part by the rapid increase in production of crude oil coupled with a lack of pipeline capacity to account for additional supplies.

Negative impacts from the growth in popularity of rail as a method of long-distance transportation of crude oil include delays that disrupt the agricultural sector, reductions in coal-fired power plant inventories, and significant production issues in the food production industry. In August 2014, reports filed with the federal government indicated that the Burlington Northern Santa Fe Railway had a backlog of 1,336 rail cars waiting to ship grain and other products, while Canadian Pacific Railway had a backlog of nearly 1,000 cars (Nixon, 2014). For industries, such as those listed, in which the use of pipelines is not an option,

the only viable alternative would be increased reliance on trucking, which would exacerbate some of the issues listed in the section above.

Assuming a carrying capacity of 600 barrels per car, a total of 750 rail cars would be required to depart the tank terminal daily to transport 450,000 barrels of crude oil to its final destination. Loading and offloading 750 rail cars in a day would require servicing more than 31 rail cars per hour. With an assumption of 125 rail cars per train, six trains would have to depart the tank terminal every day. With 10 to 12 trains currently leaving the state per day carrying Bakken crude, the DAPL Project would represent a 50 to 60% increase in the number of trains transporting crude oil out of the state, likely exacerbating issues with delays (Horwath and Owings, 2014).

Rail operations on the scale of the DAPL Project do not exist in the U.S. An oil-by-rail facility designed to handle an average of 360,000 bpd has been proposed in the Port of Vancouver, Washington. Known as the Vancouver Energy proposal, the project would be the largest rail terminal in the country (Florip, 2014).

A rail transportation alternative to handle the volumes of the DAPL Project would require the design and construction of 125 to 158% of that of the Vancouver Energy proposal. A facility of this size would incur its own environmental consequences.

From a safety standpoint, railroad transport consistently reports a substantially higher number of transportation accidents than pipelines (DOT, 2005). A series of major accidents taking place in 2013 to 2014 in Canada and the U.S. has heightened concern

about the risks involved in shipping crude by rail (Frittelli, 2014).

Increases in rail traffic necessary to transport the volume of crude oil proposed by the DAPL project would increase the emissions of combustion products due the use of diesel engines which could have an adverse impact on air quality in the region. This alternative would also directly affect communities along utilized rail lines by increasing noise and creating transportation delays due to the substantial increasing rail traffic across railroad crossings of roads.

While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a more reliable, safer, and more economical alternative for the large volumes transported and long distances covered by the DAPL Project. This alternative would create delays on the rail lines due to the substantial increase in rail traffic, resulting in shipping delays in other industries such as agriculture that cannot rely on pipeline transportation. Furthermore, the purpose and need of the Project would not be attainable with the current oil-by-rail infrastructure in the country because rail loading facilities of sufficient size do not exist. As such, rail transportation is not considered a viable alternative.

2.1.4 Alternative 4 — Route Alternatives

Although this EA is limited to the pipeline placement on federal real property interests administered by the Corps, major route alternatives were evaluated for the pipeline route as a whole. During the DAPL Project fatal flaw analysis and early routing process, Dakota Access utilized a sophisticated and proprietary Geographic Information System (GIS)-based

routing program to determine the pipeline route based on multiple publicly available and purchased datasets. Datasets utilized during the Project routing analysis included engineering (e.g., existing pipelines, railroads, karst, powerlines, etc.), environmental (e.g., critical habitat, fault lines, state parks, national forests, brownfields, national registry of historic places, etc.), and land (e.g., fee owned federal lands, federal easements, dams, airports, cemeteries, schools, mining, tribal lands, and military installations, etc.).

Each of these datasets was weighted based on the risk (e.g., low, moderate, or high based on a scale of 1,000) associated with crossing or following certain features. In general, the route for the pipeline would follow features identified as low risk, avoid or minimize crossing features identified as moderate risk, and exclude features identified as high risk. For example, the existing pipelines dataset was weighted as a low risk feature, so that the routing tool followed existing pipelines to the extent possible to minimize potential impacts. An example of a high risk feature is the national park dataset. Since national parks were weighted for the DAPL Project as high risk, the GIS routing program excluded any national parks from the pipeline route to avoid impacts on these federal lands. In addition, the routing program established a buffer between the proposed route and certain types of land, such as maintaining a 0.5-mile buffer from tribal lands.

Route Alternative for the Crossing of Flowage Easements at the Missouri River

Early in the routing process Dakota Access performed a cursory route evaluation to attempt crossing

the Missouri River at a location that does not contain flowage easements. This would dictate moving the centerline west of the flowage easements in Williams County. This alternative was not carried forward through the environmental consequences analysis, given that this would require approximately eight additional miles of pipe, an exceedance of an additional 130 acres of workspace, and another major river crossing (Yellowstone River) in addition to the Missouri River. Furthermore, other state and federal properties are located along the river west of the confluence of Missouri and Yellowstone Rivers.

Route Alternative for the Crossing of Federal Lands at Lake Oahe

Early in the routing phase of the DAPL Project, Dakota Access considered but eliminated an alternative centerline that originated in Stanley, North Dakota, within Mountrail County, where it connected to customer receipt points and headed southwest through Williams County and crossed the Missouri River approximately 8.5 miles east of the Yellowstone River and Missouri River confluence (**Figure 12**). The centerline then headed southeast across the state and crossed Lake Oahe approximately 10 miles north of Bismarck (**Figure 13**), where it then headed south again and entered South Dakota approximately 35 miles east of Lake Oahe in McIntosh County. In addition to other evaluation criteria listed in Table 2.1, the route alternative was in proximity to and/or crossing multiple conservation easements, habitat management areas, National Wildlife Refuges, state trust lands, waterfowl production areas, and private tribal lands.

As a result of public input and comment during this EA process, additional desktop evaluation of the North Bismarck alternative portion of the early route (**Figure 13**) was undertaken. The comparison of this alternative to the preferred route is included in **Tables 2-1** and **2-2** contained herein. As illustrated in the tables, the data substantiates eliminating this route as a viable alternative. While the alternative does avoid Corps fee owned land at Lake Oahe; therefore, would not require a Corps real estate outgrant or Corps EA review, approximately 11-miles of length would be added to the pipeline route, consisting of roughly 165 additional acres of impact, multiple additional road crossings, waterbody and wetland crossings, etc. In addition to the criteria shown in the tables, due to the proximity to Bismarck, the North Bismarck route alternative crossed through or in close proximity to several wellhead source water protection areas that are identified and avoided in order to protect areas that contribute water to municipal water supply wells. The route was also severely constrained by the North Dakota Public Service Commission's 500-ft residential buffer requirement at multiple locations. Furthermore, this route alternative crossed other populated PHMSA high consequence areas (HCAs), that are not present on the preferred route. Pipeline safety regulations use the concept of HCAs to identify specific locales where a release from a pipeline could have the most significant adverse consequences.

| Table 2-1 Alternatives Evaluation Matrix Between Preferred Crossing at Lake Oahe and Alternative Crossing North of Bismarck | | | |
|--|---|--|---|
| Evaluation Factors | ALTERNATIVE ROUTE Crossing North of Bismarck | PREFERRED ROUTE Crossing at Lake Oahe | PREFERRED TO COMPARED TO ALTERNATIVE ROUTE |
| Total Overall Route Mileage | | | |
| Total Mileage | 111.0 | 100.4 | -10.6 |
| Collocation | | | |
| Pipeline (mi) | 0.0 | 34.6 | +34.6 |
| Powerline (mi) | 2.9 | 6.1 | +3.2 |
| <i>Overall Corridor Collocation (%)</i> | 3% | 41% | +38% |
| Amount of Greenfield Crossed (non-collocated areas-mi) | 108.1 | 59.6 | -48.4 |
| Existing Pipeline Crossing (count) | | | |
| Crossing Count | 6 | 10 | +4 |

| Table 2-1 Alternatives Evaluation Matrix Between Preferred Crossing at Lake Oahe and Alternative Crossing North of Bismarck | | | |
|--|---|--|--|
| Evaluation Factors | ALTERNATIVE ROUTE Crossing North of Bismarck | PREFERRED ROUTE Crossing at Lake Oahe | PREFERRED COMPARED TO ALTERNATIVE ROUTE |
| Floodplain 100 Year | | | |
| Floodplain Crossings (Count) | 13 | 2 | -11 |
| Total Mileage | 1.4 | 0.2 | -1.2 |
| Land Cover Types (mi) | | | |
| Agriculture | 42.5 | 36.1 | -6.4 |
| Developed/Low Intensity | 0.2 | 0.1 | -0.1 |
| Developed/Open Space | 6.6 | 2.0 | -4.6 |
| Grass/Pasture | 59.3 | 60.7 | +1.4 |
| Land ownership potential Conflicts | | | |
| USACE Reservoirs – Lake Oahe | 0 | 1 | +1 |

| Table 2-1 Alternatives Evaluation Matrix Between Preferred Crossing at Lake Oahe and Alternative Crossing North of Bismarck | | | |
|--|---|--|---|
| Evaluation Factors | ALTERNATIVE ROUTE Crossing North of Bismarck | PREFERRED ROUTE Crossing at Lake Oahe | PREFERRED TO COMPARED TO ALTERNATIVE ROUTE |
| Flowlines – NHD* | | | |
| Waterbody Count | 149 | 116 | -33 |
| Waterbodies NHD* | | | |
| Perennial | 3 | 1 | -2 |
| Intermittent | 1 | 0 | -1 |
| NWI Wetland (count) | | | |
| Freshwater Emergent Wetland | 26 | 5 | -21 |
| Freshwater Forested/Shrub Wet- | 1 | 0 | -1 |
| Freshwater Pond | 2 | 0 | -2 |
| PHMSA Populated Areas Dissolved | | | |
| Ecological HCA | 2.6 | 2.6 | 0 |

| Table 2-1 Alternatives Evaluation Matrix Between Preferred Crossing at Lake Oahe and Alternative Crossing North of Bismarck | | | |
|--|---|--|---|
| Evaluation Factors | ALTERNATIVE ROUTE Crossing North of Bismarck | PREFERRED ROUTE Crossing at Lake Oahe | PREFERRED TO COMPARED TO ALTERNATIVE ROUTE |
| Highly Populated Areas | 0 | 0 | 0 |
| Other Populated Areas | 1.6 | 0 | -1.6 |
| Drinking Water HCA | 0 | 0 | 0 |
| Powerline Crossing | | | |
| Total Crossing Count | 14 | 13 | |
| Transportation Crossing | | | |
| Total Crossing Count | 139 | 112 | -27 |

* Flowline and waterbody crossings from the U.S. Geological Survey (USGS) National Hydrography Dataset

| Table 2-2 Construction Cost Comparison Between Crossing at Lake Oahe and Alternative Crossing North of Bismarck | | | | |
|--|---|-------|--|-------|
| | ALTERNATIVE ROUTE Crossing North of Bismarck | | PREFERRED ROUTE Crossing at Lake Oahe | |
| Length of Segment | 111.0 | miles | 100.4 | miles |
| | 585,974 | feet | 530,112 | feet |
| Cost for Road/Railroad Bores | | | | |
| Number of Road/Railroad Bores | 139 | bores | 112 | bores |
| Total Cost for Road Bores (at \$34,600/bore) | \$ 4,809,400 | USD | \$ 3,875,200 | |
| Cost of Installation for Non-HDD Areas | | | | |
| Length of Pipeline Non-HDD | 580,008 | feet | 522,312 | feet |
| Total Cost for Installation of Non-HDD Section | \$ 201,262,915 | USD | \$ 181,242,264 | USD |

| Table 2-2 Construction Cost Comparison Between Crossing at Lake Oahe and Alternative Crossing North of Bismarck | | | | |
|--|---|--------|--|--------|
| | ALTERNATIVE ROUTE Crossing North of Bismarck | | PREFERRED ROUTE Crossing at Lake Oahe | |
| Horizontal Directional Drill (HDD) Across Mo River/Lake Oahe | | | | |
| Length of HDD | 5,966 | feet | 7,800 | feet |
| Total Cost of HDD Crossing | \$ 7,696,140 | USD | \$ 10,062,000 | USD |
| Cost of Geotechnical Investigation | | | | |
| | \$ 140,000 | USD | \$110,000 | USD |
| Aboveground Facility Costs | | | | |
| Mainline Valves Needed (one per each 10 mile segment) | 11 | valves | 10 | valves |

| Table 2-2 Construction Cost Comparison Between Crossing at Lake Oahe and Alternative Crossing North of Bismarck | | | | |
|--|---|------------|--|------------|
| | ALTERNATIVE ROUTE Crossing North of Bismarck | | PREFERRED ROUTE Crossing at Lake Oahe | |
| Total Cost of Mainline Valves (at \$450,000/valve location) | \$ 4,995,000 | USD | \$ 4,500,000 | USD |
| Right-of-Way Acquisition Costs (at \$37/foot) | \$ 21 681 053 | USD | \$ 19 614 144 | USD |
| Additional Cost Including Engineering and Consultants (\$ 131,000/mile) | \$ 14,538,380 | USD | \$ 13,152,400 | USD |
| Total Cost of Alternative | \$ 255,122,888 | USD | \$ 232,556,008 | USD |

* Flowline and waterbody crossings from the U.S. Geological Survey (USGS) National Hydrography Dataset

A negative number indicates that the value for the proposed action is less than the value for the population that the proposed action is being compared to.

2.1.5 Alternative 5 — Major Waterbody Crossing Method Alternatives

Once an optimal route was selected based on the evaluation of impacts discussed in Section 2.1.3, Dakota Access then identified the preferred major waterbody crossing construction method that would meet the purpose and need while minimizing impacts to resources. Pipeline construction methods utilized at waterbody crossings are highly dependent on the characteristics of the waterbody encountered. A variety of waterbody crossing techniques were considered during the DAPL Project planning stages for the crossings of major waterbodies, including Dam and Pump, Flume, Open-Cut, and Horizontal Directional Drill.

Dry Crossings Methods

Two different techniques, including dam and pump and flume crossing methods, are typically used on waterbody crossings well under 100 feet in width and require a temporary diversion of flow within the waterbody. Because of the large volume of water within the Missouri River system, it is not feasible to temporarily divert the water either by pump or flume, and these methods were ruled out of consideration for the crossing of the Missouri River and Lake Oahe.

Wet Open-Cut Crossing Method

Aside from trenchless or HDD crossing techniques, the only feasible crossing method from a con-

structability standpoint for the major waterbodies associated with the Proposed Action is the wet open-cut crossing method, in which flow would be maintained throughout installation of the pipeline. This method of construction would require the construction right-of-way (ROW) to extend right up to the waterbody itself, allowing equipment to operate from the banks of the waterbody to excavate a trench. The sensitive habitat adjacent to the banks of the waterbodies would be cleared of vegetation and graded to create a safe and level workspace that could accommodate excavation equipment and spoil storage for the duration of the open-cut installation (approximately 6 months). Since the widths of the Missouri River and Lake Oahe at the crossing locations is such that operating trenching equipment entirely from the banks would not be possible, trench excavation in the waterbodies would require equipment operating from barges. Furthermore, the depth of the waterbodies crossed (15 to 25 feet) exceeds the reach of a backhoe, and the use of mechanical dragline dredgers would be necessary. Spoil dredged from the bottom of the waterbody would be stored on a spoil barge or otherwise temporarily stockpiled in the waterbody itself. This method of excavation would greatly influence the overall sediment load generated in the waterbody for the duration of the installation. The generation of a downstream turbidity plume would have a direct effect on the aquatic habitat of the waterbody. In addition, the operation of equipment within and on the banks of the waterbody has the potential for adverse effects on surface water quality (i.e., potential contamination of surface water resources from fuel or leaks from the equipment). Compared to trenchless technology, the open-

cut method would incur far greater impacts on sensitive habitat located on both the banks of the waterbodies and within the waterbodies. Therefore, this method of construction was eliminated from consideration.

The trenchless construction method known as HDD was selected as the preferred construction method of the Proposed Action, because this method of construction involves far less impacts on resources. In addition, the Garrison Project — Lake Sakakawea Oil and Gas Management Plan explicitly states that: Oil and gas pipelines should use directional drilling technology to traverse beneath sensitive habitat areas. Further information regarding the HDD construction method is provided in Section 2.3.2.6 below.

2.2 No Action Alternative

Under the “no action” alternative, Dakota Access would not construct the DAPL Project. The “no action” alternative would not provide the infrastructure necessary to transport light sweet crude oil to refining facilities. In northwest North Dakota, exploration and production of oil is a major economic activity, with crude oil production being the primary mineral resource of interest. Although the “no action” alternative itself would not incur direct environmental impacts, it would also not address the existing demand to transport crude oil to refining facilities. Market demands would likely compel shippers to rely on alternative methods of crude oil transport such as truck or rail. Although, both the truck and rail alternatives are not sufficient to meet the purpose and need of the Project due to the lack of available infrastructure and other limitations described in Sections 2.1.3 and 2.1.4,

it is reasonable to assume that truck and rail traffic would increase if the “no action” alternative were implemented. These alternative shipping methods would adversely affect resources as described in Sections 2.1.3 and 2.1.4 and throughout this EA.

It is purely speculative to predict the resulting effects and actions that could be taken by another company or Dakota Access’ shippers and any associated direct or indirect environmental impacts in response to the “no action” alternative. However, if this alternative is implemented, it is likely that other methods of transporting crude oil to the marketplace would be implemented and anticipated effects of the “no action” alternative has been carried forward in the environmental analysis of this EA to provide a comparison between it and the impacts of implementing the Preferred Alternative.

2.3 The Proposed Action (Preferred Alternative)

2.3.1 location and Detailed Description of the Proposed Action

The DAPL Project originates near Stanley, North Dakota, traversing westerly northwest of Williston then turning south, crossing the Missouri River and traverses southeasterly across the state, exiting through the central portion of the southern border. Dakota Access proposes to construct the pipeline, ranging in size from 12 to 30 inches in diameter, so that the majority of lands crossed would be privately-owned lands. The locations for collecting product into the proposed system were largely fixed based on the location of existing terminals. The first of the six fixed input locations is located at the pipeline’s origin near

the town of Stanley in Mountrail County. Three other input locations exist near the towns of Ramberg, Epping, and Trenton in Williams County. Two additional collection points are located south of the proposed Missouri River crossing on the flowage easements in McKenzie County near the towns of Waterford City and Johnson's Corner. Connecting the input locations was largely a matter of minimizing length and maximizing the avoidance of sensitive features, developments, public lands, and constructability issues (e.g., steep terrain, potholes, excessive bedrock, etc.), as discussed above in Section 2.1.4 Route Alternatives. Based on the location of the collection points, crossing the Missouri River (Lake Sakakawea) was unavoidable. The selected crossing location of the Proposed Action avoids federally owned lands to the extent practical, is at a narrow width of the river upstream of the wider Lake Sakakawea, and minimizes impacts on sensitive resources (e.g., piping plover critical habitat, eagle nests, etc.). The pipeline is 24 inches in diameter where it crosses approximately 14,942 feet (2.83 miles) of the Corps flowage easements at the Missouri River and is 30 inches in diameter where it crosses approximately 1,109 feet (0.21 mile) of the Corps-owned federal lands at Lake Oahe.

Within North Dakota, the proposed Supply pipeline crosses seven tracts of flowage easement retained by the Corps located north of the Missouri River in Williams County (**Figure 2**). The proposed DAPL Project Mainline route travels through land owned and managed by the Corps on both sides of the Lake Oahe crossing at the border between Morton and Emmons counties, approximately 0.55 mile north of the

northern boundary of the Standing Rock Sioux Reservation (**Figure 3**).

The following narrative relates to **Figures 1** through **3** in Section 12.0 and is provided to assist the reader in identifying the Project Area under consideration in this analysis. **Purple polygons** indicate real estate interests; either the flowage easements that the Corps has with private landowners upstream of Lake Sakakawea, or the fee title lands that the Corps has on the upper end of Lake Oahe. The **red hyphenated** line shows the DAPL Project centerline as it approaches Federal property at the Lake Oahe crossing and temporary workspace areas. The **straight solid redline** indicates the HDD pipeline that will go beneath Corps managed federal surfaces and is the Project Area being considered as part of the Federal action to issue a real estate easement. The **yellow polygon** indicates workspace where temporary work is proposed to be completed that directly supports the HDD installation of the pipeline underneath the river/reservoir. Temporary activities that would occur in this workspace include: welding together pipe, inspecting and testing the pipeline to ensure no leaks are present prior to preparing to install beneath the river/reservoir at both locations.

Potential impacts have to be evaluated in temporary workspace, as actions completed here are directly connected to the ability for the applicant to complete the proposed project (both the **purple and yellow polygons**). Further, these actions are directly connected to the federal decision to allow an easement for the pipeline to cross federal lands in this area. Notice that the Corps is not analyzing the effects of the **red**

hyphenated line (DAPL centerline) at the Lake Oahe crossing as it is outside the EA review area. This is an important difference compared to the flowage easement location where temporary work happens to coincide with the orientation of the flowage easements perpendicular to the Missouri River. Therefore, temporary workspace required for portions of the pipeline installed via conventional (non-HDD) methods on the flowage easements is included in the EA review area.

The flowage easements and Corps owned lands associated with the Proposed Action, and the associated Project impact acreages, expressed as construction workspace, are identified in **Table 2-3** below.

| Table 2-3 Flowage Easements and Federal Land Crossings | | |
|---|---------------|-----------------------------------|
| Grant of Easement Document Number | County | Construction Workspace |
| Flowage Easements | | |
| LL3440E | Williams | 9.4 |
| LL3483E-1 | Williams | 10.8 |
| Flowage Easements | | |
| LL3453E | Williams | 10.7 |
| LL3430E | Williams | 5.0 |
| LL3450E-2 | Williams | 5.2 |
| LL3431E | Williams | 14.7 |
| LL3426E-2 | Williams | 3.4 |
| Total Acres | -- | 59.2 |
| Federally-Owned Lands | | |
| Federal Land | Morton | 0.4 |
| Federal Land | Emmons | 0.8 |

| Table 2-3 Flowage Easements and Federal Land Crossings | | |
|---|---------------|-----------------------------------|
| Grant of Easement Document Number | County | Construction Workspace |
| Total Acres | -- | 1.2 |

The EA review area includes areas within the Corps flowage easements and federal lands that are potentially impacted by construction and/or operation of the DAPL Project. The EA review area is hereafter referred to as the Project Area(s). Actions that occur outside of the flowage easements and the federal lands at the Lake Oahe crossing are considered Connected Actions. Connected Actions are those actions that are “closely related” and “should be discussed” in the same NEPA document (40 CFR § 1508.25 (a)(i)). Actions are connected if they automatically trigger other actions that may require an EA, cannot or will not proceed unless other actions are taken previously or simultaneously or if the actions are interdependent parts of a larger action and depend upon the large action for their justification (40 CFR § 1508.25 (a)(i, ii, iii)). Connected Actions are limited to actions that are currently proposed (ripe for decision). Actions that are not yet proposed are not Connected Actions, but may need to be analyzed in the cumulative effects analysis if they are reasonably foreseeable. The only Connected Actions at each individual crossing location associated with the Proposed Action are those that relate to the HDD workspace at the Missouri River crossing and the HDD workspace, HDD stringing area, and the permanent easement on private lands in the vicinity of the Lake Oahe crossing. The two federal permissions are not connected actions because the locations of each crossing are independent

of one another and the location of the first does not dictate the location of the second.

Dakota Access initially proposed an isolation valve to be located within the flowage easements (easement LL3453E); however, the **Omaha** District has assessed the potential for open water and ice jam flooding within the vicinity of the Project Area in the “Reconnaissance Report, Missouri River, Buford-Trenton Irrigation District, North Dakota” and based on the findings the valve would be located within an area that has the potential to be submerged or damaged by ice jam flooding. Therefore, the valve has been removed from the Project Area.

The Project Area and Connected Actions analyzed within this EA for both crossings are outlined in **Table 2-4**, which identifies land status (private, Federal or Easement) and provides associated acreages.

| Table 2-4 Environmental Assessment Areas of Interest | | | |
|--|---------------------------|------------------|-------|
| Action/Activity | Federal/ Private Land | EA Review | Acres |
| Flowage Easements—Williams County | | | |
| Construction ROW within Corps flowage easements | Private; Federal Easement | Project Area | 58.0 |
| HDD workspace (exit point) within Corps flowage easement | Private; Federal Easement | Project Area | 1.2 |
| Permanent easement over HDD profile within Corps flowage easement and placement of temporary waterline | Private; Federal Easement | Project Area | 1.2 |
| Flowage Easements Connected Actions — McKenzie County | | | |
| HDD workspace (entry point) on private land | Private | Connected Action | 2.0 |
| Federal Lands and Connected Actions - Morton County | | | |
| HDD workspace (exit point) on private land | Private | Connected Action | 1.2 |
| HDD stringing area on private land | Private | Connected Action | 13.1 |
| Permanent easement over HDD profile on private land between HDD workspace (exit point) and federal lands | Private | Connected Action | 0.8 |
| Permanent easement over HDD profile on federal lands | Federal | Project Area | 0.4 |

| Table 2-4 Environmental Assessment Areas of Interest | | | |
|--|--------------------------|------------------|-------|
| Action/Activity | Federal/ Private Land | EA Review | Acres |
| Federal Lands and Connected Actions - Emmons County | | | |
| Permanent easement over HDD profile on federal land | Federal | Project Area | 0.8 |
| Permanent easement over HDD profile on private land between federal land and HDD workspace (entry point) | Private | Connected Action | 0.3 |
| HDD workspace (entry point) on private land | Private | Connected Action | 1.2 |
| Lake Oahe | | | |
| Permanent easement over HDD profile across Lake Oahe | N/A | Project Area | 6.3 |

2.3.1.1 Flowage Easements

The Missouri River HDD is located just upstream of Lake Sakakawea and downstream of the confluence of the Yellowstone and Missouri rivers. The proposed crossing of flowage easements near upper Lake Sakakawea (flowage easements) is located in Sections 7, 18, 19, and 30, Township 152 North, Range 103 West, in Williams County, North Dakota (**Figure 2**). The proposed pipeline is routed parallel to an existing buried natural gas pipeline and associated valve sites, which cross the Missouri River and flowage easements just west of the proposed Dakota Access pipeline.

The HDD exit workspace would be located on a flowage easement tract. Access to the Project Area on the flowage easements would be via the construction ROW from an existing road (38th Street NW). No additional temporary access roads would be required. The Connected Action at the flowage easements includes the HDD entry workspace, located on the south side of the Missouri River on private lands in McKenzie County. Access to the HDD entry workspace will be via the existing access road located adjacent to the HDD entry workspace. No additional temporary access roads would be required.

2.3.1.2 Federal Lands

The proposed crossing of federally-owned tracts at Lake Oahe (federal lands) is located in Section 10, Township 134 North, Range 79 West in Morton County, North Dakota, and Section 11, Township 134 North, Range 79 West in Emmons County, North Dakota (**Figure 3**). The proposed pipeline is routed to parallel existing linear infrastructure (an overhead

powerline and a buried natural gas pipeline) in this area. The HDD entry and exit point workspaces and stringing area would be located on private land outside of the federal lands and are considered Connected Actions in this analysis. HDD design reflects a crossing length of approximately 7,500 feet, of which approximately 5,420 feet occurs beneath the bed of Lake Oahe.

2.3.2 Description of Construction Techniques and Construction Mitigation Measures

All facilities associated with the Proposed Action would be designed, constructed, tested, operated, and maintained in accordance with the U.S. DOT regulations in Title 49 CFR Part 195. Dakota Access is currently developing project-specific plans and would implement best management practices (BMPs) to mitigate for potential construction-related impacts associated with stormwater runoff. This includes implementation of their Stormwater Pollution Prevention Plan (SWPPP; see **Appendix A**), which includes the Spill Prevention Control and Countermeasure Plan (SPCC Plan) as an appendix. Additionally, Dakota Access would implement their HDD Construction Plan and HDD Contingency Plan (HDD Construction/Contingency Plan; see **Appendix B**) for inadvertent release of drilling mud during HDD construction work at wetland and waterbody crossings to protect sensitive resources from such releases. The Proposed Action would be constructed via a combination of conventional and specialized construction procedures, as described below.

2.3.2.1 Clearing and Grading

Prior to commencement of ground-disturbing activities, a standard survey and stakeout would be conducted to identify ROW and workspace boundaries and to locate existing foreign utility lines within the construction ROW. Following completion of the surveys, the construction ROW would be cleared of vegetation and debris. Clearing of wetlands is limited to removal of woody debris in the forested wetlands above the HDD profile on the north bank of the Missouri River within the flowage easements. Stumps would be cut flush with the ground and left in place, as described in Section 3.2.3. Cleared vegetation and debris along the ROW would be disposed of in accordance with federal, state, and local regulations either by burning, chipping and spreading, or transportation to a commercial disposal facility. Where necessary, to contain disturbed soils during clearing and grading in upland areas, and to minimize potential erosion and sedimentation of wetlands and waterbodies, temporary erosion control devices (ECDs) would be installed prior to initial ground disturbance and maintained throughout construction. Vegetative buffers would be left where practical at all waterbody crossings to limit the exposure and impact to these features. Final clearing would take place immediately prior to crossing the feature rather than advance.

2.3.2.2 Trenching

Trenching involves excavation of a ditch for pipeline placement and is accomplished through the use of a trenching machine, backhoe, or similar equipment. Trench spoil would be deposited adjacent to each

trench within the construction work areas, with topsoil segregation utilized where necessary based on land use (see the typical ROW configuration drawings in Appendix C). In standard conditions, the trench would be excavated to an appropriate depth to allow for a minimum of 36 inches of cover over the pipe. Ground disturbance associated with conventional pipeline construction is generally limited to approximately 6 to 10 feet below the existing ground surface. Typically the bottom of the trench would be cut at least 12 inches greater than the width of the pipe. The width at the top of the trench would vary to allow the side slopes to adapt to local conditions at the time of construction.

2.3.2.3 Pipe Stringing, Bending, and Welding

Following preparation of the trench, the new pipe would be strung and distributed along the ROW parallel to the trench. Depending on available workspace, some pipe may be fabricated off-site and transported to the ROW in differing lengths or configurations. Pipe would be bent by hydraulic bending machines, as necessary, to conform the pipe to the trench. Once in place along the ROW, pipe lengths would be aligned, bends fabricated, and joints welded together on skids (i.e., temporary supports). Welding would be performed in accordance with the American Petroleum Institute Standards, PHMSA pipeline safety regulations, and Company welding specifications. All welds would be coated for corrosion protection and visually and radiographically inspected to ensure there are no defects. Segments of completed pipeline would undergo hydrostatic pressure testing as described in Sections 3.2.1.2 and 3.11.

2.3.2.4 Pipeline Installation and Trench Backfilling

Completed sections of pipe would be lifted off the temporary supports by side boom tractors or similar equipment and placed into the trench. Prior to lowering-in, the trench would be visually inspected to ensure that it is free of rock and other debris that could damage the pipe or the coating. Additionally, the pipe and the trench would be inspected to ensure that the configurations are compatible. Tie-in welding and pipeline coating would occur within the trench to join the newly lowered-in section with the previously installed sections of pipe. Following this activity, the trench would be backfilled with the previously excavated material and crowned to approximately 6 inches above its original elevation to compensate for subsequent settling.

2.3.2.5 Clean-up and Restoration

Following pipeline installation and backfilling, disturbed areas would be restored and graded to pre-construction contours as closely as practicable. Construction debris and organic refuse unsuitable for distribution over the construction ROW would be disposed of at appropriate facilities in accordance with applicable regulations. Permanent ECDs would be installed as appropriate, and revegetation measures would be applied in accordance with the Environmental Construction Plan (ECP; see **Appendix G**), SWPPP, and requirements of applicable state and federal permits.

2.3.2.6 Major Waterbody Crossing Method

As previously discussed, the preferred waterbody crossing technique for the Proposed Action is the HDD method. The HDD method allows for construction across a feature without the excavation of a trench by drilling a hole significantly below conventional pipeline depth and pulling the pipeline through the pre-drilled hole. As described in subsequent sections of this document and in greater detail in the HDD Construction Plan (Appendix B), by utilizing the trenchless technology, Dakota Access would minimize impacts to resources within and adjacent to the waterbodies crossed and reduce the anticipated duration of the crossing. The HDD equipment would be staged well outside of the riparian area, avoiding impacts on the steep banks, cultural resources, and sensitive habitat immediately adjacent to the waterbody. Cross sections of the Missouri River and Lake Oahe HDDs are provided in **Figure 14** and **Figure 15**.

Depending on the HDD equipment utilized, to help guide the drill bit along the pipeline ROW, electric-grid guide wires may be laid along the predetermined HDD route. In thickly vegetated areas, a small path may be cut to accommodate laying the electric-grid guide wires. Once the electric-grid guide wires are installed, the directional drilling rig would drill a small diameter pilot hole along the prescribed profile. Following the completion of the pilot hole, reaming tools would be utilized to enlarge the hole to accommodate the pipeline diameter. The reaming tools would be attached to the drill string at the exit point and would then be rotated and drawn back to incrementally enlarge the pilot hole. During this process, drilling fluid consisting of primarily bentonite clay

and water would be continuously pumped into the pilot hole to remove cuttings and maintain the integrity of the hole. When the hole has been sufficiently enlarged, a prefabricated segment of pipe would be attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole towards the drill rig.

Fluid pressures can build up within the borehole during HDD operations. In some instances, this can result in hydraulic fracturing of the substrate and subsequent migration of drilling fluids either into the waterway or to the land surface—this is known as a “frac-out.” The depth of the proposed HDD profiles below the beds of the surface waters to be crossed would minimize the potential for frac-outs to occur. Additionally, precautions would be taken during all phases of the drilling operation. A high quality drilling fluid would be used to maintain and protect the integrity of the borehole during the entire HDD operation until the final pipe pull is completed. The HDD Construction Plan (**Appendix B**) includes more details regarding HDD construction technology and methods. The work would be performed by an experienced drilling contractor, Michels Directional Crossings, a Division of Michels Corporation, that is knowledgeable in effective HDD practices, including maintaining proper drilling rate, drilling fluid composition, pumping rate of the drilling fluid, pull-back rate, and pumping rate on the back ream, and adjusting these as appropriate for the conditions.

The potential for river channel changes associated with water erosion and scour were considered when selecting the major waterbody crossing methods and locations. Dakota Access has coordinated with the

North Dakota Office of the State Engineer as part of the Sovereign Lands Permitting Process to verify adequate depths for the pipe to be buried relative to geomorphological movements for the Lake Oahe and the Missouri River crossings. Accordingly, the professional engineering firm evaluating HDD depths for the Proposed Action, GeoEngineers, has performed a scour analysis in order to evaluate the scour risk to the proposed pipeline during 100- and 500-year discharge events for the Lake Oahe and the Missouri River crossings.

The proposed HDD profile under Lake Oahe is designed to provide 92 feet of cover below the bottom of the lake. Because of the depth of the pipe below the waterbody, and the ponded condition of Lake Oahe, this crossing is at a low risk to geomorphologic movements at the proposed crossing. The North Dakota Office of the State Engineer has issued Sovereign Lands Permit for the Lake Oahe crossing. A copy of the permit is included in Appendix M.

The Missouri River HDD profile is designed to provide a minimum of 36 feet of cover at the crossing location beneath the lowest point of the Missouri River. This crossing has less proposed cover between the bottom of the waterbody and the top of the buried pipe and it is an active channel. As part of the Sovereign Lands Permitting Process with the Office of the State Engineer, conservative assumptions were utilized in the analysis of the Missouri River HDD design profile as a factor of safety. For example, the proposed crossing is not located at a bend in the channel and is located over 3,000 feet downstream of the nearest upstream channel bend. An analysis of historic photo-

graphs of the proposed crossing show that the upstream bend has been stable and in the same location and that the potential downstream migration of this bend is highly unlikely. However, although bend scour is not likely to propagate downstream to the proposed crossing, to be conservative in their evaluation GeoEngineers assumed that the bend could migrate downstream and negatively influence the crossing.

GeoEngineers estimated the maximum bend scour at the proposed pipeline to be 23 to 25 feet for the 100- and 500-year peak flow events, respectively. The bend scour at the crossing location would not be additive for successive storms as long-term degradation is assumed to be zero. Historic aerial imagery and recent Google Earth imagery indicates bar building and deposition of sediments in the Project Area, representing a dynamic sediment environment. This equates to a high likelihood that there is an adequate upstream sediment supply and likely minimal long term degradation at the proposed crossing location. In general terms, if the area over the pipeline was to experience a large scour event from one large storm event (up to 23 feet of scour during the 500-year peak flow event following the conservative assumptions), this area would be filled in/covered after the storm event by deposition of sediments from upstream and potential exposure of the pipeline would be negligible.

In addition to bend scour, there is potential for contraction scour that occurs when channel width varies within a short reach of the river. There is a small contraction upstream of the proposed crossing at the downstream end of the bend approximately 3,000 feet upstream. The DAPL proposed crossing is not located in a contraction, but actually a small expansion and

the contraction point is not likely to migrate downstream to the proposed crossing. However, to be conservative in their analysis as an additional factor of safety, GeoEngineers assumed that the contraction scour upstream of the proposed crossing could migrate downstream to the proposed crossing location. Based on this conservative assumption, contraction scour estimates for the 100-year discharge event are approximately 9 feet. This 100-year contraction scour depth is greater than what would occur during the 500-year event as flood waters spreading across the floodplain actually reduce contraction and therefore reduce the contraction scour depth.

Combining the conservative assumptions from above, the maximum estimated total potential scour depth at the proposed Missouri River HDD site would occur during a 100-year flood event. This conservatively assumes “worst case” that both the bend scour and the contraction scour migrate downstream and are both realized directly over the pipeline crossing at the same time. Under this scenario, the bend scour would create a scour of 23 feet and the contraction scour would contribute another 9 feet creating the maximum estimated total potential scour depth of 32 feet below the existing channel elevation during a 100-year flood event. To assess the factor of safety applied using these assumptions, GeoEngineers utilized general scour equations that take into account bend and contraction scour and compared them to the total scour estimated using the Maynard equation for bend scour and Laursen’s live-bed contraction scour equation. Utilizing the Blodgett equation, Lacey equation, and Blench equation for general scour, the estimated general scour at the proposed pipeline crossing ranges

between 14 to 23 feet for the 100- and 500-year peak flow events. This results in a total factor of safety of 1.4 to 2.3 for total scour at the proposed crossing.

Based upon their calculated worst-case scenario scour estimate, GeoEngineers considers the risk of scour occurring down to the level of the proposed pipeline to be low and the proposed Missouri River HDD design profile to be appropriate. The North Dakota Office of the State Engineer has issued Sovereign Lands Permit for the Missouri River crossing. A copy of the permit is included in Appendix M.

2.3.2.7 Minor Waterbody Crossing Methods

There are no minor waterbodies crossed by the pipeline on Corps Fee Lands. All minor waterbodies encountered on the flowage easements have been identified as falling under the jurisdiction of the Buford/Trenton Irrigation District (BTID) and, in compliance with their regulations, would be crossed via trenchless pipeline construction methods (bores). Dakota Access is working through the BTID permitting and approval process separately. One intermittent waterbody has been identified on the south side of the Missouri River crossing, within the connected action area but outside of the flowage easements, and within the HDD workspace. Temporary impacts to this waterbody would be mitigated during construction with a customized HDD equipment configuration, including the placement of temporary matting/bridging over the feature as necessary to maintain natural water flow during construction, and installation of appropriate ECDs. Therefore, impacts on surface wa-

ters and adjacent sensitive habitat would be minimized by eliminating open-cut pipeline installations and in-stream work for all crossed waterbodies.

2.3.2.8 Wetland Crossings

As discussed in Section 3.2.3 below, the only wetlands that would be crossed by the Proposed Action are located within the permanent easement between HDD workspace and the Missouri River on the flowage easements. As such, no wetlands would be impacted by construction or operation of the facilities within the Project Area/Connected Actions of the federal lands, and no trenching within wetlands would occur within the Project Area on the flowage easements. A temporary waterline would be laid above-ground, across the wetlands located between the HDD workspace and the north bank of the Missouri River on flowage easement LL3440E (**Figure 6-13**). No ground disturbing activity would be required for installation of the temporary waterline. A more detailed discussion regarding wetlands is provided in Section 3.2.3.

2.3.2.9 Operation and Maintenance

Following completion of construction, a 50-foot-wide permanent easement that is generally centered on the pipeline (25 feet on either side of the centerline) would be retained along the pipeline route. The 50-foot-wide easement would be maintained by the Operator in an herbaceous state (cleared of large diameter woody vegetation) to facilitate inspection of the pipeline, operational maintenance, and compliance with the federal pipeline safety regulations. This 50-foot-wide maintained corridor would be reduced to a 30-foot-wide corridor centered on the proposed pipeline

within the wetland area north of the Missouri River in Corps Flowage Easement LL3440E (**Figure 6-13**).

Maintenance of the permanent ROW would entail periodic vegetation clearing measures, in accordance with PHMSA regulation for pipeline inspection. This may involve selective tree cutting and periodic mowing. The use of herbicides would not occur on Corps Fee Lands without obtaining prior approval from the Corps. Vegetation maintenance of the ROW in areas of active cropland is not expected to occur due to agricultural practices.

3.0 THE AFFECTED ENVIRONMENT AND POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE

3.1 Geology and Soils

Under the “no action” alternative, Dakota Access would not construct the DAPL Project and no impacts on geology and soils would occur. However, if the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities would be required and these projects would result in their own impacts on geology and soils, which would likely be similar to or greater than the DAPL Project. If the Project is not constructed, less reliable shipping methods such as truck or rail could result in an adverse effect on geology and soils due to increases in transportation accidents and future construction of infrastructure necessary to support these methods (i.e. additional loading/offloading facilities, rail spurs, etc.).

3.1.1 Geology

3.1.1.1 Affected Environment

The Corps flowage easements to be crossed extend approximately 2.83 miles north of the Missouri River in Williams County (**Figure 2**). Conventional open trench construction methods would be used to install the pipeline on approximately 13,553 feet of the 14,953 feet of flowage easements. The remaining 1,400 feet would be installed via HDD for the adjacent Missouri River crossing. The easements and Connected Action lie within the Missouri River valley and floodplain on top of the Quaternary Oahe Formation (Clayton, 1980). The Oahe Formation is comprised of unconsolidated sediments, including clay, sand, silt, and gravel, with some dispersed organic material. Geotechnical borings placed on both sides of the river, ranging in depth from 75 to 95 feet below ground surface, confirm the presence of unconsolidated sand, gravel, and clay to at least these depths. At this location, the Oahe Formation unconformably overlies the Paleocene Bullion Creek Formation, which is made up of silt, sand, clay, sandstone, and lignite, and is the uppermost part of a thick sequence of early Tertiary and late Mesozoic sedimentary formations. Well borehole data from McKenzie County indicates that this sequence occurs in excess of 15,000 feet thick in certain locations (Freers, 1970). No soil borings were obtained below the Missouri River crossing because the banks of the Missouri River the length of the crossing is sufficiently short (930 feet) to allow for a comprehensive geotechnical analysis without testing directly beneath the river itself.

The flowage easements crossed by the Proposed Action and area crossed by the Connected Action occur within the Great Plains Physiographic Province, which is characterized by a broad expanse of flat land in the central portion of the U.S. The easements and the Missouri River Project Area lie within an area where physiography is characterized by low-relief alluvial and floodplain deposits and range in elevation from 1,856 to 1,879 feet above mean sea level (MSL).

The bedrock geology of the Lake Oahe crossing area is characterized by Cretaceous sedimentary formations (Clayton, 1980). The Fox Hills Formation (sandstone and shale) overlies the Pierre Formation (shale), which has been exposed through erosion along the axis of the Lake Oahe reservoir of the Missouri River. The surficial geology is characterized by alluvium within the valley and dune deposits moving in an eastward direction. This was corroborated by geotechnical soil borings that were placed on private lands on both sides of Lake Oahe that indicate the presence of sands and clays to depths ranging from at least 150 to 235 feet below ground surface (**Appendix D**).

The Lake Oahe crossing area also lies within the Great Plains Physiographic Province. On the west side of Lake Oahe, the federal land tracts range in elevation from 1,609 to 1,712 feet above MSL. The HDD exit point workspace ranges from 1,699 to 1,711 feet MSL, and the stringing area ranges from 1,671 to 1,766 feet MSL. On the east side of Lake Oahe, the federal lands range in elevation from 1,613 to 1,664 feet MSL, and the HDD entry point workspace ranges from 1,636 to 1,644 feet MSL.

3.1.1.2 Impacts and Mitigation

To protect the terrain of the Project Area and Connected Actions, Dakota Access would, to the extent feasible, restore the areas affected by pipeline construction to pre-construction contours and similar vegetation (excepting trees within approximately 15 feet of the centerline). Pre-construction and as-built surveys would be completed and provided to the Garrison Project.

Construction of the pipeline on the flowage easements and Connected Action at the Missouri River crossing would result in minor impacts on topography and geology, and no unique geologic features that have received state or federal protection would be impacted within the Corps flowage easements or Connected Action.

The impacts attributable to the HDD would not be significant. Vibrations produced during the HDD process are not of a magnitude that would cause any impacts to geologic features or other resources. Any vibrations associated with the drilling process would be limited to the immediate vicinity of the drilling equipment on the surface and downhole. The vibrations produced from the downhole tooling are of a very low magnitude and are attenuated very quickly by the formation such that vibrations are not felt at the surface. A vibration monitoring analysis conducted by GeoEngineers in 2009 found that peak particle velocities were less than 0.07 inches/second within approximately 50 feet of HDD operations. These velocities are well below that which would cause any structural impacts and moreover, the recorded vibrations were,

in fact, imperceptible to human senses (GeoEngineers, 2009). Primary impacts of open trench installation within the Corps flowage easements or Connected Action would be limited to construction activities and consist of temporary alteration due to grading and trenching operations.

Construction of the pipeline at the Lake Oahe crossing would not result in adverse impacts on topography or geology on federal lands of the Project Area. Similarly, construction impacts on topography and geology from the Connected Actions would be low to non-existent. No unique geologic features would be impacted by any aspect of the HDD installation.

No impacts on topography or geology would occur during operations.

Based on recently obtained geotechnical analysis, no blasting would be expected to occur in association with pipeline installation on the Project Area or Connected Actions, given that the HDD would be conducted in unconsolidated or loosely indurated sediments, as described in Section 3.1.1.1. Although not anticipated, if blasting is found to be necessary, Dakota Access would follow procedures specified in its Blasting Plan (**Appendix E**).

3.1.2 Mineral Resources

3.1.2.1 Affected Environment

Williams and McKenzie counties have numerous mineral resources that include petroleum, lignite, halite, sand and gravel, and scoria. Scoria, sediments baked from the in situ combustion of lignite (Carlson, 1985), is commonly used to surface roads. Although lignite occurs throughout Williams and McKenzie

Counties, there are no lignite beds in the vicinity of the Corps flowage easement crossings (Murphy, 2006; 2007). A review of aerial photographic and USGS 1:24K topographic coverage indicates that there are no sand, gravel, or scoria pits within 1.5 miles of the Corps flowage easement crossing areas.

Two oil/gas wells are located within the Corps flowage easements (LL3440E), but neither occur within 150 feet of the proposed HDD workspace. In addition, no oil/gas wells are located within 150 feet of the Connected Action at the Missouri River (North Dakota Department of Mineral Resources, 2015). Impacts within 150 feet of the Project was used following the Federal Energy Regulatory Commission (FERC) guidelines for the evaluation of construction impacts to well integrity. Although the Project is not under the jurisdiction of the FERC, FERC guidance was deemed to be an appropriate distance for this evaluation.

The primary mineral resources of Morton and Emmons counties are sand and gravel aggregates. The older Cretaceous sediments in the vicinity of the Lake Oahe crossing (i.e., scoria) do not contain economical deposits of fossil fuels. Although lignite occurs in Morton County, no lignite beds were identified in the vicinity of the Lake Oahe crossing. A review of aerial photographic and USGS 1:24K topographic coverage indicates that there are no sand, gravel, or scoria pits within 1.5 miles of the Lake Oahe crossing.

Since Morton and Emmons Counties are located outside the areal extent of the Bakken Formation, there is little to no development of oil/gas resources. This is reflected in the fact that no oil/gas wells were located within 150 feet of the federal lands or HDD

workspace and stringing area. However, the proposed pipeline would be co-located with an existing buried natural gas pipeline and an overhead electric transmission line across the lake.

3.1.2.2 Impacts and Mitigation

As noted previously, mineral resources, including lignite, halite, sand and gravel, and scoria occur within the region around the Corps flowage easements and Connected Action; however, the only commercially exploited mineral resources in the direct vicinity of the route are oil and gas, as evidenced by the two wells found within the Corps flowage easements. These wells would not be impacted by the Proposed Action due to proposed conventional construction methods and distance from the wells. No impacts on any mineral resources are expected as a result of the proposed flowage easement crossings or Connected Action.

The Proposed Action does not cross active mining areas nor any oil or gas wells and facilities in the vicinity of Lake Oahe. No impacts to any mineral resources are expected as a result of the proposed Lake Oahe crossing.

Dakota Access, in accordance with North Dakota One Call, would require that the construction contractor, prior to initiating any ground disturbance activities, identify all underground utilities to minimize the potential for encountering buried utility structures. Accordingly, the Proposed Action is not expected to have any impact on mineral resources, because there would be no additional surface disturbance required beyond that used for construction.

3.1.3 Geologic Hazards

3.1.3.1 Affected Environment

Earthquakes and Seismic Hazards

The Project Area, traverses terrain that overall is geologically stable. The potential seismic hazard was assessed by evaluating the USGS 2014 Seismic Hazard Map. According to the Seismic Hazard Map, an earthquake that has a 2% chance of being exceeded in a 50-year period would result in peak ground accelerations (PGAs) of 2 to 4 percent gravity (g) in the Project Area and Connected Actions (USGS, 2014a).

Ground movement from an earthquake of this magnitude may cause a light perceived shaking but is not expected to cause any structural damage. The low seismic hazard of the Project Area is further corroborated by the relatively low number of earthquakes that have historically occurred in North Dakota (North Dakota GIS Hub Data Portal, 2010).

Landslides

Landslides refer to the gravity-induced downward and outward movement of slope-forming materials and pose the greatest risk to facilities on or near steep slopes or on soil materials that are susceptible to failure particularly in response to earthquakes or heavy precipitation. A map developed by the USGS that illustrates the regional potential for the occurrence of landslides was used to evaluate the Project Area for landslide incidence and susceptibility (Radbruch et al., 1982).

Portions of the Project Area within the Corps flowage easements are moderately susceptible to landslides. This includes 59.2 acres (100%) of construction

workspace, of which 17.0 acres lies within the 50-foot-wide permanent easement, and 0.55 acre occurs within the 30-foot-wide maintained corridor above the HDD profile within the Corps flowage easement (which would not have surface disturbance aside from selective tree cutting and roots would remain in place). The HDD entry point on the south side of the Missouri River outside of the flowage easements is considered the Connected Action. The HDD entry workspace is approximately 2.0 acres and is also moderately susceptible to landslides.

As designed, the Proposed Action does not require any surface impacts to the federally owned lands at Lake Oahe, although, 0.4 acre of the permanent easement through the federal property on the west side of the Lake Oahe (Morton County) is classified as having a high incidence of landslides. Slopes greater than 25% in the Project Area within federal lands are not found on the east side of Lake Oahe (Emmons County) and comprise less than 0.02 acre on the west side. Activities related to the HDD crossing outside of the federal lands at the Lake Oahe crossing are considered Connected Actions. On the west side of Lake Oahe, 1.2 acres of the HDD workspace (exit point) and 13.1 acres of the pipe stringing area are designated as having a high incidence for landslides. Additionally, the stringing area encompasses approximately 1.8 acres of land that is classified as highly susceptible to landslides. Approximately 0.9 acre within the stringing area has slopes exceeding 25%. Approximately 1.2 acres of the HDD entry point workspace on the east side of Lake Oahe is designated as having a high inci-

dence of landslides, but there are no slopes within either the east or west HDD workspace that exceed 25%.

Karst and Subsidence

Geologic terrane beneath the flowage easements as well as the Connected Actions has potential for karst development owing to the presence of evaporite deposits, consisting of gypsum, salt, anhydrite, and/or potash (Weary and Doctor, 2014). These deposits range in age from Devonian to Jurassic and occur at depths ranging from 900 to 3,700 meters (3,000 to 12,000 feet). Fresh water must be present for the necessary dissolution to occur for karst development. However, since fresh water is not likely to be found at these depths, dissolution and karst development are not likely to occur (Ackerman, 1980). Even if karst conditions were to develop, any physiographic expression at the ground surface would be negligible given the great depth of these formations.

Geologic terrane beneath the federal lands crossings as well as the HDD workspaces at Lake Oahe area may have potential for karst development due to deposits of gypsum and other evaporates (Weary and Doctor, 2014). However, a review of topographic and aerial photographic coverages as well as geotechnical testing gave no indication of karst feature development, and no documentation was found to indicate that karst features have actually developed in this area. Furthermore, an existing buried pipeline and overhead electric transmission line also cross in this location, and no information was found indicating those utilities have been impacted by karst.

Land subsidence may be caused by mining, underlying karst features, and extraction of fluids, such as oil or groundwater. No surface subsidence effects are expected to be incurred in the Project Area since no mines, oil/gas wells, water wells, or karst development have been identified in the Project Area. Moreover, despite the fact that oil and gas production has occurred for decades in the Williston Basin, no surface subsidence effects have been documented in that area and, therefore, are not expected to impact the Project Areas within or near the margin of the Williston Basin.

3.1.3.2 Impacts and Mitigation

Although landslides can represent a significant geologic hazard during construction and operation of the pipeline, the pipeline would be installed via the HDD to significantly reduce ground disturbing activities in areas with steep slopes (greater than 25%), effectively mitigating the risk.

As previously discussed, no ground disturbing activities would occur within the Project Area on the federal lands. Ground disturbing activities associated with the HDD workspace and pipe stringing area would be required as part of the Connected Action; however, these activities would consist of clearing and grading only and would occur, at the closest distance, 1,040 feet from the bank of Lake Oahe. As such, no trenching or excavation activities would occur within the Project Area or Connected Action of the federal lands, thereby reducing the potential for erosion and off-site sedimentation which could otherwise occur as a result of side-slope trench excavation methods and accumulation of water within the trench.

To further mitigate impacts during construction, Dakota Access would utilize erosion and sediment control devices in accordance with the ECP and SWPPP, and in compliance with the National Pollutant Discharge Elimination System (NPDES) program, during construction in these areas with slopes greater than 25%. Dakota Access would install sediment barriers (e.g., silt fence) at the base of slopes and along the sides of slopes, as necessary, to prevent potential siltation downslope of the construction area from entering waterbodies.

Temporary ECDs would be maintained until the areas disturbed by construction have been successfully revegetated or are replaced with permanent ECDs. Following the completion of construction activities, disturbed areas would be restored and graded to pre-construction contours as closely as practical. In order to minimize the potential for future slip or landslide events during operation of the Proposed Action, Dakota Access may install permanent ECDs in addition to performing regular restoration and revegetation activities. Permanent ECDs would be installed in accordance with revegetation measures outlined in the ECP, SWPPP, and specific landowner requests. The effectiveness of revegetation and permanent ECDs would be monitored by Dakota Access' operating personnel during the long-term operation and maintenance of the Proposed Action facilities. Therefore, construction and operation of the Proposed Action facilities on the Project Area and Connected Action of the federal lands would not be expected to increase the potential for significant landslide or slip events or result in adverse impacts on aquatic life resources within Lake Oahe.

Dakota Access has completed a geotechnical analysis of the flowage easement and federal land crossing sites to facilitate engineering and design, including selection of appropriate materials and construction methods to limit any environmental impacts attributable to landslides. Results of the geotechnical analysis are included in **Appendix D**.

The strength and ductility of a properly designed pipeline would allow it to span a considerable distance without compromising its integrity in the event of a landslide or other ground movement, such as subsidence. Arc-welded steel pipelines are the most resistant type of piping, vulnerable only to very large and abrupt ground displacement (e.g., earthquakes, severe landslides) and are generally highly resistant to moderate amounts of permanent deformation. This strength and ductility effectively mitigates the effects of fault movement, landslides, and subsidence. Therefore, by implementing the mitigation measures presented here, impacts on the pipeline from geologic hazards are expected to be minimal.

No impacts associated with seismic activity within the Project Area are anticipated. Due to the limited potential for large, seismically induced ground movements, there is minimal risk of earthquake-related impacts on the pipeline. Therefore, no mitigation beyond designing the proposed pipeline to currently accepted industry specifications is necessary.

3.1.4 Paleontology

3.1.4.1 Affected Environment

The surficial geology at the Missouri River crossing is dominated by Quaternary glacial drift materials

within the floodplain overlying the Bullion Creek and Sentinel Butte Formations. These bedrock formations have been known to contain wide variety of fossils, including fossilized wood and tree stumps, mollusks, leaves, and insects (Hoganson and Campbell, 2002). Additionally, vertebrate fossils have been found, including turtles, crocodile-like champosaur, and bear-like titanoides.

The surficial geology at the Lake Oahe crossing is also characterized by Quaternary glacial drift materials; however, it is underlain by the Fox Hills and Pierre Formations. These formations could contain diverse fossils, including marine reptiles (e.g., mosasaurs, plesiosaurs, sea turtles), fish (e.g., sharks and rays), birds, and invertebrates (Hoganson, 2006).

While there is potential for the bedrock formations underlying the Missouri River and Lake Oahe crossings to contain fossils, all activities, including HDDs, would only penetrate the surficial geology that is dominated by unconsolidated sediments, as evidenced in the geotechnical report provided in **Appendix D**. The potential for encountering fossils in these unconsolidated sediments at the Missouri River and Lake Oahe crossings is low, as fossils are primarily found in sedimentary rock.

3.1.4.2 Impacts and Mitigation

Activities associated with pipeline construction that have the potential to impact paleontological resources are clearing, grading, and trenching, as well as site preparation for HDD operations. The paleontological resources of concern pertaining to construction of the Proposed Action are vertebrate fossils that may be present in the Paleocene bedrock sediments,

and to a lesser degree, in Quaternary alluvium since this type of deposit only rarely contains vertebrate fossils.

In the event paleontological resources are discovered during construction, Dakota Access would implement measures outlined in its Unanticipated Discoveries Plan Cultural Resources, Human Remains, Paleontological Resources and Contaminated Media (UDP) (**Appendix F**) to avoid further impacts on these resources.

Invertebrate fossils are considered to be insignificant, and mitigation measures would not be required, should they be encountered. However, if vertebrate fossils are found during pipeline construction, Dakota Access would immediately cease construction activities and notify appropriate agency personnel, including the North Dakota state paleontologist as well as the Corps archaeologist. The appropriate authorities would determine the significance of the find and prescribe the mitigation procedures to be completed prior to resuming pipeline construction.

Operation of the pipeline would not disturb paleontological resources.

3.1.5 Soils

3.1.5.1 Affected Environment

Dakota Access identified and assessed soil characteristics in the Project Area and Connected Actions using the Soil Survey Geographic Database, which is a digital version of the original county soil surveys developed by the Natural Resources Conservation Service (NRCS) for use with GIS (NRCS, 2015). The areas are located within the Rolling Soft Shale Plain of

North Dakota, South Dakota, and Montana. The dominant soil orders in the Rolling Soft Shale Plain are Mollisols and Entisols, which are shallow to very deep, generally somewhat excessively drained and loamy or clayey (NRCS, 2006).

The flowage easements and Connected Action are within Zone A of the Missouri River floodplain. Soils within the Project Area are formed out of alluvium deposited by the river over time. Slopes throughout this Project Area are very flat, ranging from 0-2%. Approximately 94% of the flowage easement Project Area and Connected Action would be located within either Scorio silty clay or Lohler silty clay (**Table 3-1, Figure 4**). The Scorio and Lohler silty clay soils are moderately well drained and formed in clayey alluvium. In the case of the Scorio silty clay, the clay alluvium is deposited over a loam alluvium. The Scorio and Lohler soils are identified as Hydrologic Soil Group C, which have slow infiltration rates when thoroughly wet and a slow rate of water transmission. The average depth to the water table across the majority of this Project Area is 4.25 feet. The soils within the flowage easements experience occasional flooding but are not generally ponded. Soil boring data is provided in (**Appendix D**).

| Table 3-1 Soil Types Mapped on the Flowage Easements Project Area and Connected Action | | | | | | |
|---|---|-----------------------------------|----------------------------------|--|----------------------------|-------------------------------------|
| Soil Map Unit | Soil Map Unit Name | Project Area (acres) ¹ | Farmland Rating | Hydrologic Group ² (infiltration) | Hydric Rating ³ | Wind Erodibility Group ⁴ |
| E4039A | McKeen loam, 0-1% slopes, frequently flooded | 0.1 | None | B/D | 96% | 4L |
| E4051A | Trembles fine sandy loam, slightly wet, 0-1% slopes, occasionally flooded | 0.5 | Farmland of Statewide Importance | A | 0% | 3 |
| E4103A | Lohler silty clay, saline, 0-1% slopes, occasionally flooded | 0.9 | None | C | 0% | 4 |
| E4106A | Lohler silty clay, slightly wet, 0-2% slopes, occasionally flooded | 27.8 | Farmland of Statewide Importance | C | 5% | 4 |
| E4159A | Scorio silty clay, slightly wet, 0-2% slopes, occasionally flooded | 29.9 | Farmland of Statewide Importance | C | 0% | 4 |

| Table 3-1 Soil Types Mapped on the Flowage Easements Project Area and Connected Action | | | | | | |
|---|--|-----------------------------------|-----------------|--|----------------------------|-------------------------------------|
| Soil Map Unit | Soil Map Unit Name | Project Area (acres) ¹ | Farmland Rating | Hydrologic Group ² (infiltration) | Hydric Rating ³ | Wind Erodibility Group ⁴ |
| E2725F | Arikara-Shambo-Cabba barns, 9-70% slopes | 2.0 | None | B | 0% | 6 |
| EW | Water | 0.3 | None | N/A | N/A | N/A |
| Total | | 61.5 | | -- | | |

¹ The Project Area includes the construction workspace (58.0 acres) and 30-foot maintenance easement (1.0acre) located on the flowage easements as well as the Connected Action workspace (2.0 acres).

² Hydrologic Soil Groups are used to estimate runoff from precipitation: A = high infiltration rate, low runoff potential; B = moderate infiltration rate; C = slow infiltration rate; D = very slow infiltration rate, high runoff potential.

³ Hydric Rating: Hydric (100%), Hydric (66-99%), Hydric (33-65%), Hydric (1-32%), Not Hydric (0%).

⁴ Wind erodibility group in cultivated areas: Group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. 4L indicates calcareous soils.

The predominant soil type at the federal lands at Lake Oahe is the Flasher-Vebar-Parshall complex. This complex would comprise 7.5 acres (34%) of the Project Area and Connected Action (**Table 3-2, Figure 5**). The Flasher-Vebar-Parshall complex contains 36% Flasher or similar soils, 22% Vebar or similar soils, 15% Parshall or similar soils, and 27% minor components. The Flasher-Vebar-Parshall complex is formed from sandy residuum weathered from sandstone and is steep within the Project Area and Connected Action, with slopes ranging from 9 to 35% (NRCS, 2015). The Flasher-Vebar-Parshall complex is Hydrologic Soil Group D, which has very slow infiltration (high runoff potential) when thoroughly wet. The depth to the water table is greater than 6.5 feet. A majority of the soils within the Project Area and Connected Action are neither frequently flooded nor frequently ponded.

| Table 3-2 Soil Types Mapped on the Federal Lands Project Area and Connected Action | | | | | | |
|---|--|-----------------------------------|----------------------------------|--|----------------------------|-------------------------------------|
| Soil Map Unit | Soil Map Unit Name | Project Area (acres) ¹ | Farmland Rating | Hydrologic Group ² (infiltration) | Hydric Rating ³ | Wind Erodibility Group ⁴ |
| E0623B | Grail-Belfield clay loams, 2-6% slopes | 2.9 | Farmland of Statewide Importance | C | 0% | 6 |
| E0701F | Dogtooth-Janesburg-Cabba complex, 6-35% slopes | 0.8 | None | D | 3% | 6 |
| E1423F | Flasher-Vebar-Parshall complex, 9-35% slopes | 5.8 | None | D | 0% | 2 |
| E1823A | Parshall fine sandy loam, 0-2% slopes | 0.7 | Farmland of Statewide Importance | A | 0% | 3 |
| E2601C | Amor-Cabba loams, 6-9% slopes | 0.3 | None | C | 0% | 6 |
| E2803B | Amor-Shambo loams, 3-6% slopes | 2.0 | Farmland of Statewide Importance | C | 0% | 6 |

| Table 3-2 Soil Types Mapped on the Federal Lands Project Area and Connected Action | | | | | | |
|---|---|-----------------------------------|----------------------------------|--|----------------------------|-------------------------------------|
| Soil Map Unit | Soil Map Unit Name | Project Area (acres) ¹ | Farmland Rating | Hydrologic Group ² (infiltration) | Hydric Rating ³ | Wind Erodibility Group ⁴ |
| E3802B | Linton-Mandan silt loams, 2-6% slopes | 2.6 | Farmland of Statewide Importance | B | 0% | 5 |
| E3813A | Grassna silt loam, loess, 1-2% slopes | 1.7 | Prime Farmland | B | 2% | 6 |
| E3813B | Grassna silt loam, loess, 2-6% slopes | 0.5 | Prime Farmland | B | 2% | 6 |
| E4139A | Korchea-Fluvaquents complex, channeled, 0-2% slopes, frequently flooded | 0.4 | None | B | 43% | 4L |
| EW /E49999 | Water | 6.4 | None | N/A | N/A | N/A |
| Total | | 24.1 | -- | | | |

¹ The Project Area includes Connected Action areas.

- ² Hydrologic Soil Groups are used to estimate runoff from precipitation: A = high infiltration rate, low runoff potential; B = moderate infiltration rate; C = slow infiltration rate; D = very slow infiltration rate, high runoff potential.
- ³ Hydric Rating: Hydric (100%), Hydric (66-99%), Hydric (33-65%), Hydric (1-32%), Not Hydric (0%).
- ⁴ Wind erodibility group in cultivated areas: Group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. 4L indicates calcareous soils.

Prime Farmland

Prime farmland has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Other soils that do not meet the criteria for prime farmland may be considered farmland of statewide importance. These soils may produce high yields of crops when managed appropriately (NRCS, 2013). Climate is the primary limiting factor preventing farmland of statewide importance in North Dakota from being considered prime farmland; therefore, specific management techniques or other soil amendments cannot elevate farmland of statewide importance to a prime farmland designation (Sieler, 2015).

Within the flowage easements and Connected Action, 95% of soils are considered farmland of statewide importance, and none of the soils are considered prime farmland. Approximately 9.5% of the soils on the federal lands, consisting only of Grassna silt loams, are considered prime farmland. Additionally, Linton-Mandan silt loam and Armo-Sambo loam, which comprise 25% of the soils on federal lands, are designated as farmland of statewide importance. The remaining soils do not have a farmland designation.

3.1.5.2 Impacts and Mitigation

Pipeline construction activities such as clearing, grading, trench excavation, and backfilling, as well as the movement of construction equipment along the ROW may result in temporary impacts on soil resources. Clearing removes protective cover and exposes soil to the effects of wind and precipitation, which may increase the potential for soil erosion and

movement of sediments into sensitive environmental areas. Grading and equipment traffic may compact soil, reducing porosity and percolation rates, which could result in increased runoff potential and decreased soil productivity. Trench excavation and backfilling could lead to a mixing of topsoil and subsoil and may introduce rocks to the soil surface from deeper soil horizons.

Dakota Access would minimize or avoid these impacts on soils by implementing the mitigation measures described in the DAPL Project's SPCC, SWPPP, and ECP as well as requirements of applicable state and federal permits. These documents would be included as contract documents and enforced as such throughout the DAPL Project. As a result, impacts on soils as a result of the Proposed Action are expected to be insignificant.

Temporary erosion and sedimentation control measures may include installation of silt fence, straw bales, slope breakers, trench breakers, erosion control fabric, and mulch.

To minimize potential impacts on soil productivity, topsoil would be separated during trench excavation in agricultural land, and if applicable, other areas where soil productivity is an important consideration. Unless otherwise requested by the landowner, topsoil in cropland would be removed to a maximum depth of 12 inches from the trench and spoil storage area and stored separately from the trench spoil. After the trench is backfilled, topsoil would be returned to its approximate original location in the soil horizon.

Compaction of agricultural soils would be minimized by restricting construction activities during periods of prolonged rainfall. Where unacceptable levels of compaction occur in agricultural lands, a chisel plow or other deep tillage equipment would be utilized to loosen the soil.

Dakota Access would retain environmental inspectors (Els) to monitor the contractor's compliance with applicable requirements to protect soil resources during construction of the DAPL Project. The Garrison Project would be notified if the Els document non-compliant activities by the contractor(s) on the Project Area or Connected Action Areas.

Soils would be temporarily disturbed within HDD workspaces during construction at the Missouri River and Lake Oahe crossings. Primary impacts attributable through open trench installation within the Corps flowage easements and Connected Action would be limited to construction activities and consist of temporary alteration of the construction ROW due to grading and trenching operations. **Tables 3-3 and 3-4** present the soil types that would be impacted by construction and maintenance activities. By implementing BMPs and recognized construction methods identified in the ECP (**Appendix G**), impacts to soils should be limited.

Additionally, temporary workspace used for staging HDD operations would impact soils, particularly in association with the HDD entry excavation pit (approximately 5 feet to 15 feet across). The pits would contain the drilling fluid that would be circulated through the borehole during drilling operations and the cuttings that are removed from the borehole. All drilling mud

and cuttings would be disposed at an approved location on non-federal lands, which may include land farming on private property or disposal at a licensed disposal facility. Drilling fluid pits at the HDD entry and exit workspaces would be backfilled and the area returned as closely as practical to pre-construction conditions. Dakota Access would implement the erosion control measures described in the SWPPP (**Appendix A**). The HDD workspace sites would be cleared, graded and matted as needed to avoid rutting and minimize compaction.

There would be no soil disturbance outside of the construction workspace. Permanent impacts on soils would be avoided through the implementation of BMPs during construction, restoration, and post-construction revegetation management. A more complete description of BMPs and recognized construction methods can be found in the ECP (**Appendix G**).

There would be no conversion of prime farmland soils to non-agricultural use.

| Table 3-3 Soil Impacts on the Flowage Easements Project Area and Connected Action | | | | |
|--|---|--|--|---------------------------|
| Soil Map Unit | Map Unit Name | Project Area Temporary Impacts (acres) | Connected Action Temporary Impacts (acres) | Permanent Impacts (acres) |
| E4039A | McKeen loam, 0-1% slopes, frequently flooded | 0.1 | 0 | 0 |
| E4051A | Trembles fine sandy loam, slightly wet, 0-1% slopes, occasionally flooded | 0.5 | 0 | 0 |
| E4103A | Lohler silty clay, saline, 0-1% slopes, occasionally flooded | 0.9 | 0 | 0 |
| E4106A | Lohler silty clay, slightly wet, 0-2% slopes, occasionally flooded | 27.8 | 0 | 0 |
| E4159A | Scorio silty clay, slightly wet, 0-2% slopes, occasionally flooded | 29.9 | 0 | 0 |
| E2725F | Arikara-Shambo-Cabba loams, 9-70% slopes | 0 | 2.0 | 0 |
| Total | | 59.3 | 2.0 | 0 |

| Table 3-4 Soil Impacts on the Federal Lands Project Area and Connected Action | | | | |
|--|---|--|--|---------------------------------|
| Soil Map Unit | Map Unit Name | Project Area Temporary Impacts (acres) | Connected Action Temporary Impacts (acres) | Total Impact Acres ¹ |
| E0623B | Graill-Belfield clay loams, 2-6% slopes | 0 | 2.9 | 2.9 |
| E0701F | Dogtooth-Janesburg-Cabba complex, 6-35% slopes | 0 | 0.8 | 0.8 |
| E1423F | Flasher-Vebar-Parshall complex, 9-35% slopes | 0.4 | 5.4 | 5.8 |
| E1823A | Parshall fine sandy loam, 0-2% slopes | 0 | 0.7 | 0.7 |
| E2601C | Amor-Cabba loams, 6-9% slopes | 0 | 0.3 | 0.3 |
| E2803B | Amor-Shambo loams, 3-6% slopes | 0 | 2.0 | 2.0 |
| E3802B | Linton-Mandan silt loams, 2-6% slopes | 0 | 2.6 | 2.6 |
| E3813A | Grassna silt loam, loess, 1-2% slopes | 0.7 | 1.0 | 1.7 |
| E3813B | Grassna silt loam, loess, 2-6% slopes | 0 | 0.5 | 0.5 |
| E4139A | Korchea-Fluvaquents complex, channeled, 0-2% slopes, frequently flooded | 0 | 0.4 | 0.4 |
| EW | Water | 0.1 | 0 | 0.1 |
| Total | | 1.2 | 16.6 | 17.8 |

¹ All soil impacts on Federal Lands and Connected Action at Lake Oahe are considered to be temporary.

3.2 Water Resources

Under the “no action” alternative, Dakota Access would not construct the DAPL Project, and no impacts on water resources would occur. However, if the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities would be required and these projects would result in their own impacts on water resources, which would likely be similar to or greater than the DAPL Project. Less reliable shipping methods such as truck or rail could result in an adverse effect on water resources due to increases in transportation accidents and future construction of infrastructure necessary to support these methods (i.e. additional loading/offloading facilities, rail spurs, etc.).

3.2.1 Surface Waters

3.2.1.1 Affected Environment

The Missouri River is a large perennial river and forms the border between Williams and McKenzie counties. The flowage easements are located on the north side of Lake Sakakawea in the Lake Sakakawea sub-basin (HUC 11010101) within the Upper Missouri River Basin. All drainage patterns from the flowage easements flow east and south towards and into the Missouri River/Lake Sakakawea ending at the Garrison Dam. Once released from the dam, water flows south into the Missouri River (NRCS, 2008).

Lake Oahe is a large reservoir formed behind the Oahe Dam on the Missouri River. Lake Oahe forms the border between Morton and Emmons counties. The northern boundary of the Standing Rock Sioux Reservation is located in Sioux County, North Dakota

approximately 0.55 mile south of the DAPL Project Area. The Project Area is located in the Upper Lake Oahe Watershed (HUC 10130102) within the Missouri River Basin and adjoins both sides of Lake Oahe at the crossing.

The Oahe Dam/Lake Oahe project is part of the chain of Missouri River main stem lakes authorized in the Flood Control Act of 1944. The Oahe Dam is located 6 miles north of Pierre, South Dakota and was placed into operation in 1962. The dam and associated reservoir (Lake Oahe) are congressionally authorized to provide flood control, hydroelectric power, navigation, irrigation, fish and wildlife enhancement, municipal water supply, water quality, and recreational opportunities to the residents of both South Dakota and North Dakota. At maximum normal operating pool level (1,617 feet MSL), Lake Oahe extends roughly 231 miles from the Oahe Dam in South Dakota to near Bismarck, North Dakota. At this level, the lake covers approximately 360,000 acres. At elevation 1,607.5 feet MSL base flood control elevation, the lake has over 2,250 miles of shoreline.

Lake Oahe can be divided into three segments based on the character of the lake. The Project Area is located within the northern segment. The northern segment extends north from the North Dakota/South Dakota state line to the upstream Oahe Dam/Lake Oahe project boundary near Bismarck, North Dakota. This segment is more river-like in appearance and is characterized by both submerged and emergent snags, sandbars, many shallow areas, and a definite current (USACE, 2010a).

Dakota Access conducted field and desktop delineations of the Project Area/Connected Action on the flowage easements and the Project Area/Connected Action of the federal lands. Field surveys took place upon permission to access the properties in order to verify desktop delineations and ensure that the most accurate, up-to-date data is used for Section 404 of the CWA and/or Section 10 of the RHA permit filings.

There are four waterbodies (one perennial stream and three ephemeral ditches) within the Project Area on the flowage easements and one intermittent waterbody within the Connected Action (Figure 6). The Project Area and Connected Action of the federal lands encompass two waterbodies (one lake [Lake Oahe] and one ephemeral stream) (Figure 7). Waterbody ID, type, surface water classification, and approximate milepost (MP) are summarized in Table 3-5 and Table 3-6.

3.2.1.2 Impacts and Mitigation

Direct and indirect impacts on Lake Oahe and the Missouri River would be minimized by using HDD construction methods to install the proposed pipeline underneath the Missouri River and Lake Oahe. At the Missouri River crossing, a 24-inch pipeline would be installed at least 36 feet below the bottom of the Missouri River. At Lake Oahe, a 30-inch pipeline would be installed approximately 140 to 210 feet below the ground surface of federal lands and approximately 92 feet below the bottom of Lake Oahe (Appendix H). Additional documentation elaborating on the rationale used to determine suitable HDD depth is provided in Appendix D. Appendix M includes the

Sovereign Lands Permits issued by the North Dakota Office of the State Engineer.

The primary impact that could occur as a result of an HDD is an inadvertent release of drilling fluid directly or indirectly into the waterbody. Drilling fluid (also referred to as drilling mud) is primarily comprised of water. However, bentonite clay is added to the water to enhance lubricating, spoil transport and caking properties of the drilling fluid. Bentonite is a naturally occurring, non-toxic, inert substance that meets National Science Foundation (NSF)/American National Standards Institute (ANSI) Standard 60 Drinking Water Additives Standards and is frequently used for drilling potable water wells. The potential exists for drilling fluid to leak through previously unidentified fractures in the material underlying the river bed. Potential release sources of the drilling fluid include the drilling fluid entry/exit pit(s) and the directional borehole itself, which is maintained under pressure to keep it open. The probability of an inadvertent release is greatest when the drill bit is working near the surface (i.e., near the entry and exit points). To alleviate this concern, the HDD Contractor plans to install steel surface casing at both the entry and exit locations of the Lake Oahe crossing. Because the HDD entry and exit points would be set back from the banks of the Missouri River (approximately 1,400 feet north and 300 feet south) and Lake Oahe (approximately 900 feet east and 1,100 feet west) the potential for an inadvertent release to occur in the water would be minimized. Additionally, geotechnical investigations conducted by Dakota Access indicated that the drill path is not located in materials

where there is a high probability of an inadvertent release of drilling fluids that would reach ground surface or enter Lake Oahe. Therefore, the potential for inadvertently released drilling fluids to enter any waterbody from below or from the shoreline is low. No downstream impacts to Sovereign Nations from inadvertent release of drilling fluid are anticipated.

The drilling mud and cuttings would be disposed of in accordance with applicable laws and regulations, likely in an existing landfill or by land farming. Final disposition would be negotiated with the facility or private landowner prior to disposal. Dakota Access would conduct all HDD work according to the HDD Construction Plan (**Appendix B**), and would implement the HDD Contingency Plan (**Appendix B**) in the event of an inadvertent release. The HDD Construction Plan establishes a 24-hour a day monitoring program for monitoring and detection of inadvertent releases, including monitoring for loss of drilling fluids. The HDD Contingency Plan describes monitoring and mitigation procedures for any inadvertent release of drilling mud into the waterbody or areas adjacent to the waterbody and includes procedures to contain and clean up inadvertent releases.

Dakota Access plans to hydrostatically test the HDD pipeline segments prior to installation at the Lake Oahe and Missouri River crossings. Hydrostatic testing involves filling the new pipeline segments with water acquired in accordance with applicable permits, raising the internal pressure level, and holding that pressure for a specific period of time per U.S. DOT requirements.

Dakota Access is requesting permission to withdraw water from the Missouri River that would be required for installation of the HDD and hydrostatic testing of the pipeline at the Missouri River crossing. Approximately 470,000 gallons of water would be required for activities associated with the installation of HDD and the hydrostatic testing of HDD pipeline segment. Dakota Access intends to submit an application to the North Dakota State Water Commission, Water Appropriations Department for a Temporary Water Permit. The exact number and size of the withdrawal pumps would be determined as a result of the limits imposed by the Temporary Water Permit. The withdrawal activity would comply with all applicable permit conditions and regulations, including the specifications on permitted intake structures outlined in the Corps' Regional Conditions for North Dakota applicable to NWP 12 (Utility Line Activities) (Corps, 2012). This regional condition requires that the applicant 1) utilize an intake screen with a maximum mesh opening of $\frac{1}{4}$ -inch; 2) wire, Johnson-like screens must have a maximum distance between wires of $\frac{1}{8}$ -inch; 3) water velocity at the intake screen shall not exceed $\frac{1}{4}$ -foot per second; 4) intake structure shall be floating; and 5) at the beginning of pumping, the intake shall be placed over water with a minimum depth of 20 feet.

The Acquisition point would coincide with the proposed pipeline crossing of the Missouri River. An 8"x 8" Power Associates 2500 Single Stage Pump would be set on a barge or float anchored just offshore at the proposed permanent easement. The barge/float would be approximately 12 feet wide by 14 feet long and fitted with a secondary containment structure (an Eagle

4Drum Flexible Containment SpillNest-T8103 or similar). The pump, capable of withdrawing 2,400 gallons per minute withdrawal and 120 feet of head pressure, would be placed within the secondary containment on the barge/float.

The pump's flexible intake hose would be 8 inches in diameter and connect the screened intake to the pump. The screened intake (approximately the size of a 55 gallon drum) would be suspended by floats (approximately the size of a tire) within the water column and would be screened to prevent impingement entrainment of foreign objects and aquatic life. A hard 8-inch diameter take-way pipe extending from the pump would push the water to the top of bank then to the HDD equipment or pipeline section. This temporary waterline would be laid by hand on top of the ground surface within the permanent ROW, and thus would not require any ground disturbance or trench excavation. The waterline, barge, pump, and associated equipment would be removed following completion of construction activities. A depiction of the layout of the barge, pump, and waterline is provided in **Figure 6-6**.

Water needed for HDD construction and hydrostatic testing at the Lake Oahe Crossing in Emmons and Morton counties, North Dakota would not be obtained from Lake Oahe. Required water would instead be obtained from an alternate surface water, groundwater, or commercial source and transported to the Project Area via water trucks. Water trucks would not be required to cross Corps Fee Lands. Prior to construction, Dakota Access would identify a water source for construction activities at the Lake Oahe

crossing in accordance with all applicable permits and regulations.

Water discharges associated with hydrostatic testing on Corps flowage easements would be conducted in accordance with applicable permits. Hydrostatic test water discharges would not occur on Corps fee property. Dakota Access would conduct trench dewatering and hydrostatic test discharges in a manner consistent with the North Dakota Pollutant Discharge Elimination System (NDPDES) General Permit NDG-070000. Discharged hydrostatic test water would not contain additives unless written approval is received from Dakota Access and applicable permits authorize such additives. [Is would monitor permit compliance. Where appropriate, water would be discharged into an energy dissipation and/or filtering device, as described in Dakota Access' SWPPP (**Appendix A**) to remove sediment and to reduce the erosive energy of the discharge.

Of the five waterbodies located within the flowage easements Project Area and Connected Action, one ephemeral ditch (d-k8-wi-011) is located within the portion of the Project Area that would be crossed via the Missouri River HDD; therefore, no trenching would occur within this feature. However, a temporary waterline would be installed across this feature to transport surface water from the Missouri River to the HDD equipment. The temporary waterline would be laid on top of the ground surface, and no grading or ground disturbance in the vicinity of the waterbody crossed by the waterline would be required. The hard pipe segments would be hand-carried down the slope and assembled by hand. No tracked or wheeled equipment would be necessary for construction or removal

of the temporary aboveground waterline. Four waterbodies would be temporarily impacted by pipeline construction. However, impacts on waterbodies would be minimized by conducting pipeline construction activities in accordance with applicable regulatory requirements and implementing trenchless waterbody construction procedures, as described in sections 2.3.2.6 and 2.3.2.7 and the ECP.

No waterbody would be permanently drained or filled as part of the DAPL Project, and effects on waterbodies are expected to be short-term and minor. Dakota Access would restore the area as close to its previous state and naturally functioning condition as practicable. Additionally, Dakota Access would take measures described in Dakota Access' SPCC, SWPPP (Appendix A), and ECP (Appendix G) to minimize the potential for surface water contamination from an inadvertent spill of fuel or hazardous liquids during refueling or maintenance of construction equipment or during operation of aboveground facilities. Fuel and all other hazardous materials would be stored in accordance with the requirements of Dakota Access' SPCC, SWPPP, and ECP. These documents also describe response, containment, and cleanup measures.

Drinking water intakes located downstream from the Missouri River and Lake Oahe crossings could be at risk if there was a release that reached these bodies of water in the vicinity of the intake structures. The Standing Rock Sioux Reservation is located south of the Lake Oahe Project Area and the majority of reservation residents depend on wells for water supply (Standing Rock Sioux Tribe, 2016). However, the Standing Rock Sioux also have intake structures

within the river downstream of the Lake Oahe Project Area.

In order to maintain the integrity of the pipeline, prevent Project losses, and protect the general public and the environment, the operator will inspect, exercise, and deploy Company-owned protective and response equipment in accordance with the National Preparedness for Response Exercise Program (PREP) guidelines. However, in the unlikely event of a pipeline leak, response measures to protect the users of downstream intakes will be implemented to minimize risks to water supplies. Dakota Access would be responsible party for implementing the response actions in accordance with Geographical Response Plan (GRP) and the Facility Response Plan (FRP). The potential for a spill to compromise a potable water supply intake would be continually evaluated as part of the response action. Alternative sources would be included as part of the contingency planning. Shutting down certain intakes and utilizing others or different drinking water sources or bottled water will be evaluated as part of this process. The Federal On-Scene Incident Commander (USEPA) would be responsible for assimilating and approving the response actions under the Unified Command. Dakota Access maintains financial responsibility for the duration of the response actions. The Dakota Access has prepared a FRP that includes measures such as notifications to surrounding communities, affected governments, and utilities in the event of an inadvertent pipeline release.

The FRP complies with the applicable requirements of the Oil Pollution Act of 1990 (OPA 90), and has been prepared in accordance with the National Oil

and Hazardous Substances Pollution Contingency Plan (NCP) and the Mid-Missouri Sub-Area Contingency Plan (SACP). Specifically, this Plan is intended to satisfy the applicable requirements of:

- Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation requirements for an OPA 90 plan (49 CFR 194)
- South Dakota Environmental Protection Oil Pipeline Plan Requirements (34A-18).
- American Petroleum Industry (API) RP 1174 - Recommended Practice for Pipeline Emergency Preparedness and Response.
- North Dakota Administrative Code 69-09-03-02

The operator has contractually secured personnel and equipment necessary to respond, to the maximum extent practicable, to a worst case discharge or a substantial threat of such discharge. The operator requires an annual certification from each Oil Spill Response Organization (OSRO) to assure compliance with the National PREP guidelines. Each listed OSRO has its own response equipment, including containment booms, absorbents, boats, and vacuum trucks.

Sub-freezing temperatures during the winter months could cause ice to form on the surface of Lake Oahe and the Missouri River. This layer of ice could impede the deployment of traditional containment booms. However, the ice itself often serves as a natural barrier to the spread of oil (Dickens 2011). Pockets of oil naturally contained by the ice can be drilled to

and removed using vacuum trucks. Dakota Access's contracted professional emergency responders are prepared to respond under winter conditions so that response procedures can be carried out in accordance PHMSA operational regulations. Therefore, a release during winter conditions is anticipated to have lesser impacts to water resources, particularly with respect to area of extent, as compared to a release during the warmer months.

A copy of the Draft FRP for the Dakota Access Pipeline North Response Zone is included in Appendix L. Dakota Access anticipates submitting this plan to PHMSA for review and approval in the third quarter of 2016 and will provide a copy of the updated draft to the Corps concurrent with the submittal to PHMSA. The FRP would be in place prior to operating the DAPL Project in accordance with PHMSA and federal regulations.

| Table 3-5 Waterbodies within the Flowage Easements Project Area and Connected Action | | | | | | | |
|---|--------------------------|-----------------|-----------|--------------------|---------------------------|---------------------------------|--|
| MP | Water-body ID | Water-body Type | Flow Type | Delineation Source | Class of Aquatic Resource | ND Surface Water Classification | Area of Impact |
| 92.7 | d-k8-wi-013 | Ditch | Ephemeral | Field | §404 | III | Construction and Permanent ROW |
| 92.77 | s-k8-wi-002 | Stream | Perennial | Field | §404 | III | Construction and Permanent ROW |
| 93.23 | d-k8-wi-007 | Ditch | Ephemeral | Field | §404 | III | Construction and Permanent ROW |
| 94.64 | d-k8-wi-011 | Ditch | Ephemeral | Field | §404 | III | Permanent ROW over HDD Profile (Temporary Waterline) |
| 94.9 | s-m10-wi-001/s-k2-mk-001 | Stream | Perennial | Field | §10 | I | Construction and Permanent ROW |

| Table 3-5 Waterbodies within the Flowage Easements Project Area and Connected Action | | | | | | |
|---|---------------|-----------------|--------------|--------------------|---------------------------|---------------------------------|
| MP | Water-body ID | Water-body Type | Flow Type | Delineation Source | Class of Aquatic Resource | ND Surface Water Classification |
| 95.1 | s-k2-mk-002 | Stream | Intermittent | Field | §404 | III |
| | | | | | | Construction and Permanent ROW |

Surface water classifications from North Dakota Administrative Code 33-16-02.1-09:

Class I Streams: quality of the waters in this class shall be suitable for the propagation or protection, or both, of resident fish species and other aquatic biota and for swimming, boating, and other water recreation. The quality of the waters shall be suitable for irrigation, stock watering, and wildlife without injurious effects. After treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the water quality shall meet the bacteriological, physical, and chemical requirements of the department for municipal or domestic use.

Class III Streams: The quality of the waters in this class shall be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, they are of limited value for recreation and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g. wading), fish and aquatic biota, and wildlife uses.

The only surface waterbody identified on the federal lands Project Area is Lake Oahe (s-kc4-em-001/s-kc4-mo-002), which would be avoided via HDD. The pipe stringing corridor (Connected Action) at Lake Oahe crosses two drainageways that are indicated on the National Hydrography Dataset. Field delineations carried out by Dakota Access identified one ephemeral stream (s-kc-4-mo-004) associated with these two drainageways that intersect the pipe stringing corridor of the Connected Action. Impacts on the delineated waterbody would be entirely within the pipe stringing additional temporary workspace (ATWS) and are expected to be avoided by bridging the waterways for equipment and vehicle traffic during pipe stringing, fabrication and pullback. No trenching would occur within the pipe stringing ATWS. While limited grading may be necessary within the pipe stringing ATWS, no grading would be expected to occur within the waterbody itself. Vegetation may be mowed/brush-hogged, however, no root masses are anticipated to be removed. Revegetation of these areas would be in accordance with the North Dakota tree and shrub regulations and would not be impacted during operation of the Proposed Action. No trees are expected to be cleared on Corps fee-owned lands.

| Table 3-6 Waterbodies within the Federal Lands Project Area and Connected Action | | | | | | |
|---|--------------------------------|---------------------|-----------|--------------------|---------------------------|---------------------------------|
| MP | Waterbody ID | Water-body Type | Flow Type | Delineation Source | Class of Aquatic Resource | ND Surface Water Classification |
| 166.3 | s-kc4-en-001 / s-kc4-mo-002 | Lake (Lake Oahe) | N/A | Field | §10 | I |
| 166 | s-kc4-mo-004 | Stream | Ephemeral | Field | §404 | III |

Surface water classifications from North Dakota Administrative Code 33-16-02.1-09:

Class I Streams: quality of the waters in this class shall be suitable for the propagation or protection, or both, of resident fish species and other aquatic biota and for swimming, boating, and other water recreation. The quality of the waters shall be suitable for irrigation, stock watering, and wildlife without injurious effects. After treatment consisting of coagulation, settling, filtration, and chlorination, or equivalent treatment processes, the water quality shall meet the bacteriological, physical, and chemical requirements of the department for municipal or domestic use.

Class III Streams: The quality of the waters in this class shall be suitable for agricultural and industrial uses. Streams in this class generally have low average flows with prolonged periods of no flow. During periods of no flow, they are of limited value for recreation and fish and aquatic biota. The quality of these waters must be maintained to protect secondary contact recreation uses (e.g. wading), fish and aquatic biota, and wildlife uses.

Environmental Inspectors would monitor compliance with applicable waterbody protection requirements during construction of the facilities. The ECP (**Appendix G**) and SWPPP (**Appendix A**) describe additional mitigation measures and contain illustrations of how sediment control devices are typically installed at waterbody crossings. Additionally, Dakota Access would maintain a vegetative buffer until the actual crossing of the waterbody takes place. Temporary sediment control measures, such as silt fence installed at each crossing, would minimize the introduction of sediment into waterbodies during construction and minimize the movement of spoil and sediment from surface runoff during and after construction. Permanent erosion control measures, such as vegetation and installation of slope breakers, would effectively stabilize riparian zones. Dakota Access would stabilize stream banks disturbed during construction using methods as directed by applicable state and/or federal permits. Trenching and dewatering activities used in construction of the proposed pipeline could temporarily alter surface drainage patterns. However, these impacts are expected to be localized and temporary, since the contours and vegetation would be returned as closely as practical to pre-construction conditions. Dewatering activities would be conducted in accordance with applicable permits and Dakota Access' SWPPP and ECP.

All construction equipment utilized on or in waters of the state would be subject to inspection by the Department in accordance with the North Dakota Administrative Code (Title 30, Article 3, Chapter 6-01). Further, Dakota Access would implement required

measures including the removal of all aquatic vegetation from vessels, motors, trailers, or construction equipment. All water would be drained from bilges or confined spaces. All Aquatic Nuisance Species will be removed from equipment in accordance with the North Dakota Administrative Code (Title 30, Article 3, Chapter 6). The contractor or his agents or subcontractors must provide the North Dakota Game and Fish Department a reasonable opportunity to inspect any and all vehicles, vessels, pumps and equipment that will be used in the project in or on the waters of the state prior to those items being launched or placed in the waters of the state.

Water Intake Mitigation

Measures In the unlikely event of a release during pipeline operations, drinking and irrigation water intakes located downstream from the Missouri River and Lake Oahe crossings could be at risk if hydrocarbons were to reach these bodies of water in the vicinity of the intake structures. In order to minimize the risk of a pipeline leak and protect the users of downstream intakes, Dakota Access will implement the design and operation measures summarized below as well as all other measures described throughout this EA and in the FRP.

- Pipe specifications that meet or exceed applicable regulations, with a quality assurance program for pipe manufacturers
- Use of the highest quality external pipe coatings (fusion bond epoxy or FBE) to reduce the risk of corrosion, and stress corrosion cracking.

- Active Cathodic Protection applied to the pipeline and facilities
- Four feet of soil cover will be provided over the buried pipeline on either side of the HDD crossings. The proposed HDD profiles under the Missouri River and Lake Oahe are designed to provide a minimum of 36 feet and 92 feet of cover below the water bodies, respectively.
- Pipeline system inspection and testing programs will be implemented prior to operation to ensure the pipeline is built in accordance with the standards and specifications.
- Non-destructive testing of 100 percent of girth welds
- Hydrostatic testing of the pipeline to 125% percent of the Maximum Operating Pressure (MOP).
- A continuous SCADA pipeline monitoring that remotely measures changes in pressure and volume on a continual basis at all valve and pump stations, is immediately analyzed to determine potential product releases anywhere on the pipeline system.
 - o Pipeline variables are the parameters pertaining to SCADA systems, instrumentation, fluid properties, physical attributes of pipelines, pressure, temperature, and flowrate
 - o Includes pressure transmitters to monitor flowing pressure in real-time and alarm in

the event of adverse pressure changes due to potential leaks / releases

- o Includes custody transfer quality meters to monitor pipeline Receipts / Deliveries in real-time and alarm in the event of flowrate discrepancies due to potential leaks / releases
- Leak Detection System - LeakWarn - A Computational Pipeline Monitoring System (CPM) to monitor the pipeline for leaks via computational algorithms performed on a continual basis.
 - o Includes separate ultrasonic meters at each pump station to continuously verify and compare flowrates along the pipeline in real-time as part of a leak detection system.
 - o This measurement data is immediately analyzed to determine potential product releases anywhere on the pipeline system.
 - o The mathematical algorithms are based on physics and abide by the conservation principles of mass, momentum and energy.
- Periodic pipeline integrity inspection programs using internal inspection tools to detect pipeline diameter anomalies indicating excavation damage, and loss of wall thickness from corrosion.
- Periodic above-ground Close Interval Surveys (CIS) conducted along the pipeline.
- Aerial surveillance inspections will be conducted 26 times per year (not to exceed 3

weeks apart) to detect leaks and spills as early as possible, and to identify potential third-party activities that could damage the pipeline.

- Mainline valves are installed along the pipeline route to reduce or avoid spill effects to PHMSA-defined HCAs.
- Periodic landowner outreach and the implementation of a Public Awareness program
- Participation in “One-Call” and “Before You Dig” notification systems.

Immediately upon discovery of a release of oil that could impact the Missouri River or Lake Oahe, Dakota Access will initiate emergency response efforts, including containment and recovery.

Site-specific GRPs have been developed for the Missouri River and Lake Oahe crossings. These security sensitive documents, submitted to the USACE as Privileged and Confidential, identify site-specific resources and response measures for an immediate, safe, and effective response to a release of crude oil from the Dakota Access Pipeline with the potential to impact the Missouri River near these two crossings. Response measures include, but are not limited to, the deployment of containment or diversionary booms at predetermined locations and oil collection/recovery activities to prevent further migration of crude oil.

Emergency response notifications will be made to Federal, State, and Local agencies and tribal officials as outlined in the FRP. Dakota Access and its contractors will work with Federal, State, local and Tribal officials to protect downstream water intakes.

To minimize potential impacts to intakes, protection and mitigation measures will be implemented in cooperation with intake operators.

Dakota Access will identify an all-weather access and collection point downstream of both the Missouri River crossing and Lake Oahe crossing. At each location, Dakota Access will provide an equipment storage facility that includes a permanent storage area for winter and open water spill response equipment. Dakota Access would coordinate with the USACE and any other applicable stakeholders to obtain all necessary permits and approvals prior to construction for any ground disturbing activities associated with these facilities.

Dakota Access will conduct emergency response drills/exercises at both the Missouri River crossing near Williston and the crossing at Lake Oahe. These exercises will include both open water and ice response activities. Regulatory and stakeholder participation will be encouraged and solicited for the exercises. Section 3.2.2.2 Impacts and Mitigation Remediation, Section 3.11 Reliability and Safety and the FRP (Appendix L) contain more detail regarding spill prevention, detection and response measures. The emergency response drills/exercises are further discussed in Section 3.11.

3.2.2 Groundwater

3.2.2.1 Affected Environment

Groundwater occurs within the Project Area of the Corps flowage easements and federal lands in both glacial drift and bedrock aquifers. Although bedrock aquifers tend to have a greater distribution and be

more continuous than Quaternary aquifers, Quaternary aquifers typically provide higher yields to wells.

Groundwater in the bedrock aquifers flows towards the Missouri River and Lake Oahe, a regional groundwater discharge zone. The water table within phreatic aquifers, which may include both Quaternary and bedrock formations, is typically a subdued replica of the surface topography. Although groundwater flow directions may vary widely particularly within localized flow regimes, overall regional flow of groundwater in the phreatic aquifer would be to the Missouri River and Lake Oahe.

The most economically important aquifers in the vicinity of the Corps flowage easements are the Cretaceous Dakota Group, the Tertiary Fort Union Group (which includes the Sentinel Butte and Bullion/Tongue River Formations), and glacial drift aquifers of the Quaternary Period (Armstrong, 1969). The glacial drift aquifers are relatively thin at the Project Area, except where they occur in buried or present-day bedrock valleys. In the absence of Quaternary aquifers, members of the Paleocene Fort Union Group commonly serve as the shallowest aquifer. Individual aquifer members of the Fort Union Group include, in descending order, the Sentinel Butte, Tongue River, Cannonball, and Ludlow Formations (Croft, 1985). Other bedrock aquifers of economic importance in the flowage easement region are the late Cretaceous Hell's Creek and Fox Hills Aquifer system and the Cretaceous Dakota Group.

Three domestic wells and six observation wells (one of which has been destroyed) are located on the flowage easements, but occur outside of the Project

Area. The closest well to the proposed pipeline centerline is a domestic well located approximately 430 feet from the centerline. The flowage easements or Connected Action do not overlie any source water protection areas.

The most economically important aquifers in Morton and Emmons counties, where the federal lands along Lake Oahe are located, include aquifers within the Cretaceous Fox Hills and Hell Creek Formations; the Tertiary Fort Union Group, which includes the Cannonball and Ludlow Formations, Tongue River Formation, and Sentinel Butte Formation (northwest part of the county only); and alluvial and glacial drift aquifers of the Quaternary Period (Ackerman, 1980; Armstrong, 1978). The Pierre Formation is considered the base of the active near-surface aquifers, because it is thick and relatively impervious.

No water wells are located within 150 feet of the federal lands or Connected Actions at the Lake Oahe crossing. Impacts within 150 feet of the Project was used following the Federal Energy Regulatory Commission (FERC) guidelines for the evaluation of construction impacts to water wells and springs. Although the Project is not under the jurisdiction of the FERC, FERC guidance was deemed to be an appropriate distance for this evaluation. Additionally, none of the Project Area or Connected Action overlie any source water protection areas.

3.2.2.2 Impacts and Mitigation

Ground disturbance associated with conventional pipeline construction is generally limited to approximately 6 to 10 feet below the existing ground surface.

Where excavation penetrates the water table, potential groundwater impacts from pipeline construction are primarily limited to the radius of influence around the excavation profile.

Construction activities, such as trenching, dewatering, and backfilling that encounter shallow aquifers would cause minor direct and indirect impacts via fluctuations in groundwater levels and/or increased turbidity within the aquifer adjacent to the activity due to dewatering activities. Dewatering would consist of a single or series of submersible pumps that would be lowered into the pipe trench to remove excess water to facilitate pipe installation. In cases of greater water infiltration, well pointing (a series of dewatering points along the outside of the trench connected in series to a pump to enable effective dewatering of the trench) may be used. These impacts are temporary (only while the trench is open) and highly localized as the infiltration of the dewatered groundwater is in the immediate vicinity of the dewatering activity.

Construction and dewatering activities are not expected to have a significant direct or indirect effect on regional groundwater flow patterns. Shallow aquifers would quickly reestablish equilibrium if disturbed, and turbidity levels would rapidly subside. Consequently, the effects of construction would be minor and short-term. Impacts on deeper aquifers are not anticipated.

The introduction of contaminants to groundwater due to accidental spills of construction-related chemicals, fuels, or hydraulic fluid could have an adverse effect on groundwater quality. Spill-related impacts

from construction activities are typically associated with improper fuel storage, equipment refueling, and equipment maintenance. Dakota Access' SPCC Plan outlines measures that would be implemented to avoid, minimize, prevent, and respond to releases of fuels and other hazardous substances during construction and includes measures for cleanup, documentation, and reporting of spills (**Appendix A**). Project-specific SPCCs would be developed by the selected contractor and implemented throughout construction. By implementing the protective measures set forth in these plans, groundwater contamination due to construction activities is not anticipated. The draft SPCC is included as Appendix B of **Appendix A** (SWPPP); the project-specific plan to be developed by the Contractor would meet or exceed all conditions presented in the draft plan.

Accidental releases from the pipeline system during operations could potentially affect groundwater. Although most components of crude oil are relatively insoluble (Neff and Anderson, 1981), crude oil released into soil can migrate toward water where certain constituents can dissolve into groundwater or surface water in limited amounts. As a liquid, the product would travel along the path of least resistance both laterally and vertically at a rate determined by a number of factors including volume released, soil conditions (permeability, porosity, moisture, etc.), depth to groundwater, and the speed and effectiveness of response and remediation measures.

The DAPL Project would transport light sweet crude oil from the middle Bakken and upper Three Forks formations (Bakken). The Energy Information Administration (EIA) categorizes light sweet crude oil

as having an API gravity between 35° and 50° and less than 0.3 wt % sulfur. API gravity is a measure of how heavy or light liquid oil is compared to water: if its API gravity is greater than 10, it is lighter and floats on water. The oil extracted from the Bakken has an API gravity generally between 40° and 43° and a sulfur content of less than 0.2 weight percentage (wt %) (Turner, Mason and Company, 2014). Therefore, the Bakken oil has properties that fall within the mid-range of light sweet crude.

Most crude oil constituents are not very soluble in water. The dissolved concentration of water soluble compounds (e.g., benzene) is not controlled by the amount of oil in contact with the water, but by the concentration of the specific constituent in the oil (Charbeneau et al., 2000; Charbeneau, 2003; Freeze and Cherry, 1979). Studies of 69 crude oils found that benzene was the only aromatic or polycyclic aromatic hydrocarbon compound tested that is capable of exceeding the 0.005 ppm groundwater protection threshold values for drinking water (i.e., maximum contaminant levels (MCLs) or Water Health Based Limits) (Kerr et al., 1999 as cited in O'Reilly et al., 2001).

In aquatic environments, crude oil's toxicity is a function of the concentration of its constituent compounds and their toxic effects, along with their solubility (and bioavailability) in water. Based on the combination of toxicity, solubility, and bioavailability, benzene is commonly considered to pose the greatest toxicity threat from crude oil spills (Muller, 1987). The lowest acute toxicity threshold for aquatic organisms for benzene is 7.4 ppm based on standardized toxicity tests (USEPA, 2016). .

Accordingly, theoretical concentrations of benzene in river water for a range of potential DAPL Project spills at the two pipeline river crossings are presented in **Table 3-7**. An assumption of a 1-hour release period for the entire spill volume at each location was used. The following additional conservative assumptions were developed to estimate potential spill effects for planning purposes:

- The entire volume of a crude oil spill was released due to a catastrophic failure of the pipeline and reached the waterbody;
- Complete, instantaneous mixing occurred;
- The entire benzene content of the crude oil was solubilized into the water column; and
- The receptor is located at the immediate site of the crude oil spill and there is no loss due to evaporation or degradation.

The conservative analysis presented in **Table 3-7** includes a range of values from 4 barrels to 10,000 barrels spilled. However, examination of the PH MSA dataset from 2002 to 2015 (PHMSA, 2016) indicates that the majority of actual pipeline spills are relatively small and fifty percent of the spills consist of 4 bbls or less. The spill volume would be likely small due to a number of factors including:

- Most releases are not caused by full ruptures of the pipeline;
- The overburden on the HDD section of the pipeline or the compacted back-fill over a buried pipeline restricts the volume that could be released during a spill and restricts the affected area; and

- Due to anti-siphoning effects, a full gravity drain-down between valve locations on either side of the river crossings rarely occurs.

As indicated in **Table 3-7**, the acute toxicity threshold for aquatic organisms for benzene of 7.4 ppm is not exceeded under any of the hypothetical spill volume scenarios. The most probable spill volume (4 barrels

or less) does not yield benzene concentrations that exceed the drinking water criteria even with the ultra conservative mixing assumptions. It should be noted that under real life conditions, the spill and mixing events outlined by the assumptions are beyond physical actualities. Therefore the use of the upper ranges of spill volumes and the concentrations in the table is limited and is not recommended beyond this NEPA analysis.

| Table 3-7 | | | | | | | |
|--|------------------|--------------------------------|-------------------|--|----------------------|---------------------------|-------------------------|
| Estimated Benzene Concentrations Following a Hypothetical Crude Oil Spill at Project River Crossings | | | | | | | |
| River Crossing | River Flow (cfs) | Acute Toxicity Threshold (ppm) | Benzene MCL (PPm) | Estimated Benzene Concentration in Surface Water (ppm) | | | |
| | | | | Very Small Spill: 4 bbl | Small Spill: 100 bbl | Moderate Spill: 1,000 bbl | Large Spill: 10,000 bbl |
| Missouri River | 20,374 | 7.4 | 0.005 | 0.00075 | 0.019 | 0.19 | 1.88 |
| Lake Oahe | 22,484 | 7.4 | 0.005 | 0.00068 | 0.017 | 0.17 | 1.70 |

Notes:

- Adapted from Stantec, 2015
- Estimated concentration is based on release of benzene into water over a 1-hour period with uniform mixing conditions.
- Concentrations are based on a 0.28 percent by volume benzene content of the transported material (Marathon Oil 2010).
- bbl - An oil barrel defined as 42 US gallons,
- MCL - Maximum contaminant levels
- ppm - Parts per million
- cfs - Cubic feet per second
- Stream flows are measured mean discharge from the gage stations closest to the pipeline crossings located on the Missouri River at Williston (USGS Station 06330000) and Bismarck (USGS Station 06342500)(USGS 2016; 2016b).

Sub-freezing temperatures during the winter months could cause ice to form on the surface of Lake Oahe and the Missouri River. This layer of ice will trap oil released below the lake's surface and prevent benzene evaporation from occurring. Therefore, during the winter, evaporative loss will be negligible, and will allow a longer contact between the crude oil and the water column. Additionally, natural undulations in the bottom of the ice will trap the material and reduce horizontal spreading, potentially causing very localized impacts to organisms in prolonged contact with the near-surface water (e.g., phytoplankton) (Dickens 2011). Exposure to fish deeper in the water column would not likely experience adverse impacts. The natural containment of winter releases facilitates cleanup efforts as the pockets of oil can be drilled to and removed using vacuum trucks. Thus, winter releases are predicted to have lower impacts, particularly with respect to area of extent, as compared to releases occurring during the warmer seasons.

If no active ground water remediation activities were undertaken (see discussion below), dispersion, evaporation, dissolution, sorption, photodegradation, biodegradation, and natural attenuation ultimately would allow a return to preexisting conditions in both soil and groundwater.

Remediation

As part of the pipeline operation, which is regulated by the PHMSA, Dakota Access has an ongoing maintenance, inspection, and integrity testing program to monitor the safety of the pipeline system. Monitoring activities include constant remote oversight of the entire system 24/7/365 from the control

center, routine inspection of the cathodic protection system, and the use of inspection tools that travel through the inside of the pipeline to check pipe integrity (see Section 3.11 for additional information regarding reliability and safety and the proposed methods for monitoring the Proposed Action facilities). Dakota Access also performs regular aerial flyovers to inspect the pipeline ROW. In the event of a leak, Dakota Access would work aggressively to isolate the source through the use of remote-controlled shutoff valves, initiate cleanup activities, and contact the appropriate federal and state authorities to coordinate leak containment and cleanup. To prevent pipeline failures resulting in inadvertent releases, Dakota Access would construct and maintain the pipeline to meet or exceed industry and governmental requirements and standards. Specifically, the steel pipe would meet PHMSA specifications under 49 CFR § 195, follow standards issued by the American Society of Mechanical Engineers, National Association for Corrosion Engineers and API. Once installed, the pipeline would be subjected to testing to verify its integrity and compliance with specifications, including hydrostatic pressure testing at the crossings, checking coating integrity, and X-ray inspection of the welds. The pipeline would be placed into service only after inspection to verify compliance with all construction standards and requirements. Dakota Access would maintain and inspect the pipeline in accordance with PHMSA regulations, industry codes and prudent pipeline operating protocols and techniques. The pipeline ROW would be patrolled and inspected by air every 10 days, weather permitting, but at least every three weeks

and not less than 26 times per year, to check for abnormal conditions or dangerous activities, such as unauthorized excavation along the pipeline route.

While a release of crude oil into groundwater or a surface waterbody has the potential to cause environmental impacts, the likelihood of such an event is very low. Dakota Access has detailed provisions for protecting and mitigating potential impacts to water resources in Section 3.11 Reliability and Safety. Emergency response and remediation efforts have the potential for dramatically reducing the appreciable adverse environmental effects.

In the unlikely event of a spill during operations of the pipeline, impacts to water resources would be further mitigated by following the cleanup procedures and remediation activities described in the Dakota Access' FRP (**Appendix L**).

Specific clean-up procedures and remediation activities would be determined by groundwater remediation specialists within Dakota Access and contracted professional consultants. Each groundwater mitigation situation is unique and will be treated according to the actual circumstances present.

The first step in the mitigation process consists of the delineation of the plume to define the nature and extent of the release. If appropriate, Dakota Access would recover product as soon as practical to prevent the spread of contamination using excavators to remove the impacted soils, oil skimmers installed within collection wells, pumps, and storage containers or vacuum trucks at collection areas or some other method appropriate for the site conditions.

Dakota Access would develop a groundwater remediation plan in coordination with the North Dakota Department of Health and other responsible federal, state or other governmental authorities. The proposed groundwater remediation system would be designed to treat the impacted groundwater by removing the released oil, converting it into harmless products, monitoring natural attenuation, etc.

Released product can often be physically removed from groundwater by several methodologies. The pump and treat method is one of the most widely used physical methods of ground water remediation and consists of pumping the groundwater to surface and then using either biological or chemical treatments to remove the oil. Another common method of removing floating hydrocarbon contaminants is the use of a monitoring-well oil skimmer. This method utilized a belt material with a strong affinity for hydrocarbons to bring the oil to the surface where it can be removed. A dual-phase vacuum extraction removes both contaminated groundwater and soil vapor. A high-vacuum extraction well is installed with its screened section in the zone of contaminated soils and groundwater to remove contaminants from above and below the water table. Released product can also be removed from groundwater by applying various chemical methodologies including ozone and oxygen gas injection, surfactant enhanced recovery, Biological treatment techniques can also be utilized including bioventing and bioaugmentation.

The ground water treatment remediation plan would be selected in coordination with the North Da-

kota Department of Health and other responsible governmental authorities and may utilize a combination of technologies.

A preliminary evaluation of geology indicates that groundwater within the floodplain throughout most of the Corps flowage easements is less than 6.5 feet deep (GeoEngineers, 2014). The pipeline would be installed in saturated sediments as part of the HDD crossing of Lake Oahe. Due to the nature of HDD methodology, this construction method is inherently not a risk to groundwater resources and uses benign substances (bentonite and water) to penetrate through soil, rock, and groundwater. Construction of the Project Area and Connected Action would not be expected to result in significant negative direct or indirect impacts on groundwater resources.

3.2.3 Wetlands

3.2.3.1 Affected Environment

Wetland data for the Project Areas was derived from desktop analyses along the entire route and verified by field delineations. Using data from the U.S. Fish & Wildlife Service's (USFWS) National Wetlands Inventory (NWI) dataset, aerial imagery, and topography, an experienced biologist applied professional judgment to create polygon coverage in GIS to define the areal extent of wetlands. These areas have been field-verified to ensure that the most accurate, up-to-date data is being used for permit filings.

The field wetland investigations were conducted using the on-site methodology set forth in the 1987 Corps of Engineers Wetland Delineation Manual and

the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (USACE, 1987; 2010b). In addition to the 1987 Manual and the Regional Supplement, wetland areas were examined through analysis of the vegetation, soils, and hydrology, as described in the Classification of Wetland and Deepwater Habitats of the U.S. and The National Wetland Plant List (Cowardin et al., 1979; Lichvar et al., 2014).

3.2.3.2 Impacts and Mitigation

The routing analysis utilized to determine the crossing locations was designed to avoid impacts to sensitive environmental resources including wetlands. Construction workspace on the flowage easements has been selected based on an absence of wetlands within the Project Area and, as confirmed by field verification in 2015, no wetlands would be impacted by trench excavation within the construction ROW, ATWS, HDD workspace, or HDD stringing corridor on the flowage easements or Connected Action.

The field wetland investigations conducted by Dakota Access results identified four wetlands located within the permanent easement on the flowage easements (w-m10-wi-001_PSS, w-m10-wi-001_PEM, w-m10-wi-001_PFO, and w-m10-wi-002_PSS). These wetlands occur in the portion of the Project Area on the flowage easements that would be constructed via HDD; therefore, no trenching would occur within these wetlands. However, following construction, a 30-foot-wide corridor centered on the proposed pipeline would be maintained in non-forested state to facilitate inspections of the pipeline, operational

maintenance, and compliance with the federal pipeline safety regulations. The 30 foot permanent ROW would encompass a total of approximately 0.30 acre of the four wetlands. One of these wetlands (w-m10-wi-001_PFO), approximately 0.05 acre, is classified as a palustrine forested (PEO) wetland and would be converted to shrub-scrub or herbaceous wetland as a result of the Proposed Action since trees would be routinely removed for the life of the pipeline. The remaining palustrine emergent (PEM) wetland (w-m10-wi-001_PEM) and two palustrine scrub-shrub (PSS) wetlands (w-m10-wi-001_PSS and w-m10-wi-002_PSS), comprising a total of 0.25 acres of the permanent pipeline easement, may require infrequent vegetation clearing of encroaching woody vegetation but would otherwise remain in their natural state. Dakota Access is in the process of obtaining verification for use of NWP 12 for the crossings of wetlands and waterbodies associated with DAPL Project.

Pending approval and receipt of applicable permits and easement permission, a temporary waterline would be installed between the shoreline and the HDD workspace on the flowage easements within the permanent ROW (**Figure 6-6**), in order to supply the HDD equipment with water needed for drilling fluid preparation and hydrostatic testing. The temporary waterline would be laid on top of the surface, and no ground disturbance of the four wetland features along the permanent easement is anticipated. The hard pipe segments would be hand-carried down the slope and assembled by hand. No tracked or wheeled equipment would be necessary for construction or removal

of the temporary aboveground pipeline. No excavation or disturbance of wetlands or the river bank is anticipated.

Table 3-8 summarizes wetlands within the flowage easements that occur within the permanent ROW, which is 30-feet-wide centered on the centerline over the HDD profile and 50-feet-wide elsewhere.

No wetlands would be impacted by the HDD workspace on private land and the permanent ROW on federal land at the crossing of Lake Oahe, because no wetlands exist within the Project Area and Connected Action Area at the Lake Oahe Crossing.

The ECP and SWPPP specify several measures to protect wetlands and waterbodies from becoming polluted with fuels or other hazardous materials during construction. These plans prohibit the storage of fuel or other hazardous materials within 100 feet of a wetland or waterbody. The ECP also specifies that equipment must be refueled at least 100 feet from waterbodies unless, due to site-specific conditions, there is no practical alternative such as the proposed pumping intake structure located on the barge at the Missouri River Crossing. In that case, the contractor must implement site-specific protective measures and containment procedures described in the ECP. Contractors would be required to provide trained personnel, appropriate equipment, and materials to contain and clean up releases of fuel, lubricating oil, or hydraulic fluid that result from equipment failure or other circumstances in accordance with containment plans as described above.

| Table 3-8 Wetlands within the Flowage Easements Project Area | | | | | | |
|---|--------------|------------------------|--------------------------|--------------------|--------------|--------------------------------|
| MP | Wetland ID | Wetland Type | Pre-Construction Notice? | Delineation Source | Area (acres) | Impacted Area ¹ |
| 94.7 | w-m10-wi-001 | Palustrine Scrub-Shrub | No | Field | 0.07 | Permanent ROW over HDD Profile |
| 94.7 | w-m10-wi-001 | Palustrine Emergent | No | Field | 0.04 | Permanent ROW over HDD Profile |
| 94.8 | w-m10-wi-001 | Palustrine Forested | No | Field | 0.05 | Permanent ROW over HDD Profile |
| 94.9 | w-m10-wi-002 | Palustrine Scrub-Shrub | No | Field | 0.14 | Permanent ROW over HDD Profile |

3.2.4 Floodplain

3.2.4.1 Affected Environment

Floodplains refer to the 100-year floodplain, as defined by Federal Emergency Management Agency (FEMA), and as shown on Flood Insurance Rate Maps (FIRM) or Flood Hazard Boundary Maps for all communities participating in the National Flood Insurance Program (NFIP). The 100-year floodplain is an area subjected to inundation by the 1% chance of an annual flood event. Executive Order (EO) 11988 (Floodplain Management) requires federal agencies to avoid direct or indirect support of development within the 100-year floodplain whenever there is a practical alternative.

According to the FEMA FIRM map, the seven flowage easements are located within Zone A (the 100-year floodplain) of the Missouri River in Williams County. A FEMA flood map is not available for the Connected Action within McKenzie County. The Lake Oahe crossing in Emmons County is located in Zone D, which is an area of undetermined, but possible flood hazards (FEMA, 1987). FEMA has not completed a study to determine flood hazards for Morton County; therefore, a flood map has not been published at this time.

3.2.4.2 Impacts and Mitigation

The Proposed Action has been designed in accordance with accepted floodplain management practices; therefore, no impacts on floodplain elevations or velocities are anticipated. Following construction, disturbed areas would be restored to pre-construction grades and contours, as practical. If necessary, soil

displaced by installation of the 24-inch pipeline on the flowage easements would be removed from the floodplain and hauled to an upland location in order to ensure original floodplain elevations are restored

The Corps Omaha District Flood Risk and Floodplain Management Section (FRFM) is responsible for coordinating compliance with the requirements of EO 11988. The FRFM reviewed the proposed pipeline plans for the portion of the DAPL Project that crosses the flowage easements for compliance with Appendix A (Typical Cut and Fill Volumes for Land Development Proposals) of NWDR 1110-2-5, Land Development Guidance at Corps Reservoir Projects, and found that the lowest elevation of the Proposed Action on the flowage easements (1872.25 feet MSL) would be above the Garrison flood control pool maximum operation elevation (1854.0 feet MSL). Therefore, there would be no adverse impacts on the operation of the Garrison flood control pool. Provided that the site topography is left at its natural ground elevation after construction and all excess material is hauled off site, the FRFM concluded that there are no flood risk and floodplain management concerns associated with the Proposed Action. On April 7, 2015 the FRFM provided Dakota Access with a memorandum verifying compliance under EO 1198 and recommending approval of the Proposed Action (Krause, 2015).

3.2.5 Levees

Based on a search of the Corps National Levee Database and FEMA FIRM maps, no levees are located within 10 miles of the Lake Oahe or flowage easement crossings (Corps, 2014). Because no levees are located

within 10 miles of either crossing, construction of the Proposed Action is not expected to impact levees.

3.3 Vegetation, Agriculture, and Range Resources

Under the “no action” alternative, Dakota Access would not construct the proposed DAPL Project and no impacts on vegetation, agriculture, and range resources would occur. However, if the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities would be required and these projects would result in their own impacts on vegetation, agriculture, and range resources, which would likely be similar to or greater than the DAPL Project. Impacts associated with a future project developed in response to the “no action” alternative are unknown, while only temporary and minor impacts or insignificant permanent impacts on vegetation, agriculture, and range resources would occur as a result of the Proposed Action, as described in the sections below.

3.3.1 Vegetation

3.3.1.1 Affected Environment

Land cover was analyzed for the flowage easements and federal lands and associated Connected Actions based on the 2011 USGS National Land Cover Dataset (NLCD) and was field-verified where access was available. Land cover on the flowage easements is comprised mostly of cultivated crops, which include corn, sugar beets, alfalfa, soybeans, and spring wheat. Other present land cover types include developed areas, which are primarily roads, pasture/hay/grassland areas that are interspersed with the cultivated crops,

emergent wetlands, woody wetlands, mixed forest and deciduous forest associated with the Missouri River.

Land cover on the federal lands is comprised of cultivated crops, emergent herbaceous wetlands, grassland/herbaceous, and open water. Over half of the area of the tracts is characterized as grassland/herbaceous, which primarily occurs on the west side of Lake Oahe. Cultivated cropland consists mainly of oats and canola on the east side of the Lake.

A description of each land cover type encountered at both crossing areas is provided below.

Cultivated Crop

The cultivated cropland community is characterized by land used for the production of annual crops, such as corn and soybeans. This class includes all land being actively tilled.

Deciduous Forest

Deciduous forest typically includes trees that are greater than 16 feet tall. More than 75% of the tree species in this land cover class shed foliage simultaneously in response to seasonal change.

Mixed Forest

Mixed forest are generally areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. The vegetation cover within mixed forest typically does not have either deciduous or evergreen species greater than 75% of the total tree cover.

Developed/Open Space

The developed/open space community type is dominated by lawn grasses and may include some developed areas and roads. Impervious surfaces account for less than 20% of the total cover. This class would typically include minor roads and associated ditches.

Developed/Low Intensity

The developed/low intensity community includes areas with a mixture of constructed material and vegetation. These areas most commonly include single-family housing units. Developed/low intensity in the Project Area is associated with impervious surfaces of larger roads.

Emergent Herbaceous Wetland

Refer to Section 3.2.3, which provides a description of data obtained during delineations of the wetlands that would be impacted by the Proposed Action.

Woody Wetlands

Refer to Section 4.2.3, which provides a description of data obtained during delineations of the wetlands that would be impacted by the Proposed Action.

Grassland/Herbaceous

The grassland/herbaceous community is dominated by graminoid or herbaceous vegetation. These areas are not subject to intensive management such as tilling but can be utilized for grazing.

Pasture/Hay

The pasture/hay community type consists of areas of grasses, legumes, or grass-legume mixtures planted

for livestock grazing or the production of seed or hay crops, typically on a perennial cycle.

Open Water

The open water cover type includes areas of open water. This land cover type is associated with Lake Oahe and the Missouri River.

3.3.1.2 Impacts and Mitigation

Temporary impacts on land cover would occur in essentially all areas within the construction footprint of the Project Area and Connected Actions, the vast majority of which would return to pre-construction land cover upon completion of construction. One exception is at the flowage easement Project Area in forested areas along the permanent easement. Impacts on cultivated crops make up the majority of temporary impacts and would return to cultivated crops post-construction.

Tables 3-9 and **3-10** show land cover types impacted by construction and maintenance activities. A description of each category is provided below.

| Table 3-9 Land Cover Impacts on the Flowage Easements Project Area and Connected Action | | | | |
|--|--|---|---|--------------------------|
| Land Cover Type | Connected Action- Construction Workspace (acres) | Connected Action- Permanent ROW (acres) | Construction Workspace (acres) ¹ | Permanent ROW (acres) |
| Cultivated Crops | 0 | 0 | 47.4 | 13.3 |
| Deciduous Forest | 0.9 | 0.2 | 0 | 0 |
| Developed, Low Intensity | 0 | 0 | 0.4 | 0.4 |
| Developed, Open Space | 0.1 | 0.01 | 1.2 | 0.4 |
| Emergent Herbaceous Wetlands | 0 | 0 | 0.9 | 0.4 |
| Hay/Pasture | 0 | 0 | 6.6 | 1.8 |
| Grassland/Herbaceous | 0.1 | 0 | 1.7 | 0.5 |
| Mixed Forest | 0.2 | 0.03 | 0 | 0 |
| Open Water | 0.7 | 0.1 | 0 | 0 |
| Woody Wetlands | 0 | 0 | 1.4 | 0.8 |
| Total | 2.0 | 0.3 | 59.3 | 17.6 |

¹ Construction workspace includes permanent ROW.

Permanent impacts on land cover in the federal lands would be limited to the permanent ROW and involve limited tree removal within the permanent easement. Impacts on land cover as part of the Connected Action would occur on private lands and include the HDD workspaces, stringing area, and the permanent easements between the HDD workspaces and federal lands.

Table 3-10
Land Cover Impacts on the Federal Lands Project Area and Connected Action

| Land Cover | Connected Action— Construction Workspace (acres) | Connected Action— Permanent ROW (acres) | Federal Lands Permanent ROW (acres)¹ |
|---------------------------------|---|--|--|
| Cultivated Crops | 0.0 | 0.0 | 0.1 |
| Emergent Herbaceous Wetlands | 0.0 | 0.0 | 0.4 |
| Woody Wetlands | 0.2 | 0.0 | 0.0 |
| Grassland/ Herbaceous | 15.3 | 1.1 | 0.6 |
| Total | 15.5 | 1.1 | 1.2 |

¹ Land cover impacts on federal lands are limited to the maintained include approximately 6.3 acres of permanent easement over the within the banks of Lake Oahe (open water, woody wetlands, and be disturbed during construction. 50-foot permanent easement and do not HDD profile across Lake Oahe. Land cover emergent herbaceous wetlands) would not be disturbed during construction.

Measures to Protect Vegetation

Dakota Access would clear the ROW to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the DAPL Project. Clearing of herbaceous vegetation during construction is anticipated to result in short-term impacts. Within areas disturbed by construction in the flowage easements Project Area and Connected Actions, Dakota Access would implement active revegetation measures and rapid colonization by annual and perennial herbaceous species to restore most vegetative cover within the first growing season. In areas that require permanent revegetation, Dakota Access would utilize an NRCS native seed mix that has been selected for the Proposed Action based on the North Dakota State University Extension Service Publication, *Successful Reclamation of Lands Disturbed by Oil and Gas Development and Infrastructure Construction*. Ground disturbing activities would not occur on Corps fee-owned lands; therefore, reseeding is not anticipated in these areas. However, if reseeding were to become necessary on Corps fee-owned lands, all activities would be conducted in accordance with applicable Lake Oahe or Garrison Project revegetation guidelines.

In non-agricultural areas, vegetation cleared from ATWS would be allowed to revegetate after construction depending on arrangements with the landowner. Consequently, significant changes in cover types are not anticipated. Revegetation would allow wildlife species to return to the area after construction is completed. Temporary revegetation measures may also be implemented to quickly establish ground cover to minimize the potential for soil erosion and noxious

weeds to establish. A temporary seed mix may be applied in these situations. Revegetation of trees and shrubs would take place in accordance with the North Dakota tree and shrub regulations. The ECP (**Appendix G**) contains more details regarding temporary revegetation.

After completion of waterbody crossings, Dakota Access would revegetate disturbed stream banks in accordance with the ECP, SWPPP, and requirements of applicable state and federal permits. When constructing in agricultural areas, up to 1 foot of topsoil (organic layer) would be stripped from the trench line and stockpiled separately from trench spoil to preserve the native seed stock. The ECP contains additional details regarding topsoil segregation.

At stream approaches, the Contractor would leave a 20-foot buffer of undisturbed herbaceous vegetation on all stream banks during initial clearing, except where grading is needed for bridge installation or where restricted by applicable regulations and/or permit conditions.

3.3.2 Invasive and Noxious Weeds

3.3.2.1 Affected Environment

The state of North Dakota has 11 state-listed noxious and invasive weeds (“invasive species”). The species listed are: Russian knapweed (*Acroptilon repens*), absinth wormwood (*Artemisia absinthium*), musk thistle (*Carduus nutans*), diffuse knapweed (*Centaurea diffusa*), yellow toadflax (*Linaria vulgaris*), spotted knapweed (*Centaurea maculosa*), Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*),

dalmatian toadflax (*Linaria dalmatica*), purple loosestrife (*Lythrum salicaria*), and saltcedar (*Tamarix chinensis*). These state invasive species are controlled and regulated under North Dakota Law (NDCC § 4.1-47-02) (North Dakota Department of Agriculture, 2014a).

Each county in North Dakota has a County Weed Board, which consists of a regulation committee to manage noxious and invasive weeds. Each of these county boards is responsible for the addition of county-specific invasive species to the state-listed species. Additional noxious weeds are listed in McKenzie County including field bindweed (*Convolvulus arvensis*), burdock (*Arctium* sp.), black henbane (*Hyoscyamus niger*), houndstongue (*Cynoglossum officinale*), and yellow starthistle (*Centaurea solstitialis*). No additional invasive species have been identified for listing in Williams, Morton, and Emmons counties.

3.3.2.2 Environmental Impact and Mitigation

Dakota Access sent notifications to the McKenzie, Williams, Morton, and Emmons counties weed boards describing the Proposed Action and requesting any guidance regarding the known locations of noxious and invasive weeds pertaining to that county. Dakota Access would work with the county weed boards to ensure the ECP contains relevant and necessary mitigation measures that would be implemented to prevent the spread of noxious weed species during construction and operation of the Proposed Action.

3.3.3 Threatened, Endangered, Candidate, and Proposed Plant Species

3.3.3.1 Affected Environment

There is one federally-listed plant species in North Dakota, the threatened western prairie fringed orchid. This plant species is associated with high quality moist, tall grass prairie. Most of the orchids in North Dakota are located in the Sheyenne National Grasslands in Ransom and Richland counties in the southeastern corner of the state. The population at Sheyenne National Grasslands is the largest population left in the world, with over 7,000 orchids (USFWS, 2013a).

North Dakota does not have a state threatened and endangered species program or track plant species that are not federally listed.

3.3.3.2 Impacts and Mitigation

There are no known records of western prairie fringed orchids in the Project Area counties, and no suitable habitat was documented; therefore, no effect on the western prairie fringed orchid is expected as a result of the proposed undertaking. In the unlikely event that any are observed during construction on federal lands, work would stop and the Corps would be contacted.

3.4 Wildlife Resources

Under the “no action” alternative, Dakota Access would not construct the DAPL Project, and no impacts on wildlife resources would occur. However, if the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities

would be required and these projects would result in their own impacts on wildlife resources, which would likely be similar to or greater than the DAPL Project. Impacts associated with a future project developed in response to the “no action” alternative are unknown, while only temporary and minor impacts, if any, on wildlife resources would occur as a result of the Proposed Action, as described in the sections below.

3.4.1 Recreationally and Economically Important Species and Nongame Wildlife

3.4.1.1 Affected Environment

The Proposed Action region is home to a large number of mammal and bird species. Big game species that occur in the Proposed Action region include pronghorn and white-tailed deer. Game birds potentially using the types of wildlife habitat in the Project Area include the ruffed grouse, sharp-tailed grouse, pheasant, woodcock, snipe, and doves. Furbearers and predators potentially occurring within the Project Area include coyote, beaver, badger, red fox, raccoon, bobcat, fisher, mink, weasel, and muskrat. Potential small mammal species occurring within the habitat types associated with the Project Area include pocket gopher, skunk, and white-tailed jackrabbit.

Waterfowl and shorebird species potentially occurring within the Project Area include mallards, pintails, American wigeon, blue-winged teal, western grebe, California gull, Canada goose, common tern, killdeer, Wilson’s phalarope, and lesser yellowlegs. Numerous songbirds, including the American goldfinch, black-capped chickadee, cedar waxwing, clay-colored sparrow, lark bunting, song sparrow, tree swallow, western kingbird, western meadowlark, and

yellow warbler can be expected to occur in the Project Area.

Numerous species of reptiles and amphibians may also occur within the Project Area. Some amphibian species that may be expected to occur in the Project Area include the northern leopard frog, tiger salamander, and western chorus frog. Reptile species that may be expected to occur within the Project Area include common snapping turtle, western painted turtle, common garter snake, and racer (Hoberg and Gause, 1992).

3.4.1.2 Impacts and Mitigation

Temporary impacts on wildlife could occur during construction due to clearing of vegetation and movement of construction equipment along the ROW. The ROW and ATWS would remain relatively clear of vegetation until restoration is completed. Most wildlife, including the larger and more mobile animals, would disperse from the Project Area as construction activities approach. Displaced species may recolonize in adjacent, undisturbed areas, or reestablish in their previously occupied habitats after construction has been completed and suitable habitat is restored. Some smaller, less mobile wildlife species such as amphibians, reptiles, and small mammals have the potential to be directly impacted during clearing and grading activities, but given the limited extent of the proposed crossing, measurable impacts are not anticipated. No impacts to treaty fishing and hunting rights are anticipated due to construction within the Project Area or Connected Actions.

Herbaceous cover would be seeded on disturbed upland areas during restoration, and it is expected

that pre-existing herbaceous and shrub habitats would quickly reestablish themselves. Consequently, it is expected that the wildlife species that use these habitats would also return within one growing season of construction completion. Routine clearing of the permanent easement to improve visibility and remove encroaching trees would be performed in compliance with PHMSA requirements. The lack of trees reestablishing would be the only potential long-term impact to wildlife that depends on forested communities. This impact is expected to be negligible, as it only pertains to extremely small portions of the permanent easement and very little forested habitat is present within the Project Area and Connected Actions.

3.4.2 Threatened, Endangered, Candidate, and Proposed Wildlife Species

The Endangered Species Act (ESA) directs all federal agencies to work to conserve endangered and threatened species. Crossing the Corps flowage easements and federal lands triggers the consultation procedures of section 7 of the ESA. This section serves as the Biological Evaluation or written analysis documenting the Corps' conclusions and the rationale to support those conclusions regarding the effects of the Proposed Action on protected wildlife resources. The Bald Eagle (*Haliaeetus leucocephalus*) was removed from the federal list of threatened and endangered species on August 9, 2007 and is no longer protected under the ESA. However, the bald eagle is provided protection under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA), which prohibits disturbance of eagles and other raptors. In order to ensure compliance with these acts, Dakota Access obtained USFWS and state

agency data regarding known eagle nests in the vicinity of the Missouri River and Lake Oahe crossings from the North Dakota Game and Fish Department, who houses the eagle location database. The Proposed Action and Connected action will be over 1,000 feet from known or historic eagle nesting areas.

Based on the known nest data, there are no eagle nests within the USFWS National Bald Eagle Management Guidelines recommend nest buffers of 660 feet for linear construction activities if the activity will be visible from the nest and 330 feet if the activity will not be visible from the nest (USFWS, 2007). These guidelines are intended to help the public minimize impacts to bald eagles, particularly where they may constitute “disturbance”, which is prohibited by the BGEPA. Given the distance from known eagle nesting areas, and the mitigation of use of the HDD method for both the Missouri and Lake Oahe crossings, the Proposed Action is not anticipated to have any effect on Bald or Golden eagles

3.4.2.1 Affected Environment

Nine federally listed species have been identified in Williams, McKenzie, Morton, and Emmons counties. Designated critical habitat for the piping plover also occurs in each of the four counties. The USFWS concurred with the Corps effect determinations included below in Section 3.4.2.2 for all listed species within the EA review area.

Interior Least Tern

In North Dakota, the interior least tern (*Sterna antillarum*) utilizes sparsely vegetated sandbars on the Missouri River. Birds nest, raise young, and relax

on barren river sandbars. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea. Approximately 100 pairs breed in North Dakota during the summer before flying to coastal areas of Central and South American and the Caribbean Islands (USFWS, 2013b).

Whooping Crane

Whooping cranes (*Grus Americana*) embark on a bi-annual migration from summer nesting and breeding grounds in Wood Buffalo National Park in northern Alberta to the barrier islands and coastal marshes of the Aransas National Wildlife Refuge on the Gulf Coast of Texas. Twice yearly in the spring and fall, whooping cranes migrate along the Central Flyway, a migratory corridor approximately 220 miles wide and 2,400 miles in length. The Central Flyway includes eastern Montana and portions of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and eastern Texas (USFWS, 2014a) (**Figure 16**). During the migration, cranes make numerous stops, roosting for short durations in large shallow marshes, and feeding in harvested grain fields. Approximately 75% of the whooping crane sightings in North Dakota occur within the Central Flyway. The primary threats to whooping cranes are power lines, illegal hunting, and habitat loss.

Black-footed Ferret

The black-footed ferret (*Mustela nigripes*) is a small member of Mustelidae family native to North American shortgrass and mixed grass prairie. Prairie dogs make up approximately 90% of the black-footed

ferret diet and as such, the species is associated almost exclusively with large complexes of prairie dog towns (USFWS, 2013c; Black-footed Ferret Recovery Implementation Team [BFFRIT], 2011). Black-footed ferrets are fossorial, nocturnal predators, spending the majority of their time underground in prairie dog burrows, leaving only to hunt (BFFRIT, 2011). Once thought to be extirpated in the wild, captive-born individuals have been reintroduced to 21 sites in Wyoming, Montana, South Dakota, Colorado, Utah, Kansas, New Mexico, and Arizona since 1991 (USFWS, 2013c).

Gray Wolf

A habitat generalist, the gray wolf (*Canis lupus*) historically occupied most habitat types in North America. They show little preference for one cover type over another and successfully utilize alpine, forest, grassland, shrubland, and woodland habitats across their range (Mech, 1974). Once thought to require wilderness areas with little to no human disturbance, recent range expansions have demonstrated the species' ability to tolerate higher rates of anthropogenic development than previously thought. Given abundant prey and low rates of human-caused mortality, wolves can survive in proximity to human-dominated environments (Fuller, 1989).

Northern Long-eared Bat

Northern long-eared bats (*Myotis septentrionalis*) occur throughout the eastern and north-central U.S. Eastern populations have declined significantly in recent years as a result of white-nose syndrome (WNS), a contagious fungal infection. Although historically less common in the western portion of its range than

in the northern portion, northern long-eared bats occur throughout North Dakota. Habitat throughout its range includes caves and abandoned mines during the winter and hardwood or mixed forests for roosting and foraging during the summer (USFWS, 2015).

Northern long-eared bats may roost singly or in colonies in cavities, crevices, hollows, or beneath the bark of live and dead trees and/or snags, regardless of tree species. They prefer trees with a diameter at breast height of at least 3 inches. Less frequently, Northern long-eared bats have been observed roosting in man-made structures such as sheds or barns. Northern long-eared bats primarily forage at dusk on insects in forests, but will occasionally forage over small forest clearings and water (USFWS, 2015).

Piping Plover

Piping plovers (*Charadrius melodus*) are shore birds that inhabit areas near water, preferring river sandbars and alkali wetlands in the Great Plains for nesting, foraging, sheltering, brood-rearing, and dispersal. Piping plovers winter along large coastal sand or mudflats near a sandy beaches throughout the southeastern U.S. Critical Habitat for the piping plover is designated along the Missouri River system throughout North Dakota (USFWS, 2012).

Dakota Skipper

The Dakota skipper (*Hesperia dacotae*) is a small butterfly found in dry-mesic and wet-mesic tallgrass and mesic mixed grass prairie remnants characterized by alkaline and composite soils. The Dakota skipper is a habitat specialist requiring high-quality prai-

rie habitat (i.e., grasslands or discrete patches of habitat within grasslands that are predominantly native and that have not been tilled). Only 146 populations are documented in three states and two Canadian provinces (McCabe, 1981; Royer and Marrone, 1992; Cochrane and Delphey, 2002; USFWS, 2011; 2013d). Remaining populations vary in size and density and for the most part are not influenced by dispersal between populations (McCabe, 1981; Dana, 1991; Dana, 1997; Cochrane and Delphey, 2002). The species overwinters at the base of grasses in the soil of the site which they inhabit. In North Dakota, the skipper typically occupies both wet-mesic and dry-mesic prairie (Royer and Marrone, 1992; Cochrane and Delphey, 2002). The current status of the Dakota skipper in the state is considered tenuous, and most populations are considered vulnerable due to their extremely isolated nature.

Rufa Red Knot

The rufa red knot (*Calidris canutus rufa*) is a large sandpiper noted for its long-distance migration between summer breeding grounds in the Arctic and wintering areas at high latitudes in the Southern Hemisphere (USFWS, 2014b). Some rufa red knots wintering in the northwestern Gulf of Mexico migrate through interior North America during both spring and fall and use stopover sites in the Northern Great Plains. During spring and fall migrations, rufa red knots are typically found in marine habitats along the Pacific and Atlantic coasts of North America, generally preferring sandy coastal habitats at or near tidal inlets or the mouths of bays and estuaries. However, some migrating rufa red knots use sandbars and sandy shore and beach habitats along large rivers and

reservoirs of the interior of North America. This area contains the Atlantic, Mississippi, and Central Flyways (USFWS, 2014g). The species also heavily relies on exposed substrate at wetland edges for stopover habitat, and the suitability of a wetland for rufa red knots depends on water levels and may vary annually (Gratto-Trevor et al., 2001).

Pallid Sturgeon

Pallid sturgeon (*Scaphirhynchus albus*) prefer benthic environments associated with swift waters of large turbid, free-flowing rivers with braided channels, dynamic flow patterns, periodic flooding of terrestrial habitats, and extensive microhabitat diversity. Pallid sturgeon inhabit the Missouri and Mississippi Rivers from Montana to Louisiana and have been documented in the Missouri River downstream from the Fort Peck Dam in Montana to the headwaters of Lake Sakakawea, North Dakota, and downstream from Garrison Dam, North Dakota to the headwaters of Lake Oahe, South Dakota (USFWS, 2014c). Pallid sturgeon populations are fragmented by dams on the Missouri River and are very scarce in the Lake Oahe portion of the Missouri River.

3.4.2.2 Impacts and Mitigation

Dakota Access conducted pedestrian surveys of the workspace within the Project Area at the flowage easements in September 2014 and July 2015 and at the Lake Oahe crossing in April 2015 to assess suitable habitat for listed species. Given the limited scope of the Proposed Action, minimization measures, and the implementation of specialized construction techniques, the Corps has determined that the Proposed Action would have no effect on the black-footed ferret,

gray wolf, northern long-eared bat, and Dakota skipper within the Project Area. The Corps also determined that the Proposed Action may affect, but is not likely to adversely affect the interior least tern, whooping crane, piping plover, rufa red knot, and pallid sturgeon in the Project Area. The effect determination for these species that may be affected, but are not likely to be adversely affected was concurred with in a letter received from the USFWS on May 2, 2016. A Biological Opinion (BO) associated with other portions of the DAPL Project, outside of the EA review area, was issued by the USFWS on May 31, 2016 but is not applicable to this document. **Table 311** lists the impact determinations of the protected species with potential to occur within the Project Area and Connected Action. A summary of habitat evaluations and the basis for the determination of impacts for each listed species is provided below.

| Table 3-11 Federally Listed Species with Potential to Occur within the Project Area and Connected Action | | | | | | |
|---|------------|----------|----------|--------|--------|--|
| Species | Status | County | | | | Impact Determination |
| | | Williams | McKenzie | Morton | Emmons | |
| Interior Least Tern | Endangered | X | X | X | X | May Affect, Not Likely to Adversely Affect |
| Whooping Crane | Endangered | X | X | X | X | May Affect, Not Likely to Adversely Affect |
| Black-footed Ferret | Endangered | | X | X | | No Effect |
| Gray Wolf | Endangered | X | X | X | | No Effect |
| Northern Long-eared Bat | Threatened | X | X | X | X | No Effect |
| Piping Plover | Threatened | X | X | X | X | May Affect, Not Likely to Adversely Affect |
| Dakota Skipper | Threatened | | X | X | X | No Effect |
| Rufa Red Knot | Threatened | X | X | X | X | May Affect, Not Likely to Adversely Affect |
| Pallid Sturgeon | Endangered | X | X | X | X | May Affect, Not Likely to Adversely Affect |

Interior Least Tern

Suitable habitat may exist for interior least terns at the Missouri River and at the Lake Oahe crossing depending on precipitation and seasonal flow variations as exposed sand/gravel bars suitable for nesting may be present. Dakota Access proposes to cross the Missouri River and Lake Oahe utilizing the HDD construction method. Pipeline installation via HDD will avoid in-stream disturbance that would otherwise occur if the pipe was installed via the traditional open-cut method, as described in Section 2.1.4.

Potential sources for indirect impacts on interior least terns include the inadvertent release of non-toxic bentonite mud (used for lubricating the drill path) into the waterbody or nesting habitat and noise associated with the drilling equipment. Dakota Access conducted geotechnical analyses at each of the proposed HDD crossings and designed the HDD to minimize the likelihood that the drilling mud is inadvertently released. While the likelihood of an inadvertent release has been minimized to the maximum extent practicable, were it to occur, implementation of Dakota Access' HDD Contingency Plan (**Appendix B**) would minimize any potential impacts on interior least terns by quickly and efficiently containing and removing the released, non-toxic mud.

Operation of the HDD equipment will result in a temporary increase in noise in the immediate vicinity of the HDD activities. Although the HDD entry and exit sites are located more than 960 feet from any suitable interior least tern habitat, it is possible that the activities would be audible if interior least terns are

nesting in the area. However, Atwood et al. (1977) found that noise associated with human activities (an airfield in the case of the referenced study) did not affect site fidelity or nesting success of least terns. Similarly, Hillman et al. (2015) found that noise from military and civilian overflights did not impact nest success and that restricting human disturbance to greater than 50 meters (164 feet) from colony boundaries mitigated adverse impacts to nesting birds. Noise associated with aircraft overflights at low altitudes in the Hillman et al. (2015) study were a minimum of 67.7 decibels (A-weighted) (dBA), greater than the anticipated sound levels generated by HDD equipment. Noise studies conducted at the proposed HDD entry and exit locations indicate that sound levels would be less than 60 dBA at approximately 600 feet from the equipment. Therefore, noise associated with the HDD crossings of the Missouri River and Lake Oahe may affect, but are not likely to adversely affect interior least terns potentially nesting in the area.

Dakota Access plans to withdrawal water from the Missouri River, which is required for activities associated with the installation of the HDD and the hydrostatic testing of the HDD segment. A temporary waterline would be installed at the Missouri River between the shoreline and the HDD workspace on the flowage easements within the permanent ROW (**Figure 6-13**). The temporary waterline would be laid by hand on top of the surface, and no tracked or wheeled equipment would be necessary for installation or removal of the temporary aboveground waterline. No disturbance of the river banks is anticipated. Additionally, installation and removal of the waterline are

anticipated to be complete prior to nesting season; therefore, no impacts on the interior least tern are anticipated to occur at the Missouri River. If the water withdrawal activities are not able to be completed prior to nesting season, Dakota Access would conduct surveys prior to placement of the waterline to confirm the presence/absence of interior least terns within the pipeline ROW. If interior least terns are nesting within the pipeline ROW, Dakota Access would postpone water withdrawal activities and contact the Corps and USFWS. Work would only resume when the USFWS has given permission following a survey to ensure interior least terns would no longer be affected. No water withdrawal from or access to Lake Oahe is required to complete the Lake Oahe crossing.

As discussed in Section 2.3.2 above, Dakota Access would routinely maintain its 30 to 50-foot-wide permanent easement, including periodic mowing and removal of woody vegetation. Because suitable interior least tern nesting habitat is on unvegetated flats within the Missouri River and Lake Oahe, routine maintenance activities would not occur within suitable habitat. During operation of the pipeline, in the unlikely event that a leak or spill were to occur and reach interior least tern habitat, Dakota Access would implement its FRP and strictly adhere to PHMSA regulations.

Based on the avoidance and minimization measures, literature review, field investigations, and habitat types present in the proposed Project Area, USACE has determined that the Proposed Action may affect, but is not likely to adversely affect the interior least tern.

Whooping Crane

In North Dakota, whooping cranes are only present during the twice-yearly migration between winter grounds and summer nesting sites. As the whooping crane is a migrant and does not breed in North Dakota, the species cannot be confirmed as present in or absent from the Project Area. The results of the habitat assessment field surveys indicate that the Project Area may contain suitable stopover habitat (i.e., agricultural fields). It is anticipated that whooping cranes would avoid the Project Area during active construction, as they tend to avoid areas with human disturbance (Howe, 1989; USFWS, 1994; Lewis and Slack, 2008). The noise and land disturbance from construction activities during the migration periods would likely cause birds to choose more suitable landing and overnight roosting locations away from construction activities given the abundance of similar habitat throughout the migration corridor in North Dakota and in the general vicinity of the Project Area.

While there is potential for individuals to land in the Project Area during construction, work would halt if a whooping crane is observed within the Project Area and would not resume until the bird leaves the area. Additionally, Dakota Access would notify the Corps and USFWS of the observation. The presence of construction activities within potentially suitable stopover habitat during migration could disturb whooping cranes in the area or cause flying whooping cranes to avoid the area and select other suitable stopover habitat. Due to the abundance of available stopover habitat along the North Dakota migration corridor and in the vicinity of the Project Area (USFWS, 2009a), impacts would be negligible. As illustrated in

Figure 16, the Project Area represents a minute fraction of the whooping crane migration corridor in North Dakota.

As discussed in Section 2.3.2 above, Dakota Access would routinely maintain its 30 to 50-foot-wide permanent easement, including periodic mowing and removal of woody vegetation. As whooping cranes utilize open fields and emergent wetlands for stopover habitat, affects from maintenance activities would be minimal and would be similar to those described above during construction activities. If whooping cranes were observed in the area during maintenance activities, maintenance personnel would suspend activities until the cranes leave the area. Similarly, if maintenance activities are ongoing at the time of migration, whooping cranes would likely avoid the disturbance area.

In order for whooping cranes to be affected by a spill or leak during operation, an individual would have to be present when the leak or spill occurred or land in the spill itself. Due to the strict adherence to PHMSA regulations designed to prevent spills and leaks during operation, the short timeframe that whooping cranes are present during migration, and the abundance of available stopover habitat along the migration corridor in North Dakota (USFWS, 2009a), the measures implemented by Dakota Access in the event of a leak in accordance with the FRP, such occurrences are unlikely.

Based on the avoidance and minimization measures, literature review, field investigations, and habitat types present in the Project Area, USACE has

determined that the Proposed Action may affect, but is not likely to adversely affect the whooping crane.

Black-footed Ferret

No suitable black-footed ferret habitat is present in the Project areas. The black-footed ferret has been recorded in Morton County; however, based on occurrence data received from North Dakota Parks and Recreation, there are no documented occurrences within the vicinity of the Proposed Action. Further, it is believed that black-footed ferrets have been extirpated from North Dakota, and no reintroductions have occurred in the state (USFWS, 2013f; North Dakota Game and Fish Department, 2012). Due to the lack of suitable habitat and the distance of the Project areas from known black-footed ferret occurrences, construction, operation, and maintenance activities associated with the Proposed Action would have no effect on black-footed ferrets.

Gray Wolf

The gray wolf is listed as endangered in all three counties of the Proposed Action areas in North Dakota (south and west of the Missouri River upstream to Lake Sakakawea and west of the centerline of Highway 83 from Lake Sakakawea to the Canadian border). Wolves in eastern North Dakota are part of the Great Lakes Distinct Population Segment that was delisted by the USFWS in January 2012 (USFWS, 2014e).

North Dakota does not currently have an established breeding population (North Dakota Department of Agriculture, 2014b). Observations of wolves are sporadic, and it is believed that these individuals

are dispersers from adjacent populations (i.e., from Minnesota and Manitoba) (USFWS, 2006; Licht and Fritts, 1994). Given the unlikely occurrence and high mobility of this species, construction, operation and maintenance activities associated with the Proposed Action would have no effect on gray wolves.

Northern Long-eared Bat

The northern long-eared bat is currently listed by the USFWS as threatened in North Dakota. On April 2, 2015, the USFWS published the final listing in the Federal Registrar with an effective date of May 4, 2015. The USFWS listed the northern long-eared bat as threatened and chose to exercise the option of issuing an interim 4(d) rule to allow for more flexible implementation of the ESA and “to tailor prohibitions to those that make the most sense for protecting and managing at-risk species.” In areas outside of the 150-mile WNS buffer zone, incidental take from lawful activities is not prohibited. The State of North Dakota currently falls outside of the WNS 150-mile buffer zone. Per the exemptions of the interim 4(d) rule, construction, operation and maintenance activities associated with the Proposed Action would have no effect on the northern long-eared bat (USFWS, 2015).

Piping Plover

Due to the similarity in life history and habitat requirements, impacts on piping plovers would be similar to those discussed in above for the interior least tern. Suitable habitat may exist for piping plover at the Missouri River and at the Lake Oahe crossing, depending on precipitation and seasonal flow variations, as exposed sand/gravel bars suitable

for nesting may be present. These areas are also designated as critical habitat for this species under the ESA. Dakota Access proposes to cross the Missouri River and Lake Oahe utilizing the HDD construction method. Pipeline installation via HDD will avoid in-stream disturbance that would otherwise occur if the pipe was installed via the traditional open-cut method, as described in Section 2.1.4.

Potential sources for indirect impacts on piping plovers include the inadvertent release of non-toxic bentonite mud (used for lubricating the drill path) into the waterbody or nesting habitat and noise associated with the drilling equipment. Dakota Access conducted geotechnical analyses at each of the proposed HDD crossings and designed the HDD to minimize the likelihood that the drilling mud is inadvertently released. While the likelihood of an inadvertent release has been minimized to the maximum extent practicable, were it to occur, implementation of Dakota Access' HDD Contingency Plan would minimize any potential impacts on piping plovers by quickly and efficiently containing and removing the released, non-toxic mud.

Operation of the HDD equipment will result in a temporary increase in noise in the immediate vicinity of the HDD activities. Although the HDD entry and exit sites are located more than 960 feet from any suitable piping plover habitat, it is possible that the activities would be audible if piping plovers are nesting in the area. However, piping plovers are frequently observed nesting in and around active sand and gravel mines and do not appear to be deterred by elevated noise levels associated with the operation of equipment (Marcus et al., 2008; Brown et al., 2013).

As discussed for the interior least tern above, impacts associated with installation of the temporary waterline at the Missouri River required for activities associated with the installation of the HDD and the hydrostatic testing of the HDD segment would be avoided. If the water withdrawal activities are not able to be completed prior to nesting season as expected, Dakota Access would conduct surveys prior to placement of the waterline to confirm the presence/absence of piping plovers within the pipeline ROW. If piping plovers are nesting within the pipeline ROW, Dakota Access would postpone water withdrawal activities and contact the USFWS and the Corps. Work would only resume when the USFWS has given permission following a survey to ensure piping plovers would no longer be affected. No water withdrawal from or access to Lake Oahe is required to complete the Lake Oahe crossing.

As discussed in Section 2.3.2 above, Dakota Access would routinely maintain its 30 to 50-foot-wide permanent easement, including periodic mowing and removal of woody vegetation. Because suitable piping plover nesting habitat is on unvegetated flats within the Missouri River and Lake Oahe, routine maintenance activities would not occur in suitable piping plover habitat. In the unlikely event that a leak or spill occurs and reaches piping plover habitat during operation of the pipeline, Dakota Access would implement its FRP and strictly adhere to PHMSA regulations.

Based on the avoidance and minimization measures, literature review, field investigations, and habitat types present in the Project Area, USACE has

determined that the Proposed Action may affect, but is not likely to adversely affect the piping plover.

Dakota Skipper

There is no suitable Dakota skipper habitat within the Project Area based on species occurrence and grassland analysis. As such, construction, operation and maintenance activities associated with the Proposed Action would have no effect on this species.

Rufa Red Knot

Rufa red knots do not nest in the Project Area and only occur as an occasional migrant. During spring and fall migrations, the rufa red knot has the potential to occur in North Dakota. Migrating rufa red knot would likely only occur at migratory stopover habitat (suitable shoreline and sandy beach habitat along major rivers, streams, waterbodies, and wetlands) for a brief amount of time (24 hours or less). The results of the habitat assessment field surveys indicate that potentially suitable stopover habitat (sandbar and beach habitats) for migrating rufa red knots is present at the Lake Oahe crossing. Lake Oahe would be crossed using the HDD construction method, and thus would avoid direct impacts on potentially suitable rufa red knot stopover habitat. While direct impacts to the rufa red knot migratory habitat would be avoided through the HDD construction method at Lake Oahe, indirect impacts could occur due to potential disturbance during construction (i.e., noise or an inadvertent release of non-toxic drilling mud).

During construction, noise associated with the HDD may act as deterrent to rufa red knots potentially migrating through the area. These individuals

may have to travel to other suitable stopover habitat in the area (e.g., upstream or downstream of the Proposed Action area). Similarly, if an inadvertent release of non-toxic drilling mud were to occur when rufa red knots were present, it could cause individuals to relocate to nearby habitat.

As discussed in Section 2.3.2 above, Dakota Access would routinely maintain its 30 to 50-foot-wide permanent easement, including periodic mowing and removal of woody vegetation. As rufa red knots utilize suitable shoreline and sandy beach habitat along major rivers, streams, waterbodies, and wetlands for stopover habitat, effects from maintenance activities would be negligible and would be similar to those described above during construction activities. If rufa red knots were present in the area during maintenance activities they would likely relocate to nearby suitable habitat. Similarly, if maintenance activities are ongoing at the time of migration, rufa red knots would likely avoid the disturbance area.

In order for rufa red knots to be affected by a spill or leak during operation, an individual would have to be present when the leak or spill occurred or stop on the spill or leak. Due to the strict adherence to PHMSA regulations designed to prevent spills and leaks during operation and the short timeframe that rufa red knots are present during migration, such occurrences are unlikely.

Based on the avoidance and minimization measures, literature review, field investigations, and habitat types present in the Project Area, USACE has determined that the Proposed Action may affect, but is not likely to adversely affect the rufa red knot.

Pallid Sturgeon

Suitable habitat for the pallid sturgeon occurs at the Missouri River and Lake Oahe crossings. Impacts on suitable habitat would be avoided by crossing these waterbodies via HDD. As discussed in for the interior least tern above, pipeline installation via HDD will avoid in-stream disturbance that would otherwise occur if the pipe was installed via the traditional open-cut method.

Dakota Access has also minimized the potential for pallid sturgeon to be indirectly affected by the HDD installation across the Missouri River and Lake Oahe. The only potential source for indirect impacts on pallid sturgeon associated with the HDDs is an inadvertent release of non-toxic bentonite mud (used for lubricating the drill path) into the waterbody. Dakota Access conducted geotechnical analyses at each of the proposed HDD crossings and designed the HDD to minimize the likelihood that the drilling mud is inadvertently released. While the likelihood of an inadvertent release has been minimized to the maximum extent practicable, were it to occur, implementation of Dakota Access' HDD Contingency Plan would minimize any potential impacts on pallid sturgeon by quickly and efficiently containing and removing the released, non-toxic mud.

Dakota Access plans to withdraw water from the Missouri River for installation activities and hydrostatic testing of the HDD segment for the Missouri River. However, potential impacts on the pallid sturgeon or suitable habitat present within the Missouri River would be avoided by implementing the conditions for permitted intake structures outlined in the

Corps' Regional Conditions for North Dakota applicable to NWP 12 Utility Line Activities (Corps, 2012) (see Section 3.2.1.2) and as described in the USFWS Recovery Plan for the Pallid Sturgeon (USFWS, 2014f). No water withdrawal from or access to Lake Oahe is required to complete the Lake Oahe crossing. The HDD construction method, application of the HDD Contingency Plan, and implementation of the Corps' conditions for the intake structure within the Missouri River would avoid and minimize potential impacts to the pallid sturgeon.

Maintenance activities will not occur within the Missouri River or Lake Oahe; therefore, no impacts on pallid sturgeon would occur. The depth of the pipeline below the respective rivers and the design and operation measures that meet or exceed the respective PHMSA regulations make a release into either waterbody extremely unlikely. However, in the unlikely event a leak or spill was to occur and reach the Missouri River or Lake Oahe, impacts would be localized. If pallid sturgeon were present in the area where the spill or leak occurred, they would likely relocate outside of the contaminated area. Further, oil floats and, as pallid sturgeon are bottom dwellers primarily inhabiting the lower water column (USFWS, 2014c), impacts on pallid sturgeon in the event of a spill, would be minimal.

Based on the avoidance and minimization measures, literature review, field investigations, and habitat types present in the Project Area, USACE has determined that the Proposed Action may affect, but is not likely to adversely affect the pallid sturgeon.

3.5 Aquatic Resources

Under the “no action” alternative, Dakota Access would not construct the DAPL Project, and no impacts on aquatic resources would occur. However, if the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities would be required and these projects would result in their own impacts on aquatic resources, which would likely be similar to or greater than the proposed DAPL Project. Impacts associated with a future project developed in response to the “no action” alternative are unknown, while only temporary and minor impacts, if any, on aquatic resources would occur as a result of the Proposed Action, as described in the sections below.

3.5.1 Habitat and Communities

3.5.1.1 Affected Environment

West of Williston, the Missouri River is a braided channel varying in width from 800 feet to over 1,500 feet, with sand bars in many locations. The Yellowstone River confluence with the Missouri River is approximately 20 miles west of Williston and 3.5 river miles upstream from the proposed Missouri crossing. East of Williston, the Missouri River feeds into Lake Sakakawea, the third largest man-made lake in the U.S. formed by the Garrison Dam, several hundred miles downstream. This portion of the Missouri River is home to several fish species, including cutthroat trout, rainbow trout, brown trout, walleye, northern, and sauger. Amphibians are found along the shores and nearby riparian areas of the Missouri River. Common species found near the Missouri River crossing include Woodhouse’s toad, the northern leopard

frog, and western chorus frog (Hoberg and Gause, 1992).

Lake Oahe is a 232-mile-long reservoir that extends upriver from the Oahe Dam on the Missouri River from Pierre, South Dakota, to Bismarck, North Dakota. Approximately three-quarters of a mile south of the proposed pipeline crossing is the confluence of the Cannonball River into the Missouri. This portion of the Missouri River is home to several fish species, including walleye, northern pike, and channel catfish. Amphibians are found along the shores and nearby riparian areas of Missouri River. Common species found near the Lake Oahe crossing include the Great Plains toad, Woodhouse's toad, northern leopard frog, and tiger salamander (Hoberg and Gause, 1992).

3.5.1.2 Impacts and Mitigation

The Missouri River, including Lake Oahe, is the only waterbody that would be crossed by the Proposed Action with aquatic resources that have potential to be impacted by the Proposed Action.

All subsurface disturbing activities would be set back from the banks of Lake Oahe at the HDD entry point. This provides a buffer of undisturbed land between active construction and the Lake. There is potential, although very low due to setbacks of approximately 1,100 feet on the west bank and 900 feet on the east bank, for sediment to be transported from the workspace into the river during precipitation events, which could increase the local turbidity and sediment load in the lake. These increased loads have potential to temporarily affect sensitive fish eggs, fish fry, and invertebrates inhabiting the river. However, sediment levels would quickly attenuate both over time

and distance and would not adversely affect resident fish populations or permanently alter existing habitat. By also implementing the erosion and sediment control measures specified in the ECP (**Appendix G**) and SWPPP (**Appendix A**), the potential for sediment transport is likely avoided or minimized. Following construction, the ROW would be restored, revegetated, maintained in an herbaceous or scrub-shrub state, and monitored in accordance with applicable regulations and permit conditions.

A successfully completed HDD crossing would minimize environmental impacts on Lake Oahe since the pipeline would be installed without disturbing the aquatic and benthic environments. However, crossings via HDD carry a low risk of an inadvertent release of drilling mud, composed primarily of bentonite (a naturally occurring fine clay) slurry. Increased levels of sedimentation and turbidity from an inadvertent release could adversely affect fish eggs, juvenile fish survival, benthic community diversity and health, and spawning habitat. Dakota Access' HDD Construction/Contingency Plan (**Appendix B**) establishes monitoring procedures and prescribes measures to be implemented to minimize the impact in the event it occurs. All HDD operations conducted for crossing the Lake Oahe would adhere to the HDD Contingency Plan and applicable permit conditions to reduce the likelihood of an inadvertent release to minimize and mitigate environmental impacts. Dakota Access' construction contractor would ensure that the appropriate response personnel and containment equipment are available onsite to effectively implement the HDD Contingency Plan.

In addition to the crossing of Lake Oahe, aquatic resources could also be impacted during water withdrawal from the Missouri River, which is required for activities associated with the installation of HDD and the hydrostatic testing of HDD pipeline segment located on the flowage easements. However, water withdrawal activities would be conducted in accordance with all applicable permit conditions and regulations and in a manner that would not reduce water flow to a point that would impair flow or impact aquatic life. Intake screens and floats would also be utilized, as previously discussed in Section 3.2.1.2, to prevent entrainment of aquatic life and avoid impacts on aquatic resources. In addition, by placing the pump within a secondary containment structure on the barge, the potential for impacts on aquatic resources associated with accidental fuel spills or leaks is likely avoided or minimized.

The primary issue related to impacts on the aquatic environment from operation of the Proposed Action would be related to a release from the pipeline. For portions of the pipeline installed beneath the lake, the depth of the pipeline profile, increased wall thickness of the pipe, installation of remotely operated valves on both sides of the river crossing, and monitoring of the system 24/7 would further limit the potential for an inadvertent release into the waterbody. As a result, operations activities are not anticipated to impact aquatic resources or their habitat. Adherence to the Dakota Access FRP would minimize potential impacts on aquatic wildlife from potential spills during the operation of the pipeline. In the event of a leak, Dakota Access would work aggressively to contain the leak, initiate cleanup activities, and contact

the appropriate authorities, including the Corps. The FRP is discussed under Section 3.2.1.2 and a draft of the FRP is included in Appendix L.

3.6 Land Use and Recreation

Under the “no action” alternative, Dakota Access would not construct the DAPL Project, and no impacts on land use and recreation would occur. However, if the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities would be required and these projects would result in their own impacts on land use and recreation, which would likely be similar to or greater than the DAPL Project. The impacts associated with a future project developed in response to the “no action” alternative are unknown, while only temporary and minor impacts or insignificant permanent impacts on land use and recreation would occur as a result of the Proposed Action, as described in the sections below.

3.6.1 Land Ownership

The proposed 24-inch pipeline would cross seven contiguous Corps flowage easements over eight privately-owned parcels (**Figure 2**) that are associated with the Buford-Trenton-Irrigation District (Garrison Dam). Based upon Corps-provided easement documents and mapping, the distance across the flowage easements on the north side of the Missouri River in Williams County is approximately 14,953 feet (2.83 miles).

The flowage easements allow the Government to flood and saturate the land, surface, and subsurface of these properties. Generally, these easements prohibit the construction of structures for human habitation;

provide that any other structures require written approval by the Corps; and provide that no mineral exploration, excavation or placement of fill material may occur on the easement area without the prior approval of the Corps.

The proposed pipeline route would also cross federal lands on the east and west banks of Lake Oahe in Morton and Emmons counties. The distance from the western boundary of federally-owned lands to the eastern boundary of federally-owned lands on both sides of the lake, including the width of the lake, at the proposed crossing location is approximately 6,450 feet. The proposed pipeline would be routed to parallel existing linear infrastructure (an overhead power line and a buried gas transmission pipeline) across Lake Oahe in the same area. The HDD entry and exit points, measuring approximately 200 by 250 feet, would be located on private lands, as would the stringing corridor required to facilitate the installation. The northern boundary of the Standing Rock Sioux Reservation is located approximately 0.55 mile south of the Lake Oahe Project Area.

Dakota Access is securing a 50-foot-wide permanent easement that is generally centered on the pipeline (25 feet on either side of the centerline). Within the 50-foot-wide easement, a 30-foot corridor free of large woody vegetation, located within flowage easement LL3440E on the north bank of the Missouri River, would be required to allow for a clear line of sight once construction is completed to perform visual inspections during operation of the pipeline. The corridor would be maintained in a vegetative state.

3.6.2 Land Use

3.6.2.1 Affected Environment

Land use within the Project Area was assigned a classification based on the principal land characteristic in a given area. Aerial photography, the National Land Cover Database (Multi-Resolution Land Characteristics Consortium, 2011), the Morton County Zoning Map (Morton County, 2014), and the Williams County Comprehensive Plan were used to identify and classify general land use for the Project Area (**Figures 10 and 11**).

Agricultural Land

Agriculture is the primary land use within the Project Area. These lands are primarily used for ranching and cultivating crops. Agricultural lands allows for land uses such as farming, ranching, animal feeding operations, grain storage, and related functions. Agricultural land within the flowage easements are primarily pivot irrigated cropland (i.e., areas used for production of annual crops such as corn and soybeans).

Developed Land

Developed land includes open space around structures such as homes, farmsteads, outbuildings, well sites, and areas associated with roads and ditches.

Open Space

Open space includes all land that is not agriculture or developed; namely wetlands, open water, grasslands, and scrub-shrub. Open space is found primarily along the river banks. See sections 3.2 and 3.3 for a discussion on water resources and vegetation.

3.6.2.2 Impacts and Mitigation

The Proposed Action would result primarily in temporary, short-term impacts on land use during construction. Construction activities would require the temporary and short-term removal of existing agricultural land from crop and forage production within the construction footprint. During construction, temporary impacts such as soil compaction and crop damage are possible along the construction ROW. Mitigation measures to minimize impacts such as topsoil segregation and decompaction practices would be fully implemented in accordance with the ECP and SWPPP. Upon the completion of construction activities, the Project Area would be restored and returned to pre-construction land use.

As mentioned above, much of the cropland within the Corps flowage easements uses pivot irrigation systems. Dakota Access would coordinate with all landowners on acceptable methods for construction and restoration, including potential impacts to irrigated fields. Compensatory damages would be paid accordingly.

The nearest residence to the Proposed Action on the flowage easements is approximately 1,750 feet east of the pipe centerline. Temporary impacts on nearby residences could include inconvenience caused by noise and dust generated from construction equipment and traffic congestion associated with the transport of equipment, materials, and construction workers. Impacts from noise and dust during construction would diminish with distance from these areas and would be limited to the time of construction which would typically occur during daylight hours.

The primary impact on family farms would be the loss of standing crops and use of the land within the work area for the seasons during which DAPL Project-related activities occur, as well as potential diminished yields for a few years following construction. Dakota Access proposes to implement mitigation measures to minimize these potential impacts as described in the ECP. Dakota Access would repair surface drains and drainage tiles disturbed during ROW preparation, construction, and maintenance activities. Dakota Access would repair or replace fences and gates removed or damaged as a result of ROW preparation, construction, or maintenance activities.

At Lake Oahe, primary impact on ranching operations would be temporary prohibition of livestock grazing in the construction ROW, workspace areas, and restrictions on livestock movement across the construction ROW and workspace areas during construction. Given the narrow, linear nature of the DAPL Project and the alignment of the pipeline along property boundaries, livestock grazing reductions and livestock movement restrictions would be minor. Long-term or permanent impacts on family ranches are not anticipated. Following construction and restoration, the work area would be restored and ranching would be allowed to continue over the operational ROW. Landowners would be compensated for temporary loss of land and lower yields. Grazing activities would return to normal after Revegetation of the disturbed areas.

Once in operation, a permanent 50-foot ROW would be maintained except at segments of the ROW above the HDD profile on the flowage easements (between the HDD workspace and the river shore) that

would be maintained by clearing woody vegetation over a 30 foot corridor (a 50 foot easement would still be obtained). Maintenance would include the removal of any large trees and shrubs; agricultural land use would not be impacted by maintenance activities in this area. Trees outside of the ROW would be protected by Dakota Access in a manner compatible with the safe operation, maintenance, and inspection of the pipeline. Applicable regulations would be adhered to regarding tree and shrub removal from along the route. Field surveys have confirmed that no shelter belts would be impacted within the Project Area or Connected Actions.

Tables 3-12 and 3-13 below detail the acreage of land use impacts associated with the Proposed Action.

| Table 3-12 Land Use Impacts on the Flowage Easements Project Area and Connected Action | | |
|---|---|--|
| Land Use | Construction Workspace (acres)¹ | Permanent ROW (acres)² |
| Agricultural Land | 54.0 | 15.1 |
| Developed | 1.6 | 0.8 |
| Open Space | 6.0 | 2.0 |
| Total | 61.3 | 17.9 |

¹ Construction Workspace includes the permanent ROW.

² Permanent ROW includes the 50-foot permanent easement and the 30-foot maintenance easement.

| Table 3-13 Land Use Impacts on the Federal Lands Project Area and Connected Action | | | |
|---|---|---|--|
| Land Use | Construction Workspace (acres) | Connected Action - Permanent ROW (acres) | Federal Lands - Permanent ROW (acres)¹ |
| Agricultural Land | 0.0 | 0.0 | 0.1 |
| Open Space | 15.5 | 1.1 | 1.0 |
| Total | 15.5 | 1.1 | 1.2 |

¹ Land Use Impacts on federal lands are limited to the maintained 50 foot permanent easement and do not include approximately 6.3 acres of permanent easement beneath the HDD profile within the banks of Lake Oahe.

Dakota Access would obtain and comply with applicable state regulations, county permits, and zoning and land use regulations. Permits may include, but are not limited to, grade and fill permits, ditch crossing permits, road and utility permits, and conditional use permits. Dakota Access would retain one or more Els to monitor compliance with environmental conditions of county permits.

3.6.3 Recreation and Special Interest Areas

3.6.3.1 Affected Environment

Generally, recreation and special interest areas include federal, state, or county parks and forests; conservation lands; wildlife habitat management areas; hunter management areas; natural landmarks; scenic byways; designated trails; recreational rivers; and campgrounds. Nearby recreational opportunities in the vicinity of the Project Area and the Connected Action include Wildlife Management Areas (WMAs),

Lake Oahe, and the Missouri River, none of which are being impacted by the construction, although the HDD would cross under Lake Oahe itself.

The Missouri River and its shoreline are open to the public and used for recreational activities such as boating, swimming, and fishing. Because the flowage easements are federally regulated and privately owned, there is very limited, if any, recreational opportunities within the flowage easements. Additionally, there is little boating and open water angling on the entire upper end of Lake Sakakawea because of lack of access and extremely turbid water throughout much of the recreational season (USACE, 2007).

Lake Oahe's 2,250 mile shoreline is open to the public and offers a variety of opportunities to outdoor recreationists such as fishing, swimming, sightseeing, camping, and picnicking. More than 1.5 million visitors enjoy Lake Oahe's recreation facilities each year. Fishing is the major recreational activity of visitors to the Oahe project, with 44% of visitors engaging in this activity (USACE, 2010c).

There are no public boat access sites, marinas, or public swimming beaches within one mile of the flowage easements or federal lands crossings. There are no designated state parks or recreation areas, historic trails, scenic by-ways, designated wilderness or natural areas or other sensitive land uses that would be affected by the crossings (North Dakota Parks and Recreation Department, 2014).

At the flowage easement crossing, the closest Nationwide Rivers Inventory (NRI) segment is a one mile stretch of the Missouri River within the Fort Union Trading Post National Historic Site, which is about

9.2 river miles upstream from the crossing. At the federal lands crossing, the closest NRI segment is Square Butte Creek to the Oliver/Mercer County Line, which is about 50 river miles upstream from the Project Area (National Park Service, 2009).

North Dakota has approximately 54,373 miles of river, but no designated wild & scenic rivers (USFWS et al., 2014).

Wildlife Management Areas

The North Dakota Game and Fish Department manages the Trenton and Overlook WMAs; neither of which are crossed by the Proposed Action. The Trenton WMA encompasses 2,647 acres and is located southwest of Williston near Trenton, along the Missouri River and Lake Sakakawea. About 13.55 acres of the Trenton WMA extends into the eastern portion of flowage easement LL3440E (**Figure 6**) but the closest edge is approximately 800 feet from the HDD workspace. This area is largely primitive and the landscape has been allowed to develop naturally. The WMA provides recreational opportunities for fishing and hunting waterfowl, deer, and pheasants. The Overlook WMA encompasses 32 acres and is located 6.5 miles north of Cartwright, about 1,430 feet west of the HDD entry point in McKenzie County. The Overlook WMA is only accessible by boat and is used for hunting deer.

The Oahe WMA is located along Missouri River and Oahe Reservoir, about 17 miles south of Bismarck (USGS, 2014b). The proposed pipeline at the Lake Oahe crossing is about 14.5 miles south of the Oahe WMA.

Water Quality and Recreation

Section 303(d) of the CWA requires states to submit their lists of water quality limited waterbodies. This list has become known as the “TMDL list” or “Section 303(d) list.” A TMDL is the amount of a particular pollutant a stream, lake, estuary, or other waterbody can “handle” without violating State water quality standards. The final 2014 Section 303(d) list, which was submitted to Environmental Protection Agency (EPA) as part of the integrated Section 305(b) water quality assessment report and Section 303(d) TMDL list, includes a list of waterbodies not meeting water quality standards and those for which a TMDL is needed.

Lake Sakakawea is on the 2014 Section 303(d) list of impaired waters as not supporting fish consumption because of high levels of methyl-mercury; however, Lake Sakakawea would not be crossed or otherwise impacted as a result of the Proposed Action on the flowage easements. Lake Oahe is not listed as needing a TMDL and fully supports recreational use (North Dakota Department of Health, 2015). Because Lake Oahe already meets the state water quality standards, the Proposed and Connected Action Areas are not anticipated to result in impacts that would cause an impairment of water quality or the designated use of Lake Oahe.

Wilderness Areas

The Wilderness Act of 1964 defines wilderness as lands that may contain ecological, geological, scientific, educational, scenic or historical value. There are three designated wilderness areas within North Dakota: Chase Lake, Lostwood, and Theodore Roosevelt

Wilderness Areas. There are no designated wilderness areas, and no designated Nature Preserves or Natural Areas within one mile of either crossing (Wilderness Institute, 2014).

Standing Rock Sioux Reservation

The Standing Rock Sioux Reservation is situated at the border of South Dakota and North Dakota, approximately 0.55 miles south of the Lake Oahe Project Area. The Cannon Ball River is located along the northern border of the Standing Rock Sioux Reservation in Sioux County, North Dakota. The western border of the reservation ends at the Perkins County, South Dakota and Adams County, North Dakota lines, while the Missouri River is the eastern border of the reservation. The southern border of the reservation is located within Dewey and Ziebach counties in South Dakota. The total land area of the Standing Rock Sioux Reservation is 2.3 million acres and of that, 1,408,061 million is tribally owned. The Standing Rock Sioux Tribal members are descendants of the Teton and Yankton Bands of the Lakota/Dakota Nations (Standing Rock Sioux Tribe, 2016). Some of the many attractions within the reservation include Sitting Bull Grave Site, Standing Rock Monument, Fort Manuel, Lewis and Clark Legacy Trail, and the Standing Rock Tribal Office (Standing Rock Tourism, 2016). The terrain of the reservation consists of river valleys, lakes, woodlands, prairies, and rolling hills. Big game on the reservation includes white tail deer, mule deer and antelope, while small game includes jackrabbit, cottontail, and squirrel (Standing Rock Sioux Tribe and Standing Rock Sioux Tribe Game & Fish Department, 2016).

3.6.3.2 Impacts and Mitigation

The recreational enjoyment of wildlife (such as hunting or bird watching) may be temporarily affected by construction activities, depending on season and location. However, this effect would be short-term.

Recreationists may observe ROW clearing along the river banks. Because the pipeline would cross underneath the river via the HDD method, there would be no disruption to the course or cross-current of the river, and would not impact lake/river recreationists.

3.7 Cultural and Historic Resources and Native American Consultations

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, and implemented by 36 CFR Part 800, requires Federal lead agencies to assess the effects of permitted actions on historic properties. Historic properties are defined in the NHPA as prehistoric and historic archaeological sites, standing structures, or other historic resources listed in, or eligible for listing in the National Register of Historic Places (NRHP).

Under the “no action” alternative, Dakota Access would not construct the DAPL Project and no impacts on cultural and historic resources would occur. However, If the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities would be required and these projects could result in their own impacts on cultural and historic resources, which would likely be similar to or greater than the DAPL Project. The “no action” alternative would likely result in an increase in truck and

rail traffic that could have an adverse effect on cultural, historic and Native American resources. Furthermore, impacts to resources associated with these methods may not be identified and evaluated because the protections afforded under Section 106 of the NHPA would not apply unless a federal permit were to be required.

3.7.1 Cultural Resources Studies

The scope of the cultural resource analysis was designed to be commensurate with the Proposed Action. The Proposed Action is to authorize the crossing of federal flowage easements near the upper end of Lake Sakakawea north of the Missouri River in Williams County, North Dakota and federally owned lands at Lake Oahe in Morton and Emmons counties, North Dakota.

The cultural resource information for the Project Area, and for areas in the vicinity of the Proposed Action (to provide context) was obtained through a combination of cultural resources investigations commissioned by Dakota Access on private lands within a 400-foot-wide linear corridor as defined by the DAPL centerline and previous cultural investigations conducted on private lands adjacent to the Proposed Action area, and previous cultural investigations conducted on federal lands. New cultural resources investigations were not conducted on federal lands as part of the Proposed Action, as no impacts are anticipated to occur on federal lands.

Based on data compiled from previously executed archaeological investigations, it is recognized that much of the region has been inhabited by human populations for approximately 12,000 years. Throughout

much of the state the recorded prehistoric occupations range from Paleoindian Period encampments to Late Prehistoric Period sites. Multiple sites have been explored that suggest the area was inhabited by societies adapted for lifestyles on the Plains and in the various geographical regions of the state dating back to 6000 BC. The current Project Area has a moderate to high probability for archaeological deposits based on proximity to permanent water sources, topography, lack of significant ground disturbances, and depositional processes.

3.7.1.1 Affected Environment

Flowage Easements, Williams County, North Dakota

The Missouri River is a large perennial river that serves as the border between Williams and McKenzie counties, North Dakota. The flowage easements consist of a series of expansive agricultural fields located on the northern side of the River. While the individual tracts are privately owned, the USACE maintains easement rights across these tracts to facilitate floodwater control throughout the region. The DAPL Project proposes to traverse certain sections of these easements, and install the pipeline via HDD under the Missouri River. As these tracts are federally managed, cultural resources investigations were conducted in accordance with Section 106 of the NHPA, and in compliance with the North Dakota State Historic Preservation Office (NDSHPO) Guidelines Manual for Cultural Resources Inventory Projects (SHSND, 2012). Specifically, the cultural resources investigations were confined to a 400-foot-wide linear

corridor (*survey corridor*), as defined by the DAPL centerline. Prior to field investigations, a Class I literature and records search was conducted within an expanded *study area corridor*, which extended for a mile on either side of the DAPL centerline. The Class I literature review determined that the DAPL survey corridor traverses one previously recorded site (32WI1367), and that portions of the DAPL survey corridor have been subject to previous surveys (Larson et al. 1987). Site 32WI1367, also known as the Buford-Trenton Irrigation System (BTIS), is a National Register nominated cultural resource consisting of a pumping plant, main canal, and associated irrigation components. The BTIS construction began in 1940 and continued through the 1950's managed by the Department of Interior, Work Progress Administration, and the Farm Security Administration. The DAPL survey corridor traverses one of the extant irrigation canals listed as a contributing element of the BTIS in the northeastern corner of Section 30 of Township 152 North, Range 103 West.

The Class II/III inventory investigations within the DAPL survey corridor across the flowage easements consisted of a combination of pedestrian surveys and shovel probing. Archaeologists walked along fixed transects spaced 30 m (98 ft.) apart within the survey corridor, and systematically excavated shovel probes across high probability settings, or in areas with low surface visibility. The Class II/III investigations resulted in the revisit of the portion of Site 32WI1367 within the survey corridor, and the documentation of a new prehistoric site (32MZ2874) located on the southern banks of the Missouri River

(Appendix 1). The assessment of site 32WI1367 consisted of mapping and documentation of the canal feature. No artifacts, evidence of features, or other undocumented components were noted. Dakota Access has designed an HDD to install the pipeline below this canal feature. Additionally, the HDD workspace would be off-set a sufficient distance to ensure that no components or associated features of this canal would be adversely impacted.

As site 32MZ2874 is located on the southern banks of the Missouri River, it is not located on USACE-managed flowage easement tracts. However, the site is referenced herein given its proximity to the workspace associated with HDD of the Missouri River. Site 32MZ2874 is a small prehistoric artifact scatter that is recommended as unevaluated for listing in the NRHP pending further testing investigations. The HDD workspace on the southern banks of the Missouri River has been designed to avoid impacting this site and is situated beyond the mapped site boundary. Exclusionary fencing would be installed along the eastern border of the HDD workspace during drilling activities to prevent inadvertent impacts or trespassing.

Federal Lands — Lake Oahe Crossing: Morton and Emmons Counties, North Dakota

The proposed crossing of federally-owned tracts at Lake Oahe is located in Section 10, Township 134 North, Range 79 West in Morton County, North Dakota, and Section 11, Township 134 North, Range 79 West in Emmons County, North Dakota (see **Figure 3**). Dakota Access proposes to install the pipeline via HDD below Lake Oahe, and the HDD entry and exit

point workspaces and stringing area would be located on private land beyond the boundary of the federal lands. While no activities associated with the Proposed Action will occur on the surface of federal lands, the HDD entry and exit point workspaces and stringing areas are considered Connected Actions, and as such were subject to cultural resources investigations in accordance with Section 106 of the NHPA, and in compliance with the NDSHPO Guidelines (SHSND, 2012). No new cultural resources investigations of any kind were conducted on federal lands in association with the DAPL project as no impacts are anticipated to occur between the HDD workspaces on either side of Lake Oahe. However, previous cultural resource surveys of USACE managed lands are cited in the report; Dakota Access Pipeline Project, Class II/III Cultural Resources Inventory of the Crossings of Flowage Easements and Federal Lands. Prepared collaboratively for Dakota Access, LLC in March of 2016 (Landt and McCord 2016). This report is contained in Appendix I.

Prior to field investigations, a Class I literature and records search was conducted within an expanded study area corridor, which extended for a mile on either side of the DAPL centerline. The Class I literature review determined that no previously recorded sites are located on the private lands within the Connected Action areas (i.e., HDD workspaces and stringing area). A total of 43 previously recorded cultural resources are located within the study area corridor. Of these, 18 are located in Morton County and the remaining 25 are located in Emmons County. These consist of isolated finds and site leads (i.e., resources reported to the SHSND without field verification),

prehistoric artifact scatters, and historic resources. A total of 10 of the previously recorded sites within the study area corridor are located on federal lands directly adjacent to the banks of Lake Oahe and the Cannonball River. Specifically, seven of these sites (32M00001, 32M0x0004, 32M00054, 32M00060, 32M00061, 32M00064, and 32M00259) are located in Morton County, on the western side of the Lake Oahe. The remaining three sites (32EM0019, 32EM0021, and 32EM0221) are located in Emmons County, on the eastern side of Lake Oahe. A more comprehensive discussion of these sites and associated mapping detail is provided in Appendix I.

The Class II/III inventory investigations at Lake Oahe took place exclusively within the Connected Action areas located on private lands beyond the limits federal lands (i.e., HDD workspaces and stringing area). The Class II/III inventory investigations within the Connected Action areas associated with the Lake Oahe crossing consisted of a combination of pedestrian surveys and shovel probing. Archaeologists walked along fixed transects spaced 30 m (98 ft.) apart within the survey corridor, and systematically excavated shovel probes across high probability settings, or in areas with low surface visibility. The Class II/III investigations within the Connected Action areas resulted in the documentation of one new archaeological site (32M0570). This site consists of a singular lithic flake in isolated contexts and is recommended as not eligible for listing in the NRHP and no further work is warranted.

3.7.1.2 Impacts and Mitigation

The impacts attributable to the HDD on cultural resources would not be significant. The geotechnical analysis performed to support the HDD crossings supports the lack of anticipated impacts due to vibrations related to construction and HDD activities. Vibrations produced during the HDD process are not of a magnitude that would cause any impacts to cultural resources. Vibrations associated with the drilling process would be limited to the immediate vicinity of the drilling equipment on the surface and downhole. The vibrations produced from the downhole tooling are of a very low magnitude and are attenuated very quickly by the formation such that vibrations are never felt at the surface. A vibration monitoring analysis conducted by GeoEngineers in 2009 found that peak particle velocities were less than 0.07 inches/second within approximately 50 feet of HDD operations. These velocities are well below that which would cause any structural impacts and moreover, the recorded vibrations were, in fact, imperceptible to human senses (GeoEngineers, 2009).

Flowage Easements

Dakota Access has conducted Class II/III inventory surveys within the 400-foot-wide survey corridor across the flowage easements. The survey investigations resulted in the revisit of site 32WI1367 on the northern side of the Missouri River, and the documentation of site 32MZ2874 on the southern banks of the Missouri River. Impacts to site 32WI1367 would be avoided via HDD to ensure the integrity of construction design for these historic-age features is preserved. Additionally, no impacts to site 32MZ2874 are

anticipated to occur as the HDD workspace is located beyond the site boundaries. These management recommendations have been included as viable avoidance options in the Class II/III report submitted to the USACE regional archaeological staff. A more thorough discussion of the cultural setting, relevant previous studies, as well as geologic and geomorphic analysis of the region, and results of the current survey with associated mapping detail can be referenced in Appendix I.

Federal Lands

Dakota Access has conducted Class II/111 inventory surveys within the Connected Action areas on private lands associated with the Lake Oahe crossing. These investigations resulted in the documentation of one prehistoric site consisting of a singular lithic artifact (32M0570). This site is recommended as not eligible for listing in the NRHP. No additional cultural resources were documented within the Connected Action areas associated with the Lake Oahe crossing. While the Class I background review determined that eight previously recorded sites are located on federal lands, no evidence of these sites was encountered within the Connected Action areas on private lands.

Dakota Access' UDP was developed (Appendix F) for use during all DAPL Project construction activities regardless of jurisdiction or landownership. The UDP describes actions that would take place in the event that an undocumented cultural resource site is discovered during construction activities. The UDP explicitly calls for work to stop until the correct authority or agency can be contacted and the find can be properly evaluated.

3.7.2 Native American Consultations

The 2004 Programmatic Agreement for the Operation and Management of the Missouri River Main Stem System for Compliance with the National Historic Preservation Act, as amended, (PA) was developed to address challenges associated with cultural and historic resource impacts involved with the ongoing operation and maintenance of the Missouri River system of main stem dams. This agreement outlines the processes through which affected Tribes, agencies and interested parties are consulted by the Corps on issues that may affect important historic and cultural resources. These processes are essential to fulfill the Corps' Tribal Trust Responsibilities and also comply with Section 106 of the NHPA.

The United States Department of Defense recognizes its trust responsibilities to federally recognized Indian Tribes and has established an American Indian and Native Alaskan Trust policy that directs its agencies, including the Corps, to work with Tribes in a manner that incorporates tribal needs, traditional resources, stewardship practices, and the development of viable working relationships. In addition, EO 13175, Consultation and Coordination with Indian Tribal Governments (EO 13175), outlines policy and criteria regarding the establishment of "regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, and are responsible for strengthening the government-to-government relationship between the United States and Indian tribes" (<https://www.whitehouse.gov/the-press-office/memorandum-tribal-consultation-signed-president>).

EO 13175 continues with the following; “History has shown that failure to include the voices of tribal officials in formulating policy affecting their communities has all too often led to undesirable and, at times, devastating and tragic results. By contrast, meaningful dialogue between Federal officials and tribal officials has greatly improved Federal policy toward Indian tribes. Consultation is a critical ingredient of a sound and productive Federal-tribal relationship”. These concepts are reflected in the Omaha District’s PA/Section 106 coordination/consultation process.

Section 106 coordination/consultation was initiated for the Proposed Action beginning in October 2014, with an information letter regarding a preliminary geo-testing of the proposed Oahe crossing alignment. Per the Omaha District’s usual process, this letter was sent to Tribes, THPOs, SHPOs, agencies and interested parties, soliciting information relevant to the Proposed Action. Subsequently, the same process was utilized in circulating information and pertinent data for the installation of the Oahe pipeline crossing, in the form of a letter distributed in July 2015. The USACE recommended a “No Historic Properties Subject to Effect” Determination to the North Dakota SHPO and the SHPO concurred on April 22, 2016.

3.8 Social and Economic Conditions

Under the “no action” alternative, Dakota Access would not construct the DAPL Project and no impacts on social and economic conditions would occur. Although the impacts associated with a future project developed in response to the “no action” alternative are unknown, if the objectives of the DAPL Project are to

be met under the “no action” alternative, other projects and activities would likely be required (e.g. transportation of oil by truck or rail). Alternative shipping methods would likely result in their own impacts on social and economic conditions, such as increases in vehicular accidents and personal injury, worsening traffic congestion, and increased infrastructure deterioration.

The overall DAPL Project is a \$3.78 billion dollar investment directly impacting the local, regional, and national labor force by creating nearly 12,000 construction jobs. Dakota Access has publically committed to utilizing American labor to build the pipeline. Dakota Access has teamed up with the various craft and labor unions in the DAPL Project regions and nationally to ensure the DAPL Project is constructed by highly qualified and experienced local and regional labor resources. These construction jobs would create considerable labor income and state income tax revenue — including the generation of more than \$13.4 million in ad valorem taxes. Upon authorization, the DAPL Project would put welders, mechanics, electricians, pipefitters, heavy equipment operators, and others within the heavy construction industry to work.

3.8.1 Demographics, Employment, Income and Economic Justice

3.8.1.1 Affected Environment

The Proposed Action at the flowage easements and the Missouri River are in McKenzie County and Williams County. The two census tracts (CT) crossed are CT9625 and CT 9535, respectively. Demographic

information including population, income, and employment statistics for these census tracts, counties in the general geographic area, and the state of North Dakota are provided in **Table 3-14**. The industries employing the greatest number of persons in these census tracts is agriculture followed by educational services health care and social assistance fields; and construction.

At the Lake Oahe crossing, two Census tracts are crossed, CT9665 in Emmons County and CT204 in Morton County. Demographic information including population, income, and employment statistics for these census tracts, counties, and the state of North Dakota are provided in **Table 3-15**. The top three industries providing employment in Emmons County are agriculture followed by educational services, health care and social assistance fields, and then construction. Educational services, health care and social assistance are the leading industry employers in CT204 in Morton County followed by agriculture and retail trade. Although not directly affected by the Proposed Action or Connected Action Areas, Sioux County borders the Missouri River to the west and is south of the Lake Oahe crossing point. Due to proximity of this county to the project, it has been incorporated as part of the geographical area for the county baseline data for analysis purposes relating to the Lake Oahe crossing.

3.8.1.2 Impacts and Mitigation

The Proposed Action is assumed to have a short construction window with a small number of construction workers dedicated to these crossings. It is possible that counties within the general Project Area

(McKenzie, Williams, Morton, Emmons, and Sioux) could experience short-term temporary effects to the local economy through induced spending from construction employees working on the crossing. No residential homes or farms would be relocated resulting from the proposed action. Additionally, no demographic changes in the Census tracts affected or the counties representing in the geographical area are anticipated because no permanent employment would be created as a result of the Proposed Action.

The DAPL Project also has tremendous secondary and sustainable economic benefits to the United States by supporting energy independence, increasing employment opportunities, and adding to demand in many manufacturing sectors, which would be a boost to the overall economy. When considering the economic impact and benefit, once U.S. workers are employed on the DAPL Project, consistent with most infrastructure projects, the workers would spend their earnings in the communities where they work and live, resulting in multiplied economic impacts that would be nearly \$5 billion just during the construction phase. This economic impact would affect manufacturing in many domestic sectors such as the following examples. It results in new vehicles being purchased, which positively impacts the auto industry. It would result in new homes being built, which improves and increases the housing construction, resale, and lending business located in the region and across the U.S. It impacts the food industry by requiring more food services and products to be delivered and consumed in the DAPL Project region. And it delivers abundant American energy to U.S. markets, thereby enhancing supply. The list could continue with a description of

many secondary benefits, but in summary, the economic impact to the U.S. as well as the immediate region where the pipeline is located is considerable.

| Table 3-14 Minority and Low Income Population Statistics for the Flowage Easements Project Area and Connected Action | | | | | | | | | | |
|---|------------------|---------|----------------------|------------------------------|-------|--|-----------------|-------------------|---------------------------------|---------------------------|
| Geo-graphic Area | Total Population | Percent | | | | | | | Persons Below the Poverty Level | |
| | | White | Black or African Am. | Am. Indian and Alaska Native | Asian | Native Hawaiian and Other Pacific Islander | Some Other Race | Two or More Races | | Total Minority Population |
| County Comparison to Proposed Action Area | | | | | | | | | | |
| Proposed Action | -16,085 | 1.09 | -0.43 | -1.56 | -0.48 | -0.01 | -0.89 | 2.28 | -1.09 | -4.65 |

Source: U.S. Census Bureau, American Community Survey (2010-2014 5-year estimates).

Note: totals may not sum across the table due to rounding used in data collection.

| Table 3-15 Minority and Low Income Population Statistics for Federal ands Project Area | | | | | | | | | | |
|---|------------------|--|----------------------|------------------------------|-------|--|-----------------|-------------------|---------------------------------|-----------------------------|
| Geo-graphic Area | Total Population | Percent | | | | | | | Persons Below the Poverty Level | |
| | | White | Black or African Am. | Am. Indian and Alaska Native | Asian | Native Hawaiian and Other Pa-cific Is-lander | Some Other Race | Two or More Races | | Total Minor-ity Popu-lation |
| | | Baseline Area Comparison to Proposed Action Area | | | | | | | | |
| Proposed Action | -12,148 | 28.90 | -0.17 | -27.90 | -0.12 | -0.02 | 0.05 | -0.79 | -28.96 | -2.95 |

Source: U.S. Census Bureau, American Community Survey (2010-2014 5-year estimates).

Note: totals may not sum across the table due to rounding used in data collection.

3.9 Environmental Justice

EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires federal agencies to identify and address disproportionately high and adverse human health or environmental of their programs and policies on minority and low-income populations and communities and Indian tribes. The CEO guidance suggests that an environmental justice population may **be** identified if “the minority population percentage of the affected area exceeds 50%, or if **the** minority population percentage of the affected area is meaningfully greater than the minority population in the general population or other appropriate unit of geographic analysis” (CEO, 1997). The CEO defines low-income populations based on an annual statistical poverty threshold. In 2013, the poverty threshold for the 48 contiguous states for an individual under the age of 65 living alone was \$12,119 (U.S. Census Bureau, 2014).

Under the “no action” alternative, Dakota Access would not construct the proposed Project and no environmental justice impacts would occur. However, If the objectives of the Project are to be met under the “no action” alternative, other projects and activities would be required and these projects could result in their own environmental injustice impacts, which would likely be similar to or greater than the proposed Project. It is reasonable to assume that alternative methods of crude oil transportation would be relied on to meet market demands. Minority or low income communities along utilized rail lines or truck routes could be affected by increasing noise and creating

transportation delays due to the substantial increasing truck traffic on county, state and interstate highways as well as rail traffic across railroad crossings.

3.9.1 Affected Environment

Transportation projects, such as under the Federal Transit Administration, and natural gas pipeline projects under the Federal Energy Regulatory Commission (e.g. Docket Nos. CP12-507-000 and CP12-508-000, DOE FE 12-97-LNG, and FERC/EIS-0252F), typically use a 0.5 mile buffer area to examine Environmental Justice effects. The census tracts crossed by the Proposed Action encompass an area greater than 0.5 mile radius for the project; therefore additional census tracts were not evaluated.

Since two census tracts are within 0.5 mile of the Flowage Easements at the Missouri River, and another two census tracts are located within 0.5 mile of the federal lands at Lake Oahe, an average of the demographic data from two respective census tracts was compared to the average demographic data of the counties in the general vicinity of each crossing as well as the state of North Dakota demographic data.

For the Flowage easements and Missouri River crossing, which are generally centrally located within McKenzie and Williams Counties, the averaged data from those two counties was used to obtain the Baseline Area data set.

Lake Oahe crossing is generally centrally located within Emmons County on the east side of the Lake, however it is near the southern boundary of Morton County. Therefore Sioux County (located greater than 0.5 miles) was included in the geographical area

of the Lake Oahe. Thus Morton, Emmons, and Sioux county data was averaged to obtain the Baseline Area data set.

3.9.2 Impacts and Mitigation

For analyzing impacts to the minority and low income populations at the Proposed Action Area at the flowage easements and Missouri River Crossing, Census Tracts CT9625 and CT9535 were compared to the averaged county baseline (McKenzie and Williams Counties — “Baseline Area”) data and then to the state data to determine if there were any siting concerns relative to Environmental Justice.

The minority population of the Proposed Action Area at the Missouri River is greater than the state as a whole (3% greater) but lower than surrounding county geographical area (1% lower). Neither of these differences is considered meaningful.

The percentage of the population below the poverty level for the Proposed Action Area at the Missouri River is 5% lower than the state as a whole and also 5% lower than surrounding county geographical area. These differences are not considered meaningful.

For analyzing impacts to the minority and low income populations at the Lake Oahe Crossings, data for the averaged Census Tracts (CT204 and CT9665) was compared to the averaged county baseline (Morton, Emmons and Sioux — “Baseline Area”) for the county geographical area (Morton, Emmons, and Sioux Counties — “Baseline Area”) data and then to the state to determine if there were any siting concerns relative to Environmental Justice.

Based on this analysis, the minority population of the Proposed Action Area at Lake Oahe is lower than the state as a whole (9% lower). Although the average minority population of the counties geographical baseline is greater than the state as a whole, the minority population in the averaged census tract of the Proposed Action Area at Lake Oahe is much lower than surrounding county geographical area. In this case, the census tracts associated with the Proposed Action Area at Lake Oahe have a meaningfully lower minority percentage (29% lower) than the Baseline Area consisting of the three county area.

No appreciable minority or low-income populations exist within the Census tracts directly affected by the Proposed Action at either crossing (**Tables 3-14 and 3-15**). No local community with appreciable minority or low-income populations exists at either the crossing of federal lands or flowage easements (**Tables 3-14 and 3-15**). Based on this analysis, there is no concern regarding environmental justice to minority populations at the Proposed Action Area at the Missouri River Crossing or at Lake Oahe.

3.9.2.1 Standing Rock Sioux Reservation

It is recognized that the Standing Rock Sioux Tribe is downstream of the Lake Oahe Crossing, which has a high population of minorities and low-income residents. Dakota Access and the Corps sought to engage Tribal representatives in the vicinity of the Proposed Action, and especially the Standing Rock Sioux Tribe, in discussion as to the nature of the Project, cultural resource concerns and the Lake Oahe crossing. The initial contact by Dakota Access with the Standing Rock Sioux Tribe was in October of 2014

with additional contacts and subsequent meetings occurring through March 2016. Direct and Indirect impacts from the Proposed and Connected Actions will not affect members of the Standing Rock Sioux Tribe or the Tribal reservation. The Lake Oahe crossing will be installed via HDD beneath the river from private lands adjacent to Corps owned lands to avoid impacts to environmental resources (e.g. water, soil, cultural resources, vegetation, etc.). The HDD drilling process is an expensive technique that itself is a mitigation measure with no anticipated effects to the environment including vibration or frac-out within or outside of the Proposed Action for the short duration of the construction project (see sections 2.3.2.6 and 3.1.1.2 for additional information).

As discussed in more detail in sections of this Environmental Assessment (i.e. Section 2.3.1), Dakota Access utilized a complex routing model to examine alignment options for the Project and an array of environmentally protective criteria were used to cite the Project. Perhaps most important for purposes of this analysis, are the citing criteria that require the avoidance of Tribal reservations and federal lands. Since the route must cross the Missouri River, it was not practicable to fully avoid federal land (see discussion in Section 2.1.3), and hence the necessity for this EA. However, maintaining a minimum distance of 0.5 mile from Tribal land, consistent with other federal citing criteria, avoided tribal land as a mitigation and routing measure. Furthermore, the Proposed Action, and hence the route and installation methods, is at a distance sufficient such that there are no direct or indirect impacts to Tribal lands, members or protected cultural resources.

Another primary consideration in routing included a preference for co-locating the route with existing infrastructure. The Proposed Action is co-located with existing power and pipe lines across Lake Oahe and partially co-located with a gas line at the flowage easements and Missouri River. As examples, the routing model affirmatively excludes such locations as Tribal lands, National Registry Historic Places, wilderness, parks, landmarks and an array of other special needs areas.

As a result of this routing criteria, the nature of the action (construction associated with laying an underground oil pipeline), the short term duration of effects, construction and operation on private lands, the concurrent reclamation activities, state of the art construction techniques, use of high quality materials and standards that meet or exceed federal standards, there will be no direct or indirect effects to the Standing Rock Sioux tribe. This includes a lack of impact to its lands, cultural artifacts, water quality or quantity, treaty hunting and fishing rights, environmental quality, or socio-economic status. Therefore, there is no resulting adverse or disproportionate impacts of the Proposed Action with respect to Environmental Justice considerations.

The Standing Rock Sioux Reservation boundary is over 0.5 miles south of the Lake Oahe Project Area crossing. Based on aerial imagery, the closest residence on the Standing Rock Sioux Reservation is a rural residence located greater than 1.5 miles from the Lake Oahe Project Area Crossing. This distance is well beyond any federal or state siting criteria. The North Dakota Energy Conversion and Transmission Facility Siting Act Exclusion and Avoidance Areas

Criteria (49-22-05.1) establishes an avoidance setback requirement of 500 feet from inhabited rural residences.

The pipeline route expressly and intentionally does not cross the Standing Rock Sioux Reservation and is not considered an Environmental Justice issue. If it were determined that there would be some effects to the Standing Rock Sioux Tribe as a low income, minority population, it would not disproportionately or predominately bear impacts from the Proposed Actions (the impacts will actually disproportionately affect private lands, non-low income populations and non-minority populations). The impacts along the Missouri River and the Lake Oahe crossing are not disproportionate to the tribe. The Missouri River crossing is on private lands with private lands and US federal lands downstream; the nearest reservation is Fort Berthold approximately 50 miles due east and Standing Rock Reservation is approximately 160 miles southeast. The Lake Oahe HDD crosses under US Federal lands from lands that are privately owned; private lands continue downstream of the crossing on the east side of the Lake and Standing Rock Reservation (0.55 miles). Thus, the impacts at best can be said to be equivalent between tribal lands and private landowners at the Lake Oahe crossing. As stated above, linear projects typically use a 0.5 mile buffer area to examine Environmental Justice effects. There are no low-income, minority or tribal lands within 0.5 mile of the Proposed Action.

Concerns have been expressed regarding an inadvertent release reaching intake structures on Lake Oahe. Given the engineering design, proposed instal-

lation methodology, quality of material selected, operations measures and response plans the risk of an inadvertent release in, or reaching, Lake Oahe is extremely low. While the locations of water intakes is not public information for disclosure in this document, there are private and/or non-tribal intakes closer to the Lake Oahe crossing than any intakes owned by the tribe; further demonstrating the lack of disproportionate impacts of an inadvertent release to the Tribe and the reservation. We understand that due to the rural nature of this area, tribal drinking water supplies are obtained from a combination of wells and surface water. The siting and construction of oil pipelines upstream of drinking water intakes is not uncommon throughout the United States and is not considered an Environmental Justice issue. In the unlikely event of a release, sufficient time exists to close the nearest intake valve to avoid human impact.

Dakota Access has committed to plan for the protection of this and other water crossings and associated water intakes as part of its emergency preparedness protocol and in accordance with PHMSA requirements outlined in 49 CFR §§ 194 and 195 (see section 3.11 for further detail). Tribal representatives have been identified for early contact along with other federal, state and local governments by the Corps as well as independently by the applicant.

Based on the above sections, it has been determined that there are no environmental justice issues or concerns resulting from the Proposed Action.

3.10 Hazardous Waste

The EPA (2015) defines hazardous waste as waste that is dangerous or potentially harmful to human

health or the environment, occurring as liquids, solids, gases, or sludges. They can be generated through the disposal of commercial products, such as cleaning fluids or pesticides, or manufacturing processes. Improper management and disposal of hazardous substances can lead to pollution of groundwater or other drinking water supplies and the contamination of surface water and soil. The primary federal regulations for the management and disposal of hazardous substances are the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA).

A review of regulated facilities for hazardous materials along the Proposed Action corridor was conducted by searching online records maintained by the EPA (2014). Presently, there are no recognized Radiation Information Database, Brownfields, Superfund, Toxic Release Inventory, or air emission sites within one mile of the flowage easements and Lake Oahe crossings. No operating sensitive receptors, such as schools or hospitals, are reported within at least one mile. Additionally, there are no NPDES discharge sites within one mile of the Project Areas.

With the Proposed Action, there is potential for temporary impacts to public safety from hazardous material use. Other hazards to worker safety may also exist along the Proposed Action corridor, but do not pose a significant impact. Because there were no regulated sites found within the one-mile search radius of the Project Area, no impacts to the Proposed Action, Proposed Action media, or worker safety are expected. In the unlikely event contamination is encountered during construction, the UDP (**Appendix**

F) would be implemented to protect people and the environment and avoid or minimize any effects from unearthing the material.

Any hazardous materials discovered, generated, or used during construction would be managed and disposed of in accordance with applicable local, tribal, state, and federal regulations. Should emergency response be required during construction, the contractor would have some of their own trained or contracted responders, and local response teams would be expected to assist.

Dakota Access would comply with any laws, regulations, conditions, or instructions issued by the EPA, or any Federal, state, or local governmental agency having jurisdiction to abate or prevent pollution, such as the RCRA, and State hazardous waste management rules.

3.11 Reliability and Safety

The PHMSA, a federal agency within the U.S. DOT is the primary federal regulatory agency responsible for ensuring the safety of America's energy pipelines, including crude oil pipeline systems. As a part of that responsibility, PHMSA established regulatory requirements for the construction, operation, maintenance, monitoring, inspection, and repair of liquid pipeline systems.

Construction activities could present safety risks to those performing the activities, residents and other pedestrians in the neighborhood. Given the low population density of the area, risks would be limited to workers involved with the Proposed Action. All activ-

ities would be conducted in a safe manner in accordance with the standards specified in the Occupational Safety and Health Administration (OSHA) regulations.

To prevent pipeline failures resulting in inadvertent releases, Dakota Access would construct and maintain the pipeline to meet or exceed industry and governmental requirements and standards. Specifically, the steel pipe would meet PHMSA specifications under 49 CFR § 195, follow standards issued by the American Society of Mechanical Engineers, National Association for Corrosion Engineers and API. Once installed, the pipeline would be subjected to testing to verify its integrity and compliance with specifications, including hydrostatic pressure testing at the crossings, checking coating integrity, and X-ray inspection of the welds. The pipeline would be placed into service only after inspection to verify compliance with all construction standards and requirements. Dakota Access would maintain and inspect the pipeline in accordance with PHMSA regulations, industry codes and prudent pipeline operating protocols and techniques. The pipeline ROW would be patrolled and inspected by air every 10 days, weather permitting, but at least every three weeks and not less than 26 times per year, to check for abnormal conditions or dangerous activities, such as unauthorized excavation along the pipeline route.

As discussed in Section 3.2.1.2, Dakota Access has drafted a FRP, in accordance with 49 CFR 194, which details the procedures to be implemented in the event of an inadvertent pipeline release and would be in place prior to commencing transportation of crude oil.

The FRP is discussed under Section 3.2.1.2 and a draft of the FRP is included in Appendix L.

Following completion of construction and throughout operation of the Proposed Action facilities, the Operator and qualified contractors would maintain emergency response equipment and personnel at strategic points along the pipeline route. These personnel would be trained to respond to pipeline emergencies as well as in the National Incident Management System (NIMS) Incident Command System (ICS). Additionally, contracts would be in place with oil spill response companies that have the capability to mobilize to support cleanup and remediation efforts in the event of a pipeline release. The Operator would also coordinate with local emergency responders in preventing and responding to any pipeline related problems. These activities would include conducting and hosting, over a period of time, emergency response drills with both Dakota Access employees and local emergency responders along the pipeline route.

Dakota Access will conduct emergency response drills/exercises in accordance with PREP, which is recognized, and approved, by the EPA, US Coast Guard, and PHMSA. These emergency response exercises will consist of annual table top exercises and equipment deployment drills. Dakota Access is committed to conducting a worst case discharge full scale exercise at either the Missouri River crossing near Williston or the crossing at Lake Oahe once every 6 years and will include both open water and ice response. Dakota Access will alternate the location and type of exercise. Regulatory and stakeholder participation will be encouraged and solicited for the exercises.

In addition to the testing and inspection measures listed above, Dakota Access would utilize a supervisory control and data acquisition (SCADA) system to provide constant remote oversight of the pipeline facilities. Power for the SCADA system would be provided from an existing power grid. In the event of a power outage, a 500 watt Uninterruptable Power Supply would supply low voltage power to the Programmable Logic Controller and communication equipment. Communication with the SCADA system would be accomplished via satellite (Hughes Global Network) and telephone (4G cellular [ATT] or landline depending on availability/coverage). Both forms of communication are continually engaged to poll information from these sites for 100% reliable remote monitoring / operation of these sites through the SCADA system to the Operations Control Center (OCC) in Sugarland, Texas (a backup control room is located in Bryan, Texas), and are proven to have the least potential for interruption during pipeline operations.

If an alarm criteria threshold is met, the SCADA system would alert Dakota Access' OCC Operators, located in Sugarland and Bryan, Texas, of rapid drops in pressure, who would then activate the controls as necessary and initiate procedures for an appropriate response. The OCC prioritizes and responds to all alarms in accordance with the control room management regulations referenced in PHMSA CFR 195.446 (e). This regulation requires that the OCC Operator have a SCADA system alarm management plan; in general, the plan must include review of the SCADA alarm operations to ensure alarms support safe pipeline operations, identify any required maintenance that may affect safety at least once every calendar

month, verify correct safety-related alarm values and descriptions at least once every calendar year when associated field equipment are changed or calibrated, determine effectiveness of the alarm management plan through a yearly review, and monitor content and volume of activity at least once a calendar year to assure controllers have adequate time to review incoming alarms. Leak Warn, a leading software program for monitoring pipelines, is being tailored to the pipeline facilities, in accordance with Pipeline and Hazardous Materials Safety Administration requirements. The Operator would utilize a Computational Pipeline Monitoring System (CPM) to monitor the pipeline for leaks. The CPM is a state-of-the-art pipeline monitoring tool and features a real-time transient model that is based on pipeline pressure, flow, and temperature data, which is polled from various field instruments every 6 seconds and updates the model calculations to detect pipeline system variations every 30 seconds. After the system is tuned, this state-of-the-art CPM system is capable of detecting leaks down to 1 percent or better of the pipeline flow rate within a time span of approximately 1 hour or less and capable of providing rupture detection within 1 to 3 minutes. State-of-the-art leak detection equipment and software utilized during operations on the pipeline will be updated per federal standards in accordance with PHMSA requirements. In the event that a leak is confirmed through verification, pump station shutdown would be initiated within a predetermined amount of time to effectuate. Next, the remotely controlled isolation valves (mainline valve sites would be installed on both sides of large waterbody crossings for isolation in the event of an emergency shutdown),

which are operable from the OCC, would be closed. These valves have a closure time of no greater than three (3) minutes. Monitoring of the pipeline segments installed via HDD would be accomplished in the same manner as those segments installed by conventional methods (i.e., SCADA, internal inspection devices, and aerial patrols). Typically, repairs are not made on any section of pipe greater than 10 to 20 feet below the ground surface depending on the repair needed. If a material impact was on the pipeline below the 10-foot depth, operation of the system would be modified accordingly (e.g., reduce operating pressure) or the line would be re-drilled. If inspections identify an anomaly, requirements would be followed to comply with U.S. DOT requirements.

In the unlikely event of a leak during operations of the pipeline, the Operator would implement the response measures described in the FRP. Below is a list of typical response activities. However, each spill mitigation situation is unique and will be treated according to the actual spill circumstances present at the time of release.

Notification: The Operator will conduct notifications in accordance with federal and state guidelines. These guidelines, along with additional notification forms/procedures are presented in Appendix B of the FRP. Local government response agencies would be notified first followed by federal and state agencies as well as surrounding communities, and governments (including tribal governments and utilities) in accordance with the relevant provisions of the FRP and relevant law. Response notification to such entities as the National Response Center, PHMSA, EPA, USACE, and affected state regulatory entities will be

made in accordance with the requirements dictated by the incident type. A complete list of required notifications is included in the FRP. In accordance with PHMSA policy, the FRP will be updated every five years or sooner if there are material changes to the Plan.

Mobilize Response Equipment: Emergency equipment would be available to allow personnel to respond safely and quickly to emergency situations. Company-owned equipment will be inspected and exercised in accordance with PREP guidelines and would be mobilized and deployed by the Operator from strategic staging locations along the pipeline. Additionally, the operator will contractually secure OSROs to provide trained personnel and equipment necessary to respond, to the maximum extent practicable, to a worst case discharge or substantial threat of such discharge. At a minimum, each OSRO will have a containment booms, absorbents, boats, and vacuum trucks available. A complete list of equipment and list of trained personnel necessary to continue operations of the equipment and staff the oil spill removal organization for each of the OSRO contractors is included in the FRP.

Response Activities: Following incident command protocols, the Operator would work in unison to cooperate with and assist fire, police and other first responders when implementing actions to protect personnel, public safety and the environment. The FRP includes a spill response checklist which lists activities that could be conducted during a spill which would be modified to best address the specific circumstances of a spill event. Incident response activities may include: initiating spill assessment procedures

including surveillance operations, trajectory calculations, and spill volume estimating; berming or deployment of containment and/or sorbent booms; lining shorelines with sorbent or diversion booms to reduce impacts; and recovering contained product as soon as possible to prevent the spread of contamination using appropriate hoses, skimmers, pumps, and storage containers or vacuum trucks at collection areas. The response activities would continue until an appropriate level of cleanup is obtained as provided by the responsible federal, state or other governmental authorities. The nature and location of the incident will affect the regulatory and notification requirements, for which more detail is provided in the FRP. Incidents involving discharges to navigable waters are governed the Oil Pollution Act of 1990.

Dakota Access will implement numerous measures to minimize the risk of a pipeline leak and protect the users of downstream intakes:

- 1) Spill Prevention, Leak Detection and Spill Response Measures:

Based on a worst case discharge (WCD) scenario specific to Lake Sakakawea and Lake Oahe, calculated by guidance in 49 CFR § 194.105, a largest possible release volume was determined specific to the segment of the pipeline that would cross Corps-managed lands. This calculation was based on environmental assumptions such as air temperature, wind direction/probability and wind speeds that were averaged from data over a one-year period derived from the U.S. Geological Survey National Hydrological Dataset (NHD, version 2). This information was extrapolated into a 24-hour model. The WCD, at the end of

the 24-hour period, produced a surface oil slick attenuation distance, volume remaining in the water column, volume that would be ashore and the volume would evaporate within this timeframe. It is important to note, this WCD scenario is also calculated on the assumption that the pipeline is on top of the river verses HDD. Because the proposed pipeline would be installed at a minimum depth of 36 feet below the Missouri River above Lake Sakakawea and 92 feet below the lakebed of Lake Oahe, there is a greater response time combined with the use of the automated SCADA system.

While the potential risk for a WCD scenario is low, such a spill would result in high consequences. Review and approval of the overall regional FRP, which encompasses the regional DAPL Pipeline response strategies in the event of an oil spill, is the responsibility and jurisdiction of PHMSA. Federal regulations 49 CFR 194 specify minimum requirements of such an FRP. For the proposed project, the DAPL Pipeline FRP will be required to align with the content and directions identified in the Mid-Missouri Sub-Area Contingency Plan. A tactical GRP specific to a response strategy for Lake Sakakawea and Lake Oahe was provided by the applicant and includes specific response strategies and equipment for all affected water. Both the FRP and GRP will be finalized after construction and be submitted to the USACE for review and the incorporation of USACE comments prior to submittal to PHMSA.

Within these response plans, DAPL training exercise program would be consistent with the exercise requirements as outlined in the PREP Guidelines that

were developed by the U.S. Coast Guard in conjunction with PHMSA and EPA. Training exercises include quarterly notification exercise, annual tabletop exercises to include a WCD scenario every three years, annual facility-owned equipment deployment exercises annual contractor exercises and unannounced exercises by government agencies.

The applicant has committed to additional full scale open water and full scale winter/ice exercises that will be conducted at Lake Sakakawea and Lake Oahe. A full scale exercise will occur once every 3 years (triennial cycle) with the location and type of exercise occurring on alternating schedules (e.g. open water exercise at Oahe the first triennial cycle, followed by winter exercise at Sakakawea the following triennial cycle, followed by a winter exercise at Oahe the following triennial cycle, etc.). Stakeholder (federal, state, local, and Tribal) involvement will be solicited for each exercise. The first exercise will occur within the first 3 years after the pipeline becomes operational.

2) Risk Analysis

While an oil spill is considered unlikely and a high precaution to minimize the chances has been taken, it is still considered a low risk/high consequence event. A risk analysis conducted by DAPL addressed nine industry-recognized pipeline integrity threat categories in combination with public and environmental impact that could occur in the event of a release into Lake Sakakawea and Lake Oahe. These threat categories include the following: 1) third-party damage, 2) external corrosion, 3) internal corrosion, 4) pipe manufac-

turing defects, 5) construction related defects 6) incorrect operations, 7) equipment failure, 8) stress corrosion cracking and 9) natural forces. DAPL derived the following analysis risk process from the W. Kent Muhlbauer Relative Index Methodology (2004), in accordance with 49 CFR 195.452 “Hazardous Liquid Pipelines in High Consequence Area”, API RP 1160 “Managing System Integrity for Hazardous Liquid Pipelines”, and ASME B31.8S “Managing System Integrity of Gas Pipelines”.

1 - Third Party Damage

Pipeline failure due to third party damage is ranked low for the Missouri River above Lake Sakakawea and Lake Oahe (36 and 92 feet below the river and lakebed, respectively). The only third party damage that would threaten this portion of the pipeline would be another HDD in the same location of the DAPL Pipeline. Due to tracking technological advances such as submeter accuracy, a permanent and accurate record of the proposed pipeline would be documented so no such possibility of another pipeline being placed via HDD in the same location would occur.

2 - External Corrosion

Pipeline failure for the portion of the proposed project that crosses Lake Sakakawea is classified as low. The potential is ranked low due to the high performance external coating system that is being used (heavy epoxy-concrete abrasion resistant layer over fusion bonded epoxy) and deep well cathodic protection. This portion of the pipeline is constructed with a thicker wall pipe compared to segments of the pipeline in upland-classified areas. A conservative corro-

sion growth rate was determined to take 70 years before a through-wall metal loss could occur. Because in-line inspection metal loss detection tools run every five years, external corrosion activity would be detected and mitigated prior to it becoming an integrity threat.

3 - Internal Corrosion

Pipeline failure due to the internal corrosion threat for the portion of the proposed project that would cross Lake Sakakawea is ranked low. Causes of internal corrosion would be due to accumulation of water and solids in low spots of the pipeline. However, DAPL internal corrosion mitigation program for the entire DAPL pipeline include chemical analysis of the crude product stream, pipeline operations (maintenance of minimum flow rates that keep entrained water and solids moving through the system), a maintenance pigging program, wall pipe design and in-line inspection performed every five years. The potential does exist, but successful implementation and continual monitoring of the effectiveness of the above programs will mitigate the risk. As with the external corrosion threat, the internal corrosion would be detected and mitigated prior to it becoming an integrity threat.

4 - Pipe Manufacturing

Defects Pipeline failure due to manufacturing defects is considered low for the portion of the pipeline that crosses Lake Sakakawea and Lake Oahe. Upon completion of construction and prior to the commissioning of the pipeline, the segment of the pipeline crossing Corps-managed lands would be hydrostatically strength-tested for eight hours at 1,800 psig which would be 1.25 times greater than the 1,440

MAOP. Should any strength-related defects be found in the pipe as a result of the hydrostatic test, this segment of the pipeline would have been over-pressured by more than two-times to have a potential effect on those defects. An over-pressure event of this magnitude is not likely with the equipment installed.

5 - Construction Related

Defects Pipeline failure for the segment that crosses under Lake Sakakawea due to construction related defects is categorized as low. All pipe joints would be welded by qualified welders and the required 100% girth weld radiography would provide a two-dimensional grayscale image of the weld. After construction and prior to commissioning of the pipeline, the hydrostatic testing would be performed. After the drill string is installed and prior to the line being put into service, an in-line inspection tool would be ran to identify an injurious mechanical damage that may have gone undetected during construction.

6 - Incorrect Operations

Pipeline failure due to incorrect operations (e.g. overpressure event caused by human error) is ranked low for the section of the pipeline that crosses Lake Sakakawea and Lake Oahe. This section of the DAPL pipeline has a design factor nearly 2-times greater than the maximum allowable operating pressure (1440 psig) of the pipeline. In addition, the system is controlled and monitored 24 hours a day, 365 days a year by experienced controllers in the control center in Sugarland, Texas. The system is designed with instruments and pressure relief systems to minimize the opportunity for overpressure.

7 - Equipment Failure

Pipeline failure due to equipment failure for the section of the pipeline that crosses the Missouri River above Lake Sakakawea and Lake Oahe are categorized as low. The only equipment located in this section of the pipeline are the shut-off valves on either side of the Missouri River above Lake Sakakawea and Lake Oahe which are remotely operated. These valves are secured in perimeter fencing.

8 - Stress Corrosion Cracking

The potential for pipeline failure due to stress corrosion cracking for the portion of the pipe that crosses the Missouri River above Lake Sakakawea and Lake Oahe is ranked as low because this section will operate at a low stress and is externally coated with a fusion bond epoxy coating.

9 - Natural Forces

The potential for pipeline failure due to natural forces is ranked low for the segment of the pipeline that crosses Lake Sakakawea and Lake Oahe. The National Pipeline Mapping System, maintained by PHMSA, rates this geographic location for natural hazards as the following: Hurricane- Low; Earthquake- Low; Flood- High and; Landslide-High. Erosion of cover/ exposure of the pipeline to debris during flood conditions is highly unlikely due to the depth of cover at the Missouri River and Lake Oahe crossings (36 feet and 92 feet below the river and lakebed, respectively). In addition, landslide/ creep of the pipeline is highly unlikely as the pipe is at a depth below that which would be affected by land movement.

10 – Consequences

In the event that a pipeline failure occurs and product is released into the Missouri River at either crossing, the worst case consequence scenario is ranked high because several drinking water intake High Consequence Areas (HCAs) and multiple ecologically sensitive HCAs could be impacted. To minimize the impact of a release (e.g. size and spread) the pipeline will continuously be monitored by a real-time monitoring and leak detection system, which is considered to be the best available technology; motor operated isolation and/or check valves are installed on either side of the Missouri River above Lake Sakakawea and Lake Oahe which can be actuated to close as soon as a leak is detected; PHMSA-approved FRP will be in place, all weather access and collection points will be staged strategically downstream of each lake crossing, and DAPL has committed to additional full scale open water and full scale winter/ice exercises that will be conducted at Lake Sakakawea and Lake Oahe. A full scale exercise will occur once every 3 years (triennial cycle) with the location and type of exercise occurring on alternating schedules (e.g. open water exercise at Oahe the first triennial cycle, followed by winter exercise at Sakakawea the following triennial cycle, followed by a winter exercise at Oahe the following triennial cycle, etc.). Stakeholder (federal, state, local, and Tribal) involvement will be solicited for each exercise. The first exercise will occur within the first 3 years after the pipeline becomes operational.

3.12 Air Quality and Noise

Under the “no action” alternative, Dakota Access would not construct the DAPL Project and no impacts on air quality and noise would occur. However, If the objectives of the DAPL Project are to be met under the “no action” alternative, other projects and activities would be required and these projects would result in their own impacts on air quality and noise, which would likely be similar to or greater than the DAPL Project. If the “no action” alternative is implemented and the Project is not constructed, shippers will likely rely on truck or rail to transport crude oil. Additional road and rail traffic necessary to transport the volume of crude oil proposed by the DAPL project would increase the emissions of combustion products due to the potential releases during the filling operations of trucks or rail cars and the use of diesel engines. These would be recurring inputs into the environment which could have an adverse impact on air quality in the region. Similarly, an increase in noise from truck and rail traffic would be widespread and long term as opposed to the noise impacts of the preferred action which are temporary and primarily limited to the vicinity of the construction workspace.

3.12.1 Air Quality

3.12.1.1 Affected Environment

The Clean Air Act (CAA) of 1970 requires that states adopt ambient air quality standards. The CAA (42 USC 7401 et seq.) establishes ambient air quality standards, permit requirements for both stationary and mobile sources, and standards for acid deposition and stratospheric ozone (O₃) protection. The stand-

ards have been established in order to protect the public from potentially harmful amounts of pollutants. Under the CAA, the EPA establishes primary and secondary air quality standards. Primary air quality standards protect public health, including the health of “sensitive populations, such as people with asthma, children, and older adults.” Secondary air quality standards protect public welfare by promoting ecosystem health, and preventing decreased visibility and damage to crops and buildings.

According to the EPA, North Dakota has no non-attainment areas for criteria pollutants. The Bismarck air quality monitoring station in Burleigh County is located approximately 23 miles north-northwest of the Lake Oahe crossing. The Bismarck air quality monitoring station measures sulfur dioxide, nitrogen dioxide, particulate matter, ground-level ozone, and meteorological data (North Dakota Department of Health, 2013). The Williston air quality monitoring station in Williams County is located approximately 18 miles northeast of the flowage easement crossing. The Williston air quality monitoring station measures particulate matter, ground-level ozone, and meteorological data. The monitoring objective of both stations is to measure population exposure to air quality parameters.

Monitoring data for these stations from 2003-2013 show pollutant levels for sulfur dioxide, nitrogen dioxide, ozone, and particulate matter did not exceed state or deferral ambient air quality standards at any of the state-operated monitoring sites (North Dakota Department of Health, 2013).

3.12.1.2 Impacts and Mitigation

With the Proposed Action, no long-term impacts to air quality would occur; the proposed pipeline would not emit any criteria air pollutants. Short-term impacts to air quality may occur during construction phase of the Proposed Action. The contribution of the Proposed Action to greenhouse gas emissions during construction would be considered a minor indirect impact to climate change.

During construction, emissions from fuel-burning internal combustion engines (e.g., transportation trucks, heavy equipment, drill rigs, etc.) would temporarily increase the levels of some criteria pollutants, including carbon monoxide, nitrogen dioxide, ozone, particulate matter, and non-criteria pollutants such as volatile organic compounds. Construction of the Lake Oahe crossing is likely to take six to eight weeks to complete. Conventional pipeline construction across the flowage easements would take approximately two weeks and activities at the HDD exit point for crossing the Missouri River on the flowage easement LL3440E would likely operate for four to six weeks. To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum and engines would be properly maintained. This temporary increase in emissions is not expected to impact air quality or visibility in the region long-term.

3.12.2 Noise

3.12.2.1 Affected Environment

Sound is a sequence of waves of pressure that propagates through compressible media such as air or

water. When sound becomes excessive, annoying, or unwanted it is referred to as noise.

Decibels (dB) are the units of measurement used to quantify the intensity of noise. To account for the human ear's sensitivity to low level noises, the decibel values are corrected for human hearing to weighted values known as decibels of the A-weighted scale (dBA; see **Table 3-16**). The EPA has set values that should not be exceeded. While the primary responsibility of regulating noise was transferred from the EPA to state and local governments in 1981, the Noise Control Act of 1972 and the Quiet Communities Act of 1978 are still in effect.

| Table 3-16 Noise Values | | |
|--|--------------------|---|
| Area | Noise Level | Effect |
| All areas | Leq (24) < 70 dBA | Hearing |
| Outdoors in residential areas and farms where people spend varying amounts of time in which quiet is a basis for use | Ldn < 55 dBA | Outdoor activity interference and annoyance |
| Outdoor areas where people spend limited time such as school yards, playgrounds, etc. | Leq (24) < 55 dBA | Outdoor activity interference and annoyance |
| Indoor residential areas | Ldn < 45 dBA | Indoor activity interference and annoyance |
| Indoor areas with human activities such as schools, etc. | Leq (24) < 45 dBA | Indoor activity interference and annoyance |

Source: (The Engineering ToolBox, 2015)

Leq: 24-hr equivalent sound level

Ldn: day-night average sound level

The dominant land use in the proposed Project Area is agricultural. The Day-Night Average Sound (Ldn) level for agricultural crop land is 44 dBA, and rural residential is 39 dBA (The Engineering ToolBox, 2015).

3.12.2.2 Impacts and Mitigation

Construction of the Proposed Action would temporarily affect the noise levels on and around the flow-age easement and federal lands crossing areas. Construction would cause temporary increases in the ambient sound environment in the areas immediately surrounding active construction. The use of heavy equipment or trucks would be the primary noise source during construction and excavation. The level of impact would vary by equipment type, duration of construction activity and the distance between the noise source and the receptor. Construction activities would typically be limited only to daytime hours. Potential exceptions include work determined necessary based on weather conditions, safety considerations, and/or critical stages of the HDD [e.g. if pausing for the night would put the drill at risk of closing or jamming].

Once constructed and in-service, normal pipeline operations are not audible and noise impacts would be limited to the short-term construction window. Dakota Access would mitigate noise impacts by limiting equipment running times and the duration of Proposed Action construction to the minimum amount necessary to complete the Proposed Action. Noisy construction activities would typically be limited to the least noise-sensitive times of day (daytime only).

It is not anticipated that the temporary increase in ambient sound levels associated with construction would result in a significant noise impact.

4.0 CUMULATIVE IMPACTS

Cumulative impacts to the environment result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts may result from individually minor but collectively significant actions taking place over a period of time 40 CFR Part 1508.

Consultation with the North Dakota Public Service Commission (NDPSC) personnel, and subsequent evaluation of its online resources, provided a systematic source of information that was useful for evaluating cumulative impacts. Although the NDPSC does not maintain a centralized repository for energy infrastructure development projects, it provides a summary of siting applications, which offers one metric of energy project development (excluding gathering lines), particularly over time (NDPSC, 2012a). The siting application summary (NDPSC, 2012b) contains records starting in 1996. The number of statewide siting applications increases markedly starting in 2007, coinciding with development of the Bakken Formation oil field. Prior to that, only three to four applications would typically be submitted on an annual basis (NDPSC, 2012a).

Past actions in the vicinity of the Proposed Action include oil and gas development and associated infrastructure, utility installation, and agriculture. These past activities most likely have had effects on soils,

water resources, vegetation, wildlife, land use, visual resources, paleontological resources, and cultural resources. The DAPL Project route was sited to minimize green-space impacts by co-locating with existing utility corridors over much of its length. As a result, the flowage easement crossing, as designed, would be co-located with a Oneok/TransCanada natural gas pipeline and the Lake Oahe HDD would be co-located with a natural gas pipeline and a 345 kV power line. At both of these locations, the predominant land use is agriculture. In addition to ongoing agricultural practices and the expansion of regional oil and gas development activities, cumulative impacts associated with the DAPL Project as whole were also considered.

If the Corps approval of the Proposed Action markedly changed the rate at which the oil and gas industry grows, or facilitated a rapid increase in production, then the changes in the industry's rate of growth and the associated environmental consequences could be considered along with the effects of the Proposed Action as a cumulative impact and would need to be quantified in this EA. However, according to Bruce Hicks, North Dakota Industrial Commission's Department of Mineral Resources Oil and Gas Division, the critical factors limiting the rate at which the industry grows within North Dakota is the availability of drill rigs and hydrofracing crews (U.S. Army Corps of Engineers, 2011). Because the availability of rigs and crews is the critical factor affecting the growth of the industry in the region, approval of the Proposed Action is not anticipated to have a cumulative impact of increasing production or reliance upon nonrenewable resources.

Cumulative impacts were evaluated for the following resources and were determined to be negligible or nonexistent based on past and foreseeable future actions in the Project Area and the minor and temporary contribution of the Proposed Action to effects on these resources:

- Geology and Soils Section 4.1
- Water and Aquatic Life
Resources Section 4.2
- Vegetation, Agriculture,
and Range Resources Section 4.3
- Threatened, Endangered,
Candidate, and Proposed
Species Section 4.4
- Wildlife Resources Section 4.5
- Land Use and Recreation Section 4.6
- Cultural and Historic
Resources and Native
American Consultations Section 4.7
- Social and Economic
Conditions Section 4.8
- Transportation and Traffic Section 4.9
- Environmental Justice Section 4.10
- Air Quality and Noise Section 4.11

4.1 Geology and Soils

The continued development of oil and gas exploration and production in the region at its current level increases the potential for adverse cumulative im-

pacts to geologic and soil resources. Cumulative impacts could occur when future utilities seek to be co-located within existing corridors or alternatively when greenfield development occurs in landslide prone or highly erodible areas. However, with the proper implementation of reclamation and restoration BMPs these impacts can be reduced.

Another potential cumulative impact to geologic resources is the continued development of the mineral resource, which could lead to its depletion. The mineral resource is understood to be finite. The effect would be primarily economic to the various entities with financial interests; secondarily there could be indirect impacts, potentially beneficial, associated with technological advances within the industry that would facilitate the recovery of mineral resources that cannot be recovered currently.

Agricultural practices throughout the region as well as the thousands of miles of gathering pipelines that may be built in the region could contribute to cumulative impacts on soils. Agricultural practices can result in increased erosion and runoff when soils are exposed for long periods such as when fields are fallow or prior to seeding. Impacts to soils as a result of pipeline installation are temporary and typically associated with excavation activities which may result in compaction and erosion when soils are exposed prior to revegetation. Impacts to soils as a result of the Proposed Action would be mitigated through the implementation of BMPs which may include topsoil segregation, erosion controls, and decompaction. Furthermore, adherence to NPDES stormwater permits would require adequate design, grading, and use of BMPs to ensure that erosion and sediment control

measures are properly utilized. Generally, because of the utilization of top soil segregation and erosion controls, as well as the minimal workspace requirements and minimum duration of exposed excavations during construction of the Proposed Action, the cumulative impacts on soils when combined with agricultural practices and other pipeline installations would not be significant.

No impacts on mineral extraction, mining, or other deeper geologic resources would be cumulative, since these uses of geologic resources (*i.e.*, mining) do not occur in the Project Area. Clearing and grading associated with construction of the Proposed Action and other projects in the vicinity could increase soil erosion in the area. The introduction of contaminants to groundwater due to accidental spills of construction-related chemicals, fuels, or hydraulic fluid could have an adverse effect on groundwater quality. Because the direct effects would be localized and limited primarily to the period of construction, cumulative impacts on geology, soils, and sediments would only occur if other projects were constructed at the same time and place as the Proposed Action facilities.

There are smaller diameter, unregulated, crude oil gathering lines that have leaked and affected soil and ground/surface water. These pre-existing lines have limited cathodic protection (external corrosion protection) and as such they are not routinely monitored. The Proposed Action is the construction of a regulated large diameter crude oil transmission line and, as discussed throughout this document, is highly regulated and monitored. The cumulative impacts of this pipeline are minimized by the regulatory criteria,

the monitoring, protections and response implemented by Dakota Access during the operation of the pipeline.

4.2 Water and Aquatic Life Resources

Cumulative impacts on water resources (i.e., groundwater, surface waters, wetlands) associated with the Proposed Action would be avoided, temporary, and/or minor, as all surface waterbodies would be crossed via trenchless methods (i.e., HDD or bore), no permanent fill or loss of wetlands are anticipated, and potential spill-related impacts would be avoided or greatly reduced by regulating fuel storage and refueling activities and by requiring immediate cleanup should a spill or leak occur. Spill response and remediation measures associated with construction activities are discussed in detail in Dakota Access' SWPP, SPCC and ECP.

Recently completed construction or current construction within the vicinity of the Project Area could extend the period of exposure of soils as a result of incomplete revegetation. These exposed soils may increase the potential for soil erosion or sediment transport via overland flow during precipitation events resulting in sedimentation in surface waterbodies. These increased loads could have the potential to temporarily impact water quality, wetlands, and sensitive fish eggs, fish fry, and invertebrates inhabiting waterbodies in the Project Area watersheds. However, all projects, including the DAPL Project as a whole, are subject to regulation by the USACE under the CWA. By installing the pipeline using the HDD technique at the Missouri River and Lake Oahe crossings, as well as other crossings associated with

the DAPL Project as a whole, and implementing the erosion and sediment control measures specified in the ECP (**Appendix G**) and SWPPP (**Appendix A**), the potential for increased sediment loading from terrestrial sources is minimized and the cumulative effect is considered to be negligible.

In addition to water quality impacts associated with sediment loading from erosion and run-off, an inadvertent release of non-hazardous drilling mud could occur during HDD activities, including those at Lake Oahe and the Missouri River. The likelihood of inadvertent releases of drilling mud is greatly minimized through thorough geotechnical analysis and detailed design/mitigation plans at each crossing and careful monitoring of drilling mud returns and pressure during HDD activities. If an inadvertent release were to occur within a waterbody during HDD activities, such as those at the Missouri River and Lake Oahe crossings, impacts on water quality and aquatic resources would be minor. Drilling mud is nonhazardous and impacts on water quality and aquatic resources would be akin to those associated with sediment loading. Due to the quantity of drilling mud used in relation to the size of waterbodies typically crossed via HDD, impacts would be temporary and mitigated through implementation of an HDD Contingency Plan (**Appendix B**) Impacts on all waterbodies crossed by the DAPL Project in its entirety would be minimized or avoided via HDD and/or use of erosion and sediment control measures; thereby minimizing the potential for cumulative impacts on water and aquatic life resources.

Impacts on water and aquatic life resources associated with sediment loading, including potential inadvertent releases of non-hazardous drilling mud, as a result of the Proposed Action and the DAPL Project as a whole would be temporary and short-term. Therefore, these impacts, when evaluated with other oil and gas development and infrastructure projects in the region and agricultural practices, would result in minor cumulative impacts on water and aquatic life resources.

Spills or leaks of hazardous liquids during construction and operation of the Proposed Action, or other projects in the vicinity, have the potential to result in long-term impacts on surface and groundwater resources as well as aquatic life resources. However, construction impacts would be mitigated by the proper design and implementation of BMPs would ensure avoidance, minimization, and/or mitigation of potential impacts on water resources and aquatic resources, as required by the various regulating agencies that have jurisdiction over the DAPL Project. Operational risks are being mitigated by DAPL Project design to meet or exceed the applicable federal regulations as detailed in Sec 3.11- Reliability and Safety. In the unlikely event of an unanticipated release during operations of the pipeline, the effects would be remediated following the cleanup procedures and remediation activities described in Section 3.2.2.2. Therefore, the potential cumulative impacts from the Proposed Action on water resources and aquatic resources resulting from spills would be minor.

In addition, while construction and operation of the Proposed Action along with the other potential

projects and activities could result in cumulative impacts on existing wetlands in the Project Area watersheds, regulation of activities under the CWA by the Corps requires permitting and mitigation for wetland impacts so that there would be no net loss in the regional wetland resources. Therefore, cumulative impacts on wetland resources in the Project Area would be minimal.

4.3 Vegetation, Agriculture, and Range Resources

As described within Section 3.3.1, all vegetation disturbed by construction within the flowage easements and the Project Area/Connected Actions of the federal lands would be restored to pre-construction conditions following the completion of construction activities, with the exception of one PEO wetland located within the permanent ROW on the flowage easements that would be converted to shrub-scrub or herbaceous wetlands.

No forest fragmentation would occur as a result of construction and operation of the Proposed Action. No interior (core) forest habitat is crossed by the Proposed Action, and the only wooded area that would be permanently impacted by the Proposed Action include one PEO wetland (0.05 acre) located within the permanent ROW on the flowage easements between HDD boxes. However, much of the forest and PEO wetlands in the vicinity of the Project Area have already been fragmented by agricultural activities, roads, and other commercial or industrial developments. Further, construction of the Proposed Action facilities would not result in the permanent loss of

wetland features. Although trees within a 30-foot corridor centered on the pipeline that could compromise the integrity of the pipeline coating would be selectively removed throughout the operational life of the Proposed Action, this portion of the PEO wetland impacted by the Proposed Action would be converted to PEM or PSS and allowed to revegetate with scrub-shrub or herbaceous species. Therefore, further fragmentation of wetlands or creation of new forest-edge habitat as a result of the Proposed Action would be negligible.

Generally, the greatest impact to the native vegetative community is associated with past and current agricultural practices. Pipeline projects impact a relatively small area in relation to the total landscape, as these impacts are typically short in duration and temporary in nature. Examples of impacts to vegetation, agriculture, and range resources could include introduction of non-native plants and/or noxious weeds, habitat fragmentation, altered vegetative structure, reduced population sizes below critical threshold levels, sedimentation or degradation of surface waters, erosion, and siltation. However, the implementation of BMPs outlined in the SWPPP (**Appendix A**) and ECP (**Appendix G**) and reclamation of disturbed areas with native vegetation would reduce the chances of adverse individual or cumulative impacts. In addition, while other project pipeline corridors may require clearing of forested areas and potential habitat fragmentation, temporary workspace areas would be revegetated upon completion of construction. Further, these projects would be located in a region of North Dakota that is dominated by open or agricultural land, thereby minimizing the potential

for permanent habitat fragmentation. Regionally, there have been releases of hazardous material from unregulated, smaller diameter gathering pipelines that have had an adverse effect on vegetation, agriculture and range resources. In the unlikely event of an unanticipated release during operations of the pipeline, the effects would be remediated following the cleanup procedures and remediation activities described in Section 3.11. Therefore, the potential cumulative impacts from the Proposed Action on vegetation, agriculture and range resources would be minor.

4.4 Threatened, Endangered, Candidate, and Proposed Species

As required by the ESA, the status of each species listed as threatened or endangered is evaluated every 5 years by USFWS to assess its recovery and determine if a change in its listing status is warranted. Where available, these documents were utilized to identify the potential for ongoing regional oil and gas development to significantly threaten the species listed in the Project area. For species in which a 5-Year Review was not available, Dakota Access utilized the species Recovery Plan and/or Final Rule to evaluate potential threats on the species resulting from regional oil and gas development.

Species for which no suitable habitat is present in the Project Area or Connected Action Area, such as the black-footed ferret, Dakota skipper, and gray wolf, were not evaluated, as the Proposed Action would not contribute to cumulative impacts on these species. Further, the northern long-eared bat was not evaluated since the species is not provided federal protec-

tion in the Project Area or Connected Action Area under the Interim 4(d) Rule; this area is well outside of the published White-Nose Syndrome Buffer Zone.

Habitat loss and modification are the primary threats to the continued existence of interior least tern, whooping crane, piping plover, rufa red knot, and pallid sturgeon. The potential cumulative impacts from oil and gas activities in the region on the current listing or potential elevated future listing of **these** five species are discussed in detail below.

4.4.1 Interior Least Tern

The USFWS does not address oil and gas activities, including potential spills, as a potential or ongoing threat to the interior least tern in either the 5-year review, or the recovery plan (USFWS, 2013e). The primary threat to interior least terns and the cause of the initial population declines resulted from river channelization, impoundments, and changes in river flow resulting in loss of suitable habitat throughout their range.

4.4.2 Whooping Crane

According to the USFWS (2007) International Recovery Plan for the Whooping Crane (*Grus Americana*) the USFWS considers oil and gas activities as a secondary threat, especially within the wintering range in the southeast United States. Potential threats on whooping cranes along the Central Flyway migratory route in the region of the Proposed Action include loss of stopover habitat from conversion of natural wetlands (e.g., prairie potholes) to croplands, as well as development activities associated with natural gas and oil production. The Proposed Action would

not result in any loss of stopover habitat for the whooping crane; therefore, it would not contribute to cumulative impacts on the species.

4.4.3 Piping Plover

The USFWS (2009b) 5-Year Review for the piping plover does specifically address threats from oil and gas activities in North Dakota. However, impacts from oil and gas activities that are threatening piping plover are associated with the development of oil and gas exploration wells located near the alkali lakes habitat, which accounts for 83% of the U.S. Northern Great Plains piping plover breeding habitat. The Proposed Action is not located within the vicinity of any of these areas and would therefore not contribute to cumulative impacts on piping plovers.

4.4.4 Rufa Red Knot

According to the Final Rule (79 FR 73706) for the rufa red knot (USFWS, 2014b), the USFWS considers oil and gas activities as a secondary threat, especially near the coast (primarily in southeast Texas in the wintering range). Potential threats to these species along the Central Flyway migratory route in the region of the Proposed Action include loss of stopover habitat from conversion of natural wetlands (e.g., prairie potholes) to croplands and development (including oil and gas exploration). The Proposed Action would not result in any loss of stopover habitat for the rufa red knot; therefore, it would not contribute to cumulative impacts on the species.

4.4.5 Pallid Sturgeon

The USFWS (2014c) Revised Recovery Plan for the Pallid Sturgeon (*Scaphirhynchus albus*) specifically addresses the potential effects of energy development such as oil and gas pipelines on pallid sturgeon. It states that while a rupture of a pipeline within sturgeon habitat could pose a threat, the impacts would be localized and the magnitude of the impact would be dependent on the quantity and timing of the material released. It is highly unlikely that a cumulative impact resulting from a spill or leak would occur, as it would require multiple pipelines in the same general area to experience anomalous events simultaneously. Even if this were to occur, these impacts would be localized and temporary and would likely not result in a significant impact on the recovery of pallid sturgeon, as a whole, as it is found in other waterbodies and in other regions throughout its range (USFWS, 2014c).

4.4.6 Conclusion

The collocation of utilities in established corridors; the proper implementation of erosion control devices; compliance with permits issued for regulated activities; and rapid, thorough, environmentally appropriate reclamation efforts, and design and operation of projects to meet or exceed regulatory requirements are industry standards that, when applied consistently, on a regional basis, would minimize cumulative impacts now and in the future. Based on the pipeline route, and the utilization of HDDs, the Proposed Action is not likely to have any permanent adverse impacts to habitat utilized by listed species, including aquatic species as discussed in Section 3.4.

Therefore, the Proposed Action will not have a cumulative effect on listed species.

4.5 Wildlife Resources

Regionally, the greatest impacts to wildlife (past, present or future) can be associated with agricultural development. Agricultural land use replaced the existing natural diversity with the monoculture row crops. The practice also introduced noxious weeds, soil pests, and other exotics, which all had significant cumulative impacts on regional wildlife. Relative to the habitat and land use impacts associated with past agricultural activities, the Proposed Action impacts, as well as those associated with the oil and gas industry on a regional basis and Connected Actions would be nominal. This is due to the short duration and small scale of the Proposed Action relative to the regional landscape and the large scale of agricultural activities in the region.

The Proposed Action would not permanently alter the character of the majority of available habitats as most impacts are expected to be temporary (see Section 4.3 for a discussion of vegetation impacts associated with the Proposed Action and the DAPL Project as a whole). Possible temporary, short-term impacts on wildlife include the temporary displacement of some mobile individuals to similar, adjacent habitats during construction activities. Further, while other oil and gas projects' pipeline corridors may require clearing of forested habitat (if present), once construction is complete, temporary workspace areas would be able to revegetate. In addition, the permanent easement would be allowed to revegetate with herbaceous species, which provides habitat to a variety of species

that utilize herbaceous and edge habitats. When analyzed on a regional basis, these impacts do not change significantly in magnitude when compared to the current and historic impacts previously imposed upon the regional wildlife by agricultural development. Therefore, further habitat fragmentation as a result of the Proposed Action or other oil and gas developments in the region would be negligible and is not anticipated to significantly contribute to cumulative effects on wildlife.

4.6 Land Use and Recreation

Regional oil and gas development and related activities could cause an impact to land use and recreation in the Project Area. However, increased impacts are not anticipated based on the design of the DAPL Project and BMPs that would be implemented to restore the impacted area. Temporary impacts to land use would potentially occur during the period of active construction but areas would revert to preconstruction use following restoration. Because construction would be short term and land use conversion would be minimal, the cumulative impact on land use as a result of the Proposed Action would be temporary and minor.

The flowage easement crossing would be located in an area with a greater density of prior development, while the Lake Oahe crossing would be located in an area with relatively little surface development. That said, since the Proposed Action has been co-located with existing pipelines the additional impact incurred by the Proposed Action would be negligible if restored as proposed.

The potential cumulative impacts from the Proposed Action on land use and recreation resources resulting from spills would be minor. Although there have been releases of hazardous material from small diameter, unregulated gathering pipelines that have had an adverse effect on land use and recreation resources, it is highly unlikely for an unanticipated release to occur within the EA review area during operations of the DAPL pipeline, which is subject to DOT construction regulations and pipeline leak detection monitoring guidelines.

In the event of an unanticipated release during operations of the pipeline, the effects would be remediated following the cleanup procedures and remediation activities described in Section 3.11. Cumulatively, the impacts associated with land use and recreation resources would be minimal.

4.7 Cultural and Historic Resources and Native American Consultations

Dakota Access would implement measures to avoid or mitigate adverse effects to cultural resources that have been determined, in consultation with the federal land managing agencies, NDSHPO, and Native American tribes, to be eligible for listing in the NRHP. At the one potential NRHP-eligible site mapped adjacent to the workspace within the EA review area, Dakota Access would install exclusionary fencing along the outer workspace boundary during construction to prevent inadvertent trespassing by construction staff or vehicles. This area would be classified generically as sensitive environmental areas, and would be closely monitored by El staff. If an un-

anticipated discovery occurs during construction, Dakota Access would follow the measures described in its UDP (**Appendix F**).

Although the possibility of an unanticipated discovery is low based on the negative findings of the field survey efforts in the Project Area, the measures outlined in the UDP includes a thorough notification protocol which would ensure that the necessary cultural resources specialists and agency personnel are involved to appropriately address the nature and significance and of the find. The Proposed Action is not anticipated to impact cultural resources; therefore, cumulative impacts associated with the Proposed Action would not occur.

4.8 Social and Economic Conditions

Construction of the overall DAPL Project would contribute more than \$1 billion in direct spending just for materials - the majority of which would be purchased in the U.S. Fifty-seven percent of the pipe; the majority of the valves, fittings, valve actuators; and the majority of the remaining materials would be manufactured in the U.S., creating significant opportunities for regional and national manufacturing. In addition to manufactured goods and services, the DAPL Project would provide \$195 million in easement payments to the landowners whose property is crossed by the DAPL Project.

The Proposed Action would have a relatively short construction window with a small number of construction workers dedicated to the crossings. It is possible that nearby towns could experience short-term temporary increases to the local economy through induced spending from construction employees working on the

Proposed Action. No residential homes or farms would be relocated as a result of the Proposed Action. Additionally, no demographic changes in the Census tracts affected within the Project Area counties are anticipated because no permanent employees would be created as a result of the Proposed Action. Therefore, the only indirect socioeconomic impacts from the Proposed Action are likely to be related to the temporary influx of workers, such as increased demand for short term housing and the secondary economic benefits discussed in Section 4.10.

The regional population has dramatically increased over the last seven year period due to oil and gas development; concentrated in the Project Area. The majority of the current available and transient labor force in the region is involved in the exploration and production of the resources, or construction of related infrastructure, both of which are labor intensive efforts though temporary in nature. Well rigs are mobile and the number of available drilling leases is limited as well as the mineral resource itself. For these reasons the labor pool effects associated with the exploration and production of the resource are considered to be a temporary impact.

Regarding cumulative impacts to socioeconomic resources, the Proposed Action would provide a benefit to local merchants and vendors as well as providing potential temporary employment opportunities to the local workforce. As such, no substantive negative direct, indirect, or cumulative impacts to socioeconomic resources would result from the Proposed Action.

4.9 Transportation and Traffic

As discussed in Section 3.3, roads throughout North Dakota have received a sharp increase in truck traffic due to increased oil and gas activity. The greater amount of traffic has led to a decline in the transportation infrastructure and a decrease in road safety throughout the state. Additional oil and gas development and production may continue to contribute to cumulative effects on roads in the vicinity of the Project Area requiring a higher frequency of road maintenance and repair on public roadways.

Cumulative impacts from construction of the Proposed Action would temporarily increase traffic in the immediate vicinity of the Project Area. This increase in traffic would be temporary and is not expected to result in significant impacts to North Dakota's transportation infrastructure. Road improvements such as grading would be made as necessary and any impacts resulting from Dakota Access's use would be repaired in accordance with applicable local permits. Traffic interruptions would be minimized to the extent practical and would result in insignificant, temporary cumulative impacts on regional transportation resources as it would be localized to the immediate vicinity of the Project Area and major delivery routes.

During operations of the Proposed Action, there is expected to be a positive effect on traffic resources in North Dakota. Once in operation, Dakota Access plans to transport 450,000 bpd of crude oil via pipeline which would significantly reduce the demand for the commercial trucking of crude oil on county, state and interstate highways. It is anticipated that the cumulative effects of the DAPL Project and other future

pipeline projects would be beneficial to the transportation infrastructure in North Dakota by decreasing oil hauled by truck traffic and therefore reducing wear and tear on roads and highways.

4.10 Environmental Justice

The Proposed Action and Connected Actions and associated cumulative effects where practicable have been co-located with existing utilities and across USACE easements and fee owned property. The DAPL Project avoids crossing Tribal reservation lands across its entire length. There are no reasonable past, present or reasonably foreseeable actions that together with these Proposed Actions will have a cumulative significant adverse effect on the environment or a disproportionate impact on low income or minority populations, including the Standing Rock Sioux or other tribes in or around the Project.

Additionally, the holders of the mineral rights and landowners in the region, including particular tribes and tribal members, have witnessed a recent windfall from oil and gas development. Oil and gas development generally occurs on private land with permission of the landowner. Given this ascent, there is no disproportionate impact to low income, minority or tribal populations benefited by the Environmental Justice policy. The DAPL Project was routed to avoid sensitive lands and populations, including tribal lands, and areas and does not have a disproportionate impact on any low income, minority or tribal population benefited by Environmental Justice policy, as discussed in section 3.9, above. For these reasons, the Proposed Action and its associated cumulative actions

and effects have no significant cumulative impact to low-income, minority or tribal populations.

4.11 Air Quality and Noise

No operation emissions are associated with the Proposed Action, as no major aboveground facilities would be constructed in the Project Area. Potential cumulative impacts on air quality would result from concurrent construction of the Project and other development projects in the region. Cumulative impacts on air quality associated with construction of the Proposed Action would be temporary and short-term; therefore, even if construction of other projects were concurrent with the Proposed Action, cumulative construction-related air quality impacts would be negligible.

Construction of the Proposed Action would affect ambient noise levels at some nearby residences during active construction. The noise impact of the pipeline construction would primarily originate from the HDD equipment and would be highly localized to the HDD entry and exit sites. However, because the duration of construction would be short-term, the contribution of the Proposed Action to cumulative impacts on noise would be negligible.

5.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

As required by NEPA, irreversible and irretrievable commitments of resources involved in the Proposed Action should it be implemented, must be addressed in the EA. Irreversible commitments of resources result in a loss of future options. Commit-

ments of resources which are irreversible are those resources which are destroyed or consumed and are neither renewable nor recoverable for use by future generations. Examples of irreversible commitments of resources include consumption of petroleum-based fuels or minerals and destruction cultural resources. Irretrievable commitments of resources result in a loss of productivity. Commitments of resources which are irretrievable occur when the productive use or value of a renewable resource is lost for a period of time. For example, timber or soil productivity may be lost for a period of time resulting in an irretrievable loss of production, but the action is reversible.

Construction activities associated with the Proposed Action would result in the consumption of materials such as aluminum, steel, other metals, wood, gravel, sand, plastics, and various forms of petroleum-based fuels, the use of which would constitute an irreversible commitment of resources. Most of these materials are nonrenewable and would be irreversibly committed if not recycled or reused during maintenance or at the end of the life of the Proposed Action.

Areas of vegetation removal or conversion along the permanent right-of-way, such as areas where trees or shrubs were established prior to construction but would be maintained in an herbaceous state during operation, would represent an irretrievable commitment of resources. Additionally, erosion, compaction, or an overall loss of soil productivity could occur if these impacts are not properly mitigated. Use of water for dust control and hydrostatic testing would also be irretrievable. Other irretrievable commitments of resources could occur if areas temporarily impacted by construction were not restored.

Overall, there would be a very minimal commitment of irreversible and/or irretrievable resources as a result of the Proposed Action since the majority of impacts would be temporary and would occur within agricultural land. Additionally, irreversible and/or irretrievable commitments of resources would be minimized through the mitigation measures for the affected environments identified throughout this EA.

6.0 MITIGATION SUMMARY

Dakota Access has selected the Proposed Action to minimize impacts to natural/cultural resources as summarized in Table 8-2. System and routing alternatives were considered for the entire DAPL Project in order to meet purpose and need, design criteria and construction requirements, while minimizing potential impacts to the existing environment and socioeconomic setting. Impacts to the environment would be temporary and not significant as a result of avoiding, minimizing and mitigation any potential impacts. The majority of potential impacts would be mitigated by HDD technology which would bore beneath resources and allow pipeline construction to proceed with the least amount of impacts possible. Dakota Access has would also implement general mitigation measures such as those described in the ECP (**Appendix G**). The ECP has been developed based on decades of experience implementing BMPs during construction in accordance with generally accepted industry practices for linear infrastructure and cross-county pipelines. It is intended to meet or exceed federal, state, and local environmental protection and erosion control requirements, specifications and practices. The ECP describes current construction tech-

niques and mitigation measures that would be employed to minimize the effects of construction on environmental resources. Some of the basic procedures identified in the ECP are listed below:

- BMPs designed to minimize the effects of construction on environmental resources;
- Temporary and permanent erosion and sediment control measures;
- Soil handling procedures designed to preserve the integrity of the soil (e.g., topsoil segregation, decompaction, etc.);
- Wetland and waterbody crossing and stabilization procedures
- Wildlife and livestock mitigation measures
- Restoration and revegetation procedures
- Refueling and waste management procedures
- Weed management procedures
- Winter construction practices
- Stormwater management procedures

Dakota Access incorporates environmental requirements into all construction specifications and the ECP would be included in contract documents and enforced as such throughout the proposed action. The construction contractor(s) must comply with all applicable permits and plans during all phases of construction. In addition to the ECP, the Proposed Action would be constructed in accordance to the measures detailed in Dakota Access' SWPPP, SPCC, HD Construction Plan, HDD Contingency Plan, and UDP.

To further ensure compliance with permits, plans, obligations, and commitments, Dakota Access would have full-time Els to monitor construction and compliance. The Els would be responsible for observing construction activities to verify that work is carried out in accordance with environmental permit requirements and ensure that designed avoidance and mitigation measures are properly executed during construction.

No additional mitigation measures were identified for geology and soils; water resources; vegetation, agriculture, and range resources; wildlife resources; aquatic resources; land use and recreation; cultural and historic resources, social and economic conditions; environmental justice; or air and noise. General mitigation measures, as described in sections 3.1 through 3.7, or avoidance associated with the trenchless installation (i.e., HDD or bore) of the proposed pipeline are expected to mitigate adverse impacts to resources.

7.0 FEDERAL, TRIBAL, STATE, AND LOCAL AGENCY CONSULTATION AND COORDINATION

The following is a listing of all individuals and agencies consulted during preparation of the EA regardless of whether a response was received. On March 30, 2015, Dakota Access sent letters to interested parties (indicated by the Corps) requesting comments on the federal actions associated with crossing Corps flowage easements and Corps owned and managed federal land. A sample request for comment letter sent to individuals and agencies consulted, along with the mailing list and comments received, is in-

cluded in **Appendix J**. **Appendix K** contains the Notice of Availability of the Draft EA for comment. **Table 7-1** includes a summary of agency personnel consulted.

| Table 7-1 Agency/Entity Consultation List | | | |
|--|------------------|---|--|
| Agency/Entity | Name | Address | Date Received/ Relevant EA Section |
| American Rivers | Kristen McDonald | 1101 14th Ave. NW STE 1400 Washington, DC 20005-5637 | N/A |
| Bureau of Indian Affairs - Fort Berthold Agency | Howard Berner | PO Box 370 New Town, ND 58763 | N/A |
| Bureau of Indian Affairs - Great Plains Regional Office | William Benjamin | 115 Fourth Avenue S.E. Aberdeen, SD 57401 | N/A |
| Bureau of Indian Affairs-Fort Berthold Agency | Earl Silk | P.O. Box 370 New Town, ND 58763 | N/A |
| Bureau of Indian Affairs- Standing Rock | Robert Demery | P.O. Box E Fort Yates, ND 58538 | N/A |
| Bureau of Land Management | Rick Rymerson | 99 23rd Avenue West, Suite A Dickinson, ND 58601 | N/A |
| Dakota Prairie Grasslands | Dennis Neitzke | 1200 Missouri Ave Bismarck, ND 58504 | N/A |
| Dakota Resource Council | Mark Trechock | P.O. Box 1095 Dickinson, ND 58601 | N/A |

| Table 7-1 Agency/Entity Consultation List | | | |
|--|------------------|--|--|
| Agency/Entity | Name | Address | Date Received/ Relevant EA Section |
| Bismarck-Mandan Development Association | Brian Ritter | 400 East Broadway Avenue, Suite 417 Bismarck, ND 58501 | N/A |
| Morton County Commissioners | Dawn Rhone | 210 2nd Ave NW Mandan, ND 58554 | N/A |
| Morton County Extension Agent | Kari Presler | 210 2nd Ave NW Mandan, ND 58554-3158 | N/A |
| Morton County Weed Board | Wayne Carter | 2916 37th St. NW Mandan, ND 58554 | N/A |
| Emmons County Commissioners | Marlys Ohlhauser | P.O. Box 129 Linton, ND 58552 | N/A |
| Emmons County Extension Agent | Connie Job | Courthouse, Box 278 Linton, ND 58552-0278 | N/A |
| Emmons County Weed Board | Sam Renschler | 510 Sampson Ave. Linton, ND 58552 | N/A |
| Williams County Commissioners | Beth Innis | 205 East Broadway PO Box 2047 Williston, ND 58802-2047 | N/A |

| Table 7-1 Agency/Entity Consultation List | | | |
|--|-----------------------|--|--|
| Agency/Entity | Name | Address | Date Received/ Relevant EA Section |
| Williams County Extension Agent | | 302 East Broadway PO Box 1109 Williston, ND 58802-1109 | N/A |
| Williams County Weed Board | Jim Basaraba | 109 Main St Williston, ND 58801-6018 | N/A |
| National Audubon Society State Office | Genevieve Thompson | 118 Broadway, Suite 512 Fargo, ND 58102 | N/A |
| Natural Resources Conservation Service | Kyle Hartel | PO Box 583 Watford City, ND 58854 | N/A |
| Natural Resources Conservation Service | Michele R. Doyle | 2540 Overlook Lane Mandan, ND 58554-1593 | N/A |
| Natural Resources Conservation Service | Jennifer M. H. Vetter | 318 Broadway St. S Linton, ND 58552-7612 | N/A |
| Natural Resources Conservation Service | David Schmidt | 1106 West 2nd St Williston, ND 58801-5804 | N/A |
| NDSU Dept of Soil Science- Department Chair | | NDSU Dept 7680 PO Box 6050 Fargo, ND 58108-6050 | N/A |

| Table 7-1 Agency/Entity Consultation List | | | |
|--|-------------------|---|---|
| Agency/Entity | Name | Address | Date Received/ Relevant EA Section |
| North Dakota Council of Humane Societies | Leo Keelan | 1948 Anderson Drive Minot, ND 58701 | N/A |
| North Dakota Department of Health | Peter Wax | 600 East Boulevard Bismarck, ND 58505 | N/A |
| North Dakota Farm Bureau | | 4900 Ottawa Street Bismarck, ND 58503 | N/A |
| North Dakota Forest Service | Larry Kotchman | 307 1st Street East Bottineau, ND 58318-1100 | April 22, 2015/ Section 2.0 and Section 3.5 |
| North Dakota Game & Fish Department | Steve Dyke | 100 N. Bismarck Expressway Bismarck, ND 58501-5095 | N/A |
| North Dakota Game & Fish Department | Dave Fryda | 406 Dakota Ave Riverdale, ND 58565 | N/A |
| North Dakota Game & Fish Department | Bruce Kreft | 100 North Bismarck Expressway Bismarck, ND 58501-5095 | N/A |
| North Dakota Game & Fish Department | Kent Luttschwager | 13932 West Front Street Williston, ND 58801-8602 | N/A |

| Table 7-1 Agency/Entity Consultation List | | | |
|--|--------------------|---|---|
| Agency/Entity | Name | Address | Date Received/ Relevant EA Section |
| North Dakota Game & Fish Department | Fred Ryckman | 406 Dakota Ave Riverdale, ND 58565 | N/A |
| North Dakota Game & Fish Department | Terry Steinwand | 100 North Bismarck Expressway Bismarck, ND 58501-5095 | N/A |
| North Dakota Industrial Com- mission - Oil and Gas Division | Lynn Helms | 600 East Boulevard Bismarck, ND 58505 | April 16, 2015/ Section 3.1.2, Section 3.1.3, and Section 3.1.4 |
| North Dakota Industrial Com- mission - Oil and Gas Division | Bruce E. Hicks | 600 East Boulevard Bismarck, ND 58505 | N/A |
| North Dakota Land Department | Mike Brand | 1707 North 9th St. P.O. Box 5523 Bismarck, ND 58506-5523 | N/A |
| North Dakota Parks & Recreation Department | Kathy Duttenhefner | 1600 East Century Avenue, Suite 3 Bismarck, ND 58503-0649 | April 20, 2015/ Section 3.3.1, |

| Table 7-1 Agency/Entity Consultation List | | | |
|---|--------------------|--|--|
| Agency/Entity | Name | Address | Date Received/ Relevant EA Section |
| | | | Section 3.4 and Section 3.5. |
| North Dakota Petroleum Council | Ron Ness | P.O. Box 1395 Bismarck, ND 58502 | N/A |
| North Dakota State Historical Society | Susan Quinell | 612 East Boulevard Ave. Bismarck, ND 58505 | April 2, 2015/ Section 3.7.1 |
| North Dakota State Water Commission | John Paczkowski | 900 East Boulevard Ave. Bismarck, ND 58505-0850 | N/A |
| North Dakota Tourism Division | Sarah Otte Coleman | P.O. Box 2057 Bismarck, ND 58502-2057 | N/A |
| U.S. Army Corps of Engineers, Regulatory Office | Daniel Cimarosti | 1513 12th St. SE Bismarck, ND 58504 | N/A |
| U.S. Fish and Wildlife Service, North Dakota Field Office | Scott Larson | 3425 Miriam Avenue Bismarck, ND 58501-7926 | N/A |
| USDA-APHIS-WS | Philip Mastrangelo | 2110 Miriam Drive, Suite A Bismarck, ND 58501 | N/A |

| Table 7-1 Agency/Entity Consultation List | | | |
|---|-------------------------------|---|--|
| Agency/Entity | Name | Address | Date Received/ Relevant EA Section |
| USDA-Natural Resources Conservation Service-North Dakota State Office | Mary Podoll | 220 East Rosser Avenue, Room 270 Bismarck, ND 58502-5020 | April 13, 2015/ Section 3.1.5 and Section 3.2.3 |
| USDOI-Office of Surface Mining Reclamation and Enforcement- Dick Cheney Federal Building | Jeffrey Fleischman | P.O. Box 11018, 150 East B Street, Rm 1018 Casper, WY 82602 | April 13, 2015/ Section 1.1 |
| U.S. Army Corps of Engineers | Omaha District CENWO-PM-AA | 1616 Capitol Avenue Omaha, NE 68101-4901 | N/A |
| North Dakota Parks & Recreation Department | Mr. Jesse Hanson | 1600 E. Century Ave. Suite 3 Bismarck, ND 58503-0649 | N/A |
| North Dakota Chapter of the Wildlife Society | Mr. Kory Richardson | PO Box 1442 Bismarck, ND 58502 | N/A |
| Sierra Club - North Dakota Office | Mr. Blaine Nordwall | 311 East Thayer Ave Suite 113 Bismarck, ND 58501 | N/A |

8.0 STATUS OF ENVIRONMENTAL COMPLIANCE

Table 8-1 is a listing of environmental protection statutes and other environmental requirements, as well as the status of Applicant compliance with these statutes and requirements, regarding this EA.

| Table 8-1 Environmental Permits, Approvals, and Consultations | | | |
|--|---|---|---|
| Jurisdiction | Permit or Authorization | Status | Requirement or Action |
| Federal | | | |
| Corps | RHA, Section 10 | Pending, Application Submitted Dec 2014 | RHA, Section 10: Missouri River/Lake Oahe |
| Corps — Omaha District | Section 404 CWA | Pending, Application Submitted Dec 2014 | NWP 12, Section 404 Waters with PCN |
| | Survey permission, geotechnical investigation | Received April 2015 | Survey permission, geotechnical investigation |
| | Title 30 Rights-of-Way for pipelines through Federal Lands and Temporary Construction License | Pending | Real Estate Outgrant and EA for Crossing the Missouri River/Lake Oahe (Fee title Lands on both sides of river/lake) |
| | Flowage Easement Consent to Cross | Pending | Consent to Cross |

| Table 8-1 Environmental Permits, Approvals, and Consultations | | | |
|--|--|-----------------------------|--|
| Jurisdiction | Permit or Authorization | Status | Requirement or Action |
| USFWS | Section 7 Endangered Species Act (ESA) Consultation | Received May 2016 | Compliance under 404 Permit NWP 12 Joint Application |
| Bureau of Reclamation | Letter of consent to cross irrigation works | Received December 2015 | BOR water conveyance facilities, near cities of Buford and Trenton, ND |
| State | | | |
| North Dakota Public Service Commission (NDPSC) | North Dakota Energy Conversion and Transmission Facility Siting Act: Certificate of Corridor and Route | Received January 2016 | Siting Application, PU-14-842 |
| North Dakota Office of the State Engineer | Sovereign Land Permit | Permits Received April 2016 | Crossing Permits for the Lake Oahe and the Missouri River Crossings |
| State Historical Society of North Dakota | Section 106 NHPA | Received April 2016 | Section 106 Concurrence/Consultation |
| | Section 401 Water Quality Certification | Pending | Automatic with NWP 12 |

| Table 8-1 Environmental Permits, Approvals, and Consultations | | | |
|--|--|--------------------------------|--|
| Jurisdiction | Permit or Authorization | Status | Requirement or Action |
| North Dakota Department of Health | Hydrostatic Test Water Discharge Permit No. NDG07-0000 | Permits Re- ceived May 2016 | Obtain permit coverage prior to discharge |
| | North Dakota Pollutant Discharge Elimination Sys- tem (NDPDES) Construc- tion Stormwater General Permit (NDR10-0000) | Permit Received April 2016 | Obtain permit coverage |

Table 8-2 provides a summary of the environmental mitigation measures discussed throughout this EA that Dakota Access has committed to as part of the Proposed Action design to avoid or minimize potential impacts on environmental and human resources throughout construction and operation activities.

| <p>Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures</p> | |
|---|---|
| Resource | Environmental Avoidance/Mitigation Measures |
| Geology and Soils | To protect the terrain of the Project Area and Connected Actions, Dakota Access would, to the extent feasible, restore the areas affected by pipeline construction to pre-construction contours and similar vegetation (excepting trees within approximately 15 feet of the centerline). Pre-construction and as-built surveys would be completed and provided to the Garrison Project. |
| | Although not anticipated, if blasting is found to be necessary, Dakota Access would follow procedures specified in its Blasting Plan (Appendix E). |
| | Dakota Access, in accordance with North Dakota One Call, would require that the construction contractor, prior to initiating any ground disturbance activities, identify all underground utilities to minimize the potential for encountering buried utility structures. |
| | Dakota Access has completed a geotechnical analysis of the flowage easement and federal land crossing sites to facilitate engineering and design, including selection of appropriate materials and construction methods to limit any environmental impacts attributable to landslides. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|---|
| Resource | Environmental Avoidance/Mitigation Measures |
| | <p>The proposed pipeline would be designed and constructed to meet or exceed industry specifications, which would effectively mitigate the effects of fault movement, landslides, subsidence, and subsidence.</p> <p>In the event paleontological resources are discovered during construction, Dakota Access would implement measures outlined in its Unanticipated Discoveries Plan Cultural Resources, Human Remains, Paleontological Resources and Contaminated Media (UDP) (Appendix F) to avoid further impacts to these resources.</p> <p>If any vertebrate fossils are found during pipeline construction, Dakota Access would immediately cease construction activities and notify the appropriate agency personnel, including the North Dakota state paleontologist as well as the USACE archaeologist. The appropriate authorities would determine the significance of the find and prescribe the mitigation procedures to be completed prior to resuming pipeline construction.</p> <p>Dakota Access would minimize or avoid impacts on soils by implementing the mitigation measures described in the DAPL Project's SPCC, SWPPP, and ECP as well as requirements of applicable state and federal permits. These documents would be included as contract documents and enforced as such throughout the DAPL Project.</p> <p>To minimize potential impacts on soil productivity, topsoil would be separated during trench excavation in agricultural land, and if applicable, other areas where soil productivity is an important consideration. Unless otherwise requested by the landowner, topsoil in cropland</p> |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|---|
| Resource | Environmental Avoidance/Mitigation Measures |
| | would be removed to a maximum depth of 12 inches from the trench and spoil storage area and stored separately from the trench spoil. After the trench is backfilled, topsoil would be returned to its approximate original location in the soil horizon. |
| | Compaction of agricultural soils would be minimized by restricting construction activities during periods of prolonged rainfall. Where unacceptable levels of compaction occur in agricultural lands, a chisel plow or other deep tillage equipment would be utilized to loosen the soil. |
| | Dakota Access would retain EIs to monitor the contractor's compliance with applicable requirements to protect soil resources during construction of the DAPL Project. The Garrison Project would be notified if the EIs have concerns on the Project Area or Connected Action Area. |
| Water Resources | The HDD workspace sites would be cleared, graded and matted as needed to minimize rutting and compaction. |
| | Permanent impacts to soils would be avoided through the application of BMPs during construction, restoration, and post-construction revegetation management, as outlined in the ECP (Appendix G). |
| | Impacts to Lake Oahe and the Missouri River would be minimized by using HDD construction methods to install the proposed pipeline underneath the Missouri River and Lake Oahe. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|---|
| Resource | Environmental Avoidance/Mitigation Measures |
| | The HDD Contractor plans to install steel surface casing, where defined in the site specific HDD plans, to reduce the probability of an inadvertent release when the drill bit is working near the surface. |
| | The drilling mud and cuttings would be disposed of in accordance with applicable laws and regulations, likely in an existing landfill or by land farming. |
| | Dakota Access would conduct all HDD work according to the HDD Construction Plan (Appendix B) that it has prepared, and implement the HDD Contingency Plan (Appendix B) in the event of an inadvertent release. |
| | The Missouri River water withdrawal activity would comply with all applicable permit conditions and regulations, including the specifications on permitted intake structures outlined in the USACE's Regional Conditions for North Dakota applicable to NWP 12 (Utility Line Activities). This regional condition requires that the applicant 1) utilize an intake screen with a maximum mesh opening of Y4-inch, 2) wire, Johnson-like screens must have a maximum distance between wires of 1/8-inch, 3) water velocity at the intake screen shall not exceed 14-foot per second, 4) intake structure shall be floating, and 5) at the beginning of pumping, the intake shall be placed over water with a minimum depth of 20 feet. |
| | The barge/float required for water withdrawal from the Missouri River would be fitted with a secondary containment structure, and the pump would be placed within this structure to contain accidental spills of fuels. The intake hose would be suspended by floats within the |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|--|
| Resource | Environmental Avoidance/Mitigation Measures |
| | water column and screened to prevent impingement entrainment of foreign objects and aquatic species. |
| | Water discharges associated with hydrostatic testing on Corps flowage easements would be conducted in accordance with applicable permits. Hydrostatic test water discharges would not occur on Corps fee property. |
| | Dakota Access would conduct trench dewatering and hydrostatic test discharges in a manner consistent with the North Dakota Pollutant Discharge Elimination System (NDPDES) General Permit NDG-070000, as applicable. |
| | Discharged hydrostatic test water would not contain additives unless written approval is received from Dakota Access and applicable permits authorize such additives. |
| | Where appropriate, water would be discharged into an energy dissipation and/or filtering device as described in Dakota Access' SWPPP (Appendix A) to remove sediment and to reduce the erosive energy of the discharge. |
| | Impacts to waterbodies would be minimized by conducting pipeline construction activities in accordance with applicable regulatory requirements and waterbody construction procedures described in Section 2.3.2.8 and the ECP. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|--|
| Resource | Environmental Avoidance/Mitigation Measures |
| | Fuel and all other hazardous materials would be stored in accordance with the requirements of Dakota Access' SPCC, SWPPP, and ECP. These documents also describe response, containment, and cleanup measures. |
| | Els would monitor compliance with applicable waterbody protection requirements during construction of the facilities. The Project ECP (Appendix G) and SWPPP (Appendix A) describe additional mitigation measures and contains illustrations of how sediment control devices should be utilized. |
| | Dakota Access would maintain a vegetative buffer until the actual crossing of the waterbody takes place. |
| | Temporary sediment control measures, such as silt fence, would minimize the introduction of sediment into waterbodies during construction and minimize the movement of spoil and sediment from surface runoff during and after construction. |
| | Dewatering activities would be conducted in accordance with applicable permits and Dakota Access' SWPPP, and ECP. |
| | All surface drainage contours and vegetation would be returned as closely as practical to preconstruction conditions. |

| <p>Table 8-2</p> <p>Summary of Environmental Impact Avoidance and Mitigation Measures</p> | |
|---|---|
| Resource | Environmental Avoidance/Mitigation Measures |
| | <p>The potential for groundwater contamination would be avoided by implementing the protective measures set forth in the Project specific SPCCs prepared by the contractor and in Dakota Access' SPCC Plan (Appendix A).</p> <p>In the event of a leak, Dakota Access would work aggressively to isolate the source through the use of remote-controlled shut-off valves, initiate cleanup activities, and contact the appropriate federal and state authorities to coordinate leak containment and cleanup. Dakota Access proposes to meet or exceed all applicable regulations and requirements for pipeline design, construction, and operation.</p> <p>Construction workspace on the flowage easements has been selected based on an absence of wetlands within the Project area.</p> <p>Dakota Access is in the process of obtaining verification for use of NWP 12 for the crossings of both the Missouri River and Lake Oahe Section 10 waterbodies.</p> <p>The Project ECP and SWPPP specify several measures to protect wetlands and waterbodies from becoming polluted with fuels or other hazardous materials during construction. This plan prohibits the storage of fuel or other hazardous materials within 100 feet of a wetland or waterbody. The ECP also specifies that equipment must be refueled at least 100 feet from waterbodies unless, due to site-specific conditions, there is no practical alternative such as the proposed pumping intake structure located on the barge at the Missouri River Crossing. In that case, the contractor must implement site-specific protective measures and</p> |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|---|
| Resource | Environmental Avoidance/Mitigation Measures |
| | containment procedures described in the ECP. Contractors would be required to provide trained personnel, appropriate equipment, and materials to contain and clean up releases of fuel, lubricating oil, or hydraulic fluid that result from equipment failure or other circumstances. |
| | The Project has been designed in accordance with accepted floodplain management practices; no impacts to flood plain elevations or velocities are anticipated. Following construction, disturbed areas would be restored to pre-construction grades and contours as practical. |
| | If necessary, soil displaced by the installation of the 24-inch pipeline on the flowage easements would be removed from the floodplain and hauled to an upland location in order to ensure original floodplain elevations are restored. |
| | Remotely operated above-ground mainline valve sites would be installed on both sides of the Missouri River and Lake Oahe crossings for isolation in the event of an emergency shutdown. |
| | Dakota Access will identify an all-weather access and collection point downstream of both the Missouri River crossing and Lake Oahe crossing. At each location, Dakota Access will provide an equipment storage facility that includes a permanent storage area for winter and open water spill response equipment. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|---|
| Resource | Environmental Avoidance/Mitigation Measures |
| | Impacts to cultivated crops make up the majority of temporary impacts and would return to cultivated crops post-construction. |
| | Within areas disturbed by construction of the Project, and not being actively cultivated, including the flowage easement Project Area, Dakota Access would implement active revegetation measures and rapid colonization by annual and perennial herbaceous species to restore most vegetative cover within the first growing season. |
| | In areas that require permanent revegetation, Dakota Access would specify appropriate seed mixes, application rates, and seeding dates, taking into account recommendations of appropriate state and federal agencies and landowner requests. |
| | In non-agricultural areas, vegetation cleared from ATWS would be allowed to revegetate after construction depending on arrangements with the landowner. |
| | Temporary revegetation measures may also be implemented to quickly establish ground cover to minimize the potential for soil erosion and noxious weeds to establish. A temporary seed mix may be applied in these situations. The Project ECP (Appendix G) contains more details regarding temporary revegetation. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
|--|--|
| Resource | Environmental Avoidance/Mitigation Measures |
| | When constructing in agricultural areas, a minimum of 1 foot of topsoil (organic layer) would be stripped from the trench line and stockpiled separately from trench spoil to preserve the native seed stock. The ECP contains additional details regarding topsoil segregation. |
| | At stream approaches, the contractor would leave a 20-foot buffer of undisturbed herbaceous vegetation on all stream banks during initial clearing, except where grading is needed for bridge installation or where restricted by applicable regulations and/or permit conditions. |
| | Dakota Access would work with County Weed Boards to ensure the Project ECP contains relevant and necessary mitigation measures that would be implemented to prevent the spread of noxious weed species during construction and operation of the Project. |
| | Herbaceous cover would be seeded on disturbed upland areas during restoration and it is expected that pre-existing herbaceous and shrub habitats would quickly reestablish themselves. |
| | In the unlikely event that a listed species is encountered on the Project at Corps owned lands during construction, construction activities would stop and the Corps would be contacted. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| Wildlife Resources | Herbaceous cover would be seeded on disturbed upland areas during restoration and it is expected that pre-existing herbaceous and shrub habitats would quickly reestablish themselves. |
| | In the unlikely event that a listed species is encountered on the Project at Corps owned lands during construction, construction activities would stop and the Corps would be contacted. |
| | Installation and removal of the temporary waterline on the flowage easements are anticipated to be complete prior to nesting season; therefore, impacts on the interior least tern and piping plover are not anticipated. However, if the water withdrawal activities are not able to be completed prior to nesting season as expected, Dakota Access would conduct surveys prior to placement of the waterline to confirm the presence/absence of these species within the pipeline ROW. If these species are nesting within the Project Area, Dakota Access would postpone water withdrawal activities at the Missouri River until these species have left the area. |
| | Direct impacts on potentially suitable habitat for the interior least tern and piping plover at the Missouri River and Lake Oahe would be avoided by crossing the waterbodies via HDD. |
| | Lake Oahe would be crossed using a HDD construction method, avoiding impacts on potential migrating rufa red knot loafing habitat. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| Aquatic Resources | Impacts on the pallid sturgeon or suitable habitat present within the Missouri River would be avoided by implementing the conditions on permitted intake structures outlined in the USACE's Regional Conditions for North Dakota applicable to NWP 12 (Utility Line Activities) and as described in the USFWS Recovery Plan for the Pallid Sturgeon. |
| | Impacts on the pallid sturgeon or suitable habitat present within Lake Oahe would be avoided by crossing the lake via HDD. |
| | A successfully completed HDD crossing would avoid aquatic resource impacts to Lake Oahe since the pipeline would be installed without disturbing the aquatic and benthic environments. |
| | All construction equipment utilized on or in waters of the state would be subject to inspection by the Department in accordance with the North Dakota Administrative Code (Title 30, Article 3, Chapter 6-01). Further, Dakota Access would implement required measures including the removal of all aquatic vegetation from vessels, motors, trailers, or construction equipment. All water would be drained from bilges or confined spaces. All Aquatic Nuisance Species will be removed from equipment in accordance with the North Dakota Administrative Code (Title 30, Article 3, Chapter 6). |
| | All HDD operations conducted for the Missouri River and Lake Oahe crossings would adhere to the HDD Contingency Plan and applicable permit conditions to reduce the likelihood of an inadvertent release to minimize and mitigate environmental impacts. Dakota Access' |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| | <p>construction contractor would ensure that the appropriate response personnel and containment equipment are available onsite to effectively implement the HDD Contingency Plan.</p> <p>Water withdrawal activities at the Missouri River would be conducted in accordance with all applicable permit conditions and regulations and in a manner that would not reduce water flow to a point that would impair flow or impact aquatic life.</p> <p>Intake screens and floats would also be utilized during the withdrawal of water from the Missouri River to prevent entrainment of aquatic life and avoid impacts on aquatic resources.</p> <p>The potential for impacts on aquatic resources associated with accidental fuel spills or leaks during the withdrawal of water from the Missouri River would be avoided or minimized by placing the pump within a secondary containment structure on the barge.</p> <p>For portions of the pipeline installed beneath the lake, the depth of the pipeline profile, the increased wall thickness of the pipe, the installation of remotely operated valves on both sides of the river crossing, monitoring of the system 24/7, aerial patrols, and in-line inspection, would further limit the potential for an inadvertent release into the river.</p> <p>Adherence to the GRPs for Lake Oahe and the Missouri River would minimize potential impacts on aquatic wildlife from potential spills during the operation of the pipeline.</p> |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| | <p>Conduct emergency response drills/exercises in accordance with the National Preparedness for Response Exercise Program (PREP) consisting of table top exercises and equipment deployment drills. Dakota Access has committed to additional full scale open water and full scale winter/ice exercises that will be conducted at Lake Sakakawea and Lake Oahe. A full scale exercise will occur once every 3 years (triennial cycle) with the location and type of exercise occurring on alternating schedules (e.g. open water exercise at Oahe the first triennial cycle, followed by winter exercise at Sakakawea the following triennial cycle, followed by a winter exercise at Oahe the following triennial cycle, etc.). Stakeholder (federal, state, local, and Tribal) involvement will be solicited for each exercise. The first exercise will occur within the first 3 years after the pipeline becomes operational.</p> <p>In the event of a leak, Dakota Access would work aggressively to contain the leak, initiate cleanup activities, and contact the appropriate authorities, including the Corps.</p> |
| Land Use and Recreation | <p>Mitigation measures to minimize impacts to soils, such as topsoil segregation and decompaction practices, would be fully implemented in accordance with the ECP and SWPPP.</p> |
| | <p>Dakota Access would coordinate with all landowners on acceptable methods for construction and restoration, including potential impacts to irrigated fields.</p> |
| | <p>Dakota Access would repair surface drains and drainage tiles disturbed during ROW preparation, construction, and maintenance activities.</p> |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| | Dakota Access would repair or replace fences and gates removed or damaged as a result of ROW preparation, construction, or maintenance activities. |
| | Following construction and restoration, the work area would be restored and ranching would be allowed to continue over the operational ROW. Landowners would be compensated for temporary loss of land and lower yields. Grazing activities would return to normal after revegetation of the disturbed areas. |
| | Trees would be protected by Dakota Access in a manner compatible with the safe operation, maintenance, and inspection of the pipeline. Applicable regulations would be adhered to regarding tree and shrub removal from along the route. |
| | Dakota Access would obtain and comply with applicable state regulations, county permits, and zoning and land use regulations. Permits may include, but are not limited to, grade and fill permits, ditch crossing permits, road and utility permits, and conditional use permits. Dakota Access would retain one or more EIs to monitor compliance with environmental conditions of county permits. |
| | In accordance with Section 106 of the NHPA, Dakota Access has made a good faith effort to identify significant historic |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| Cultural and Historic resources | properties within the Project area. Based on the result of these efforts, no properties considered to be eligible, or potentially eligible for listing in the NRHP would be adversely impacted by the proposed Project or Connected Action. |
| | Impacts to the NRHP-eligible BTIS (site 32WI1367) would be avoided via HDD to ensure the integrity of construction design for these historic-age features is preserved. |
| | HDD workspaces, as well as staging and stringing areas, would be positioned in excess of 100 feet beyond the mapped boundaries of the previously recorded cultural sites in the vicinity of the Lake Oahe crossing. |
| | Dakota Access' UDP was developed (Appendix F) for use during all DAPL Project construction activities which describes actions that would be taken in the event of a previously unrecorded cultural resource site is discovered during construction activities. The UDP explicitly calls for work to stop until the correct authority or agency can be contacted and the find can be properly evaluated. |
| Social and Economic | The USACE will conduct archeological monitoring of construction for the HDD activities on both sides of Lake Oahe. |
| | No residential homes or farms would be relocated resulting from the proposed action. |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| | No demographic conditions changes in the Census tracts affected are anticipated, because no permanent employees would be created as a result of the Proposed Action. |
| | In the unlikely event contamination is encountered during construction, the UDP (Appendix F) would be implemented to protect people and the environment and avoid or minimize any effects from unearthing the material. |
| Hazardous Waste | Any hazardous materials discovered, generated, or used during construction would be managed and disposed of in accordance with applicable local, tribal, state, and federal regulations. Should emergency response be required during construction, the contractor would have some of their own trained or contracted responders, and local response teams would be expected to assist. |
| | Dakota Access would comply with all applicable laws and regulations to abate or prevent pollution, such as the RCRA, and State hazardous waste management rules. |
| | All activities would be conducted in a safe manner in accordance with the standards specified in the OSHA regulations. |
| Reliability and Safety | To prevent pipeline failures resulting in inadvertent releases, Dakota Access would construct and maintain the pipeline to meet or exceed industry and governmental requirements and standards. Specifically, the steel pipe would meet PHMSA specifications under 49 CFR |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| | <p>§ 195, follow standards issued by the American Society of Mechanical Engineers, National Association for Corrosion Engineers and API.</p> <p>Dakota Access would maintain and inspect the pipeline in accordance with PHMSA regulations, industry codes and prudent pipeline operating protocols and techniques. The pipeline ROW would be patrolled and inspected by air every 10 days, weather permitting, but at least every three weeks and not less than 26 times per year, to check for abnormal conditions or dangerous activities, such as unauthorized excavation along the pipeline route.</p> <p>Dakota Access is currently drafting a FRP, in accordance with 49 CFR 194, which details the procedures to be implemented in the event of an inadvertent pipeline release and would be in place prior to commencing transportation of crude oil.</p> <p>Following completion of construction and throughout operation of the Project facilities, the Operator and qualified contractors would maintain emergency response equipment and personnel at strategic points along the pipeline route.</p> <p>Contracts would be in place with oil spill response companies that have the capability to mobilize to support cleanup and remediation efforts in the event of a pipeline release. The operator would also coordinate with local emergency responders in preventing and responding to any pipeline related problems.</p> |

| Table 8-2 Summary of Environmental Impact Avoidance and Mitigation Measures | |
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| Resource | Environmental Avoidance/Mitigation Measures |
| | A SCADA system would be utilized to provide constant remote oversight of the Project facilities. |
| | A Computational Pipeline Monitoring System (CPM) would be utilized to monitor the pipeline for leaks. |
| | LeakWarn is being tailored to the Project facilities, in accordance with PHMSA requirements, to monitor the pipeline for leaks. |
| Air Quality and Noise | To reduce the emission of criteria pollutants, fuel-burning equipment running times would be kept to a minimum and engines would be properly maintained. |
| | Dakota Access would mitigate noise impacts by limiting equipment running times and the duration of Project construction to the minimum amount necessary to complete the Project. Noisy construction activities would typically be limited to the least noise-sensitive times of day (daytime). |

9.0 LIST OF PREPARERS AND REVIEWERS

Dakota Access, in cooperation with the USACE Preparers, reviewers, consultants and Federal officials include the following:

| Table 9-1 List of Preparers and Reviewers | | |
|--|--|------------------------------------|
| Name | Title/Office | Agency |
| Omaha District Planning Staff | Environmental Resource Specialist | Corps of Engineers, Omaha District |
| Omaha District Operations Staff | Natural Resource Specialist, Environmental Stewardship | Corps of Engineers, Omaha District |
| Garrison Project Archaeologist | Garrison Dam / Lake Sakakawea Project | Corps of Engineers, Omaha District |
| Bismarck Regulatory Chief | Operations Division | Corps of Engineers, Omaha District |
| Oahe Project Archaeologist | Oahe Dam and Lake Project | Corps of Engineers, Omaha District |
| Omaha District Operations Branch Chief | Operations Division | Corps of Engineers, Omaha District |
| Omaha District Project Engineer | Flood Risk and Floodplain Management Section | Corps of Engineers, Omaha District |
| Garrison Project Staff | Garrison Dam | Corps of Engineers, Omaha District |
| Omaha District Planning Chief | Planning Branch | Corps of Engineers, Omaha District |
| Garrison Operations Project Manager | Garrison Dam / Lake Sakakawea Project | Corps of Engineers, Omaha District |

| Table 9-1 List of Preparers and Reviewers | | |
|--|--------------------------------------|---|
| Name | Title/Office | Agency |
| Omaha District Real Estate Branch Chief | Real Estate Division | Corps of Engineers, Omaha District |
| Omaha District Cultural Re- sources | Planning Branch | Corps of Engineers, Omaha District |
| Oahe Project Staff | Oahe Dam | Corps of Engineers, Omaha District |
| Oahe Project Operation Pro- ject Manager | Operations Division | Corps of Engineers, Omaha District |
| Omaha District Geotechnical Engineers | Geotechnical Branch | Corps of Engineers, Omaha District |
| Omaha District Attorney | Office of Counsel | Corps of Engineers, Omaha District |
| Omaha District Regulatory Staff | Operations Division | Corps of Engineers, Omaha District |
| Monica Howard | Director Environmen- tal Sciences | Dakota Access, LLC |
| Jonathan Fred- land | Environmental Spe- cialist | Perennial Environ- mental Services, LLC |
| Ashley Thomp- son | Environmental Spe- cialist | Perennial Environ- mental Services, LLC |
| Dennis Woods | Managing Partner | Perennial Environ- mental Services, LLC |

10.0 ACRONYMS, INITIALS, AND ABBREVIATIONS

| | |
|---------------|---|
| ANSI | American National Standards Institute |
| API | American Petroleum Institute |
| ATWS | Additional Temporary Workspace |
| BMP | Best Management Practice |
| bpd | barrels per day |
| BTIS | Buford-Trenton Irrigation System |
| CAA | Clean Air Act |
| CERCLA | Comprehensive Environmental Response Compensation and Liability Act |
| CEO | Council on Environmental Quality |
| CFR | Code of Federal Regulations |
| Corps | U.S. Army Corps of Engineers |
| Company | Energy Transfer Company |
| CWA | Clean Water Act |
| DA | Department of the Army |
| dB | Decibels |
| Dakota Access | Dakota Access, LLC |
| DAPL Project | Dakota Access Pipeline |
| Project DOT | Department of Transportation |
| EA | Environmental Assessment |
| ECP | Environmental Construction Plan |

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|--------|---|
| ECD | Erosion Control Device |
| El | Environmental Inspector |
| EO | Executive Order |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| FEMA | Federal Emergency Management Agency |
| FERC | Federal Energy Regulatory Commission |
| FIRM | Flood Insurance rate Maps |
| FRP | Facility Response Plan |
| FRFM | Flood Risk and Floodplain Management Section |
| g | gravitational acceleration |
| GIS | Geographic Information System |
| GRP | Geographical Response Plan |
| HDD | Horizontal Directional Drilling |
| MP | milepost |
| MSL | Mean Sea Level |
| NDPSC | North Dakota Public Service Commission |
| NDPDES | North Dakota Pollutant Discharge Elimination System |
| NDSHPO | North Dakota State Historic Preservation Office |

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|-------|--|
| NEPA | National Environmental Preservation Act |
| NFIP | National Flood Insurance Program |
| NHPA | National Historic Preservation Act |
| NLCD | National Land Cover Dataset |
| NPDES | National Pollutant Discharge Elimination System |
| NPS | U.S. National Park Service |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| NRI | Nationwide Rivers Inventory |
| NSF | National Science Foundation |
| NWI | National Wetland Inventory |
| NWP | Nationwide Permit |
| OSHA | Occupational Safety and Health Administration |
| OSRO | Oil Spill Response Organization |
| PA | Programmatic Agreement |
| PEM | Palustrine Emergent |
| PEO | Palustrine Forested |
| PHMSA | Pipeline and Hazardous Materials Safety Administration |

| | |
|-----------------|--|
| PREP | National Preparedness for Response Exercise Program |
| Project Area | Areas that are potentially impacted by construction and/or operation of the Proposed Action |
| Proposed Action | Crossing of federal flowage easements near the upper end of Lake Sakakawea north of the Missouri River in Williams County, North Dakota and federally owned lands at Lake Oahe in Morton and Emmons counties, North Dakota |
| RCRA | Resource Conservation and Recovery Act |
| RHA | Rivers and Harbors Act |
| ROW | Right-of-Way |
| SPCC | Spill Prevention, Control and Countermeasure Plan |
| SWPPP | Stormwater Pollution Prevention Plan |
| THPO | Tribal Historic Preservation Office |
| UDP | Unanticipated Discoveries Plan Cultural Resources, Human Remains, Paleontological Resources and Contaminated Media |
| USACE | U.S. Army Corps of Engineers |
| USDA | U.S. Department of Agriculture |
| USFWS | U.S. Fish and Wildlife Service |

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USGS

U.S. Geological Survey

WMA

Wildlife Management Area

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12.0 FIGURES

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Figure 7: Natural Resources—Federal Lands

Figure 8: Cultural Resources—Flowage Easements

Figure 9: Cultural Resources—Federal Lands

Figure 10: Land Cover—Flowage Easements

Figure 11: Land Cover—Federal Lands

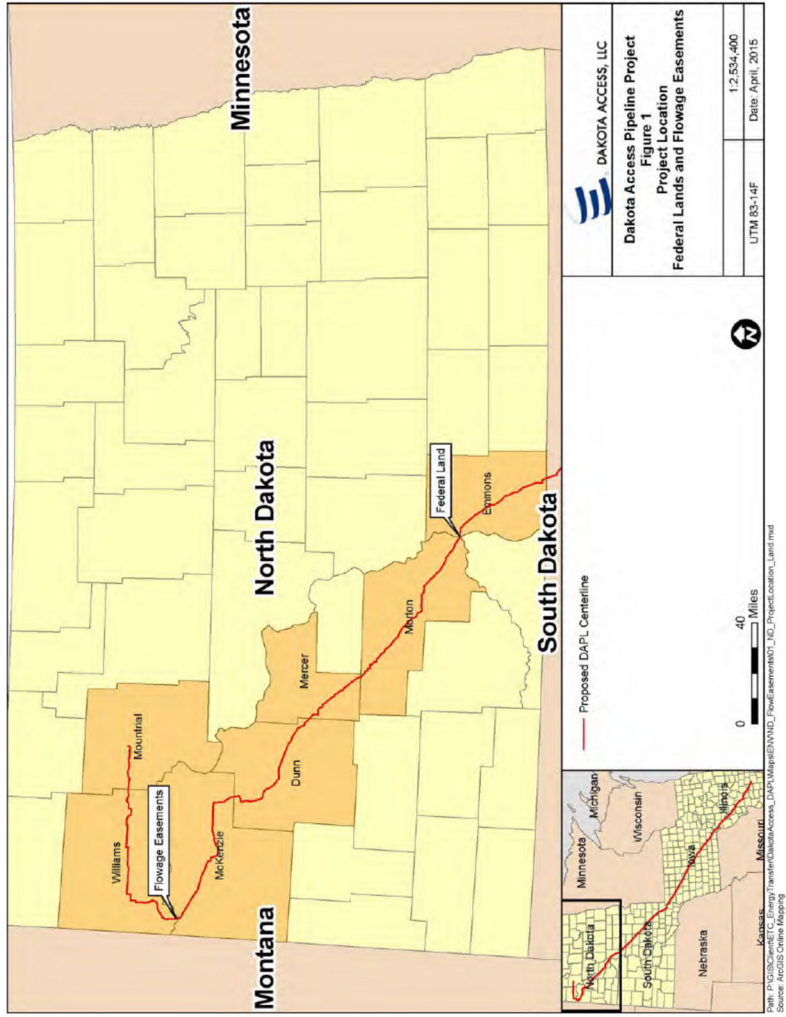
Figure 12: Route Alternative—Missouri River Crossing

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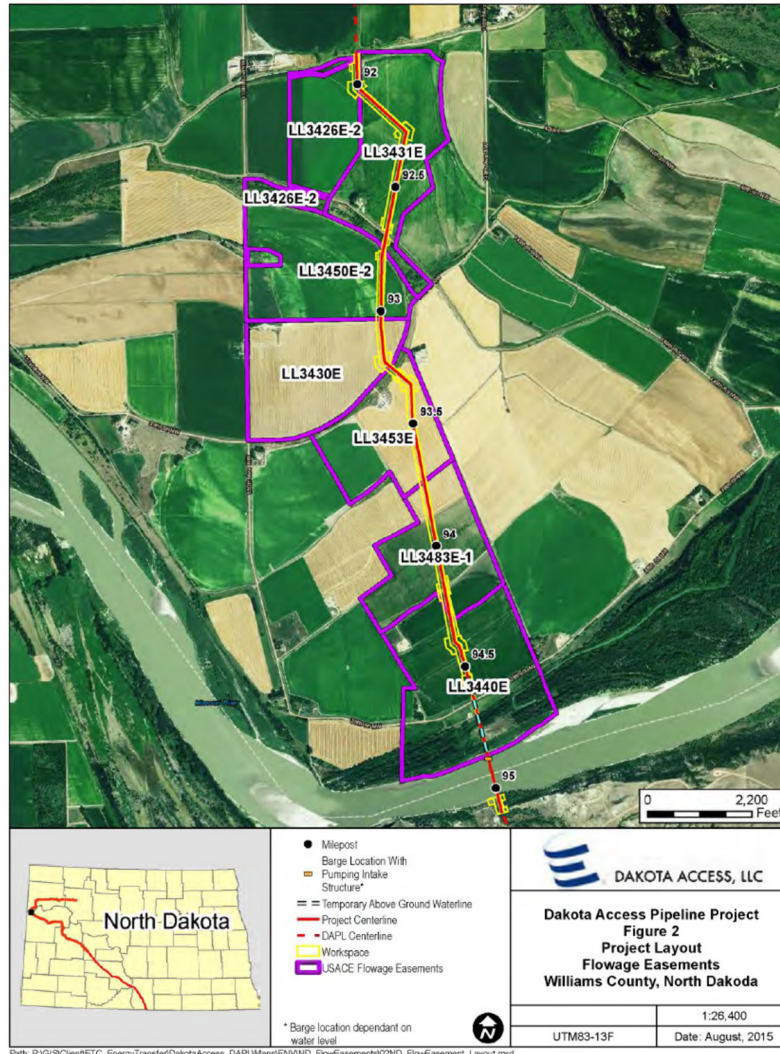
Figure 14: HDD Cross Section—Missouri River Crossing

Figure 15: HDD Cross Section—Lake Oahe Crossing

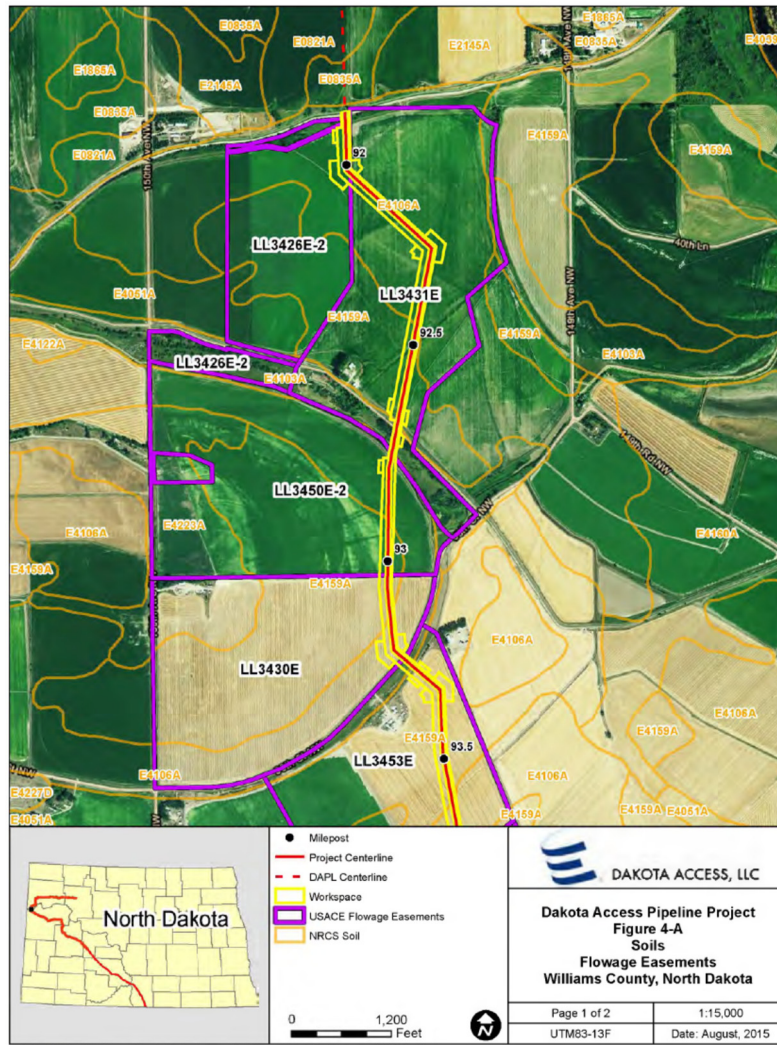
Figure 16: Whooping Crane—Central Flyway



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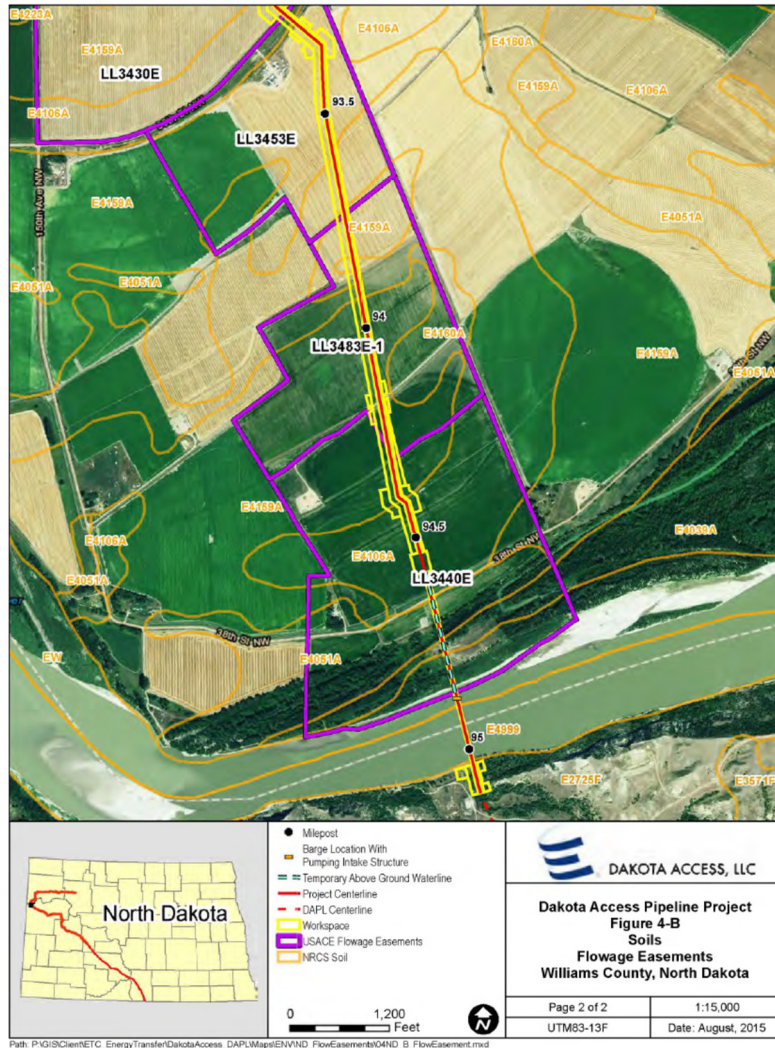


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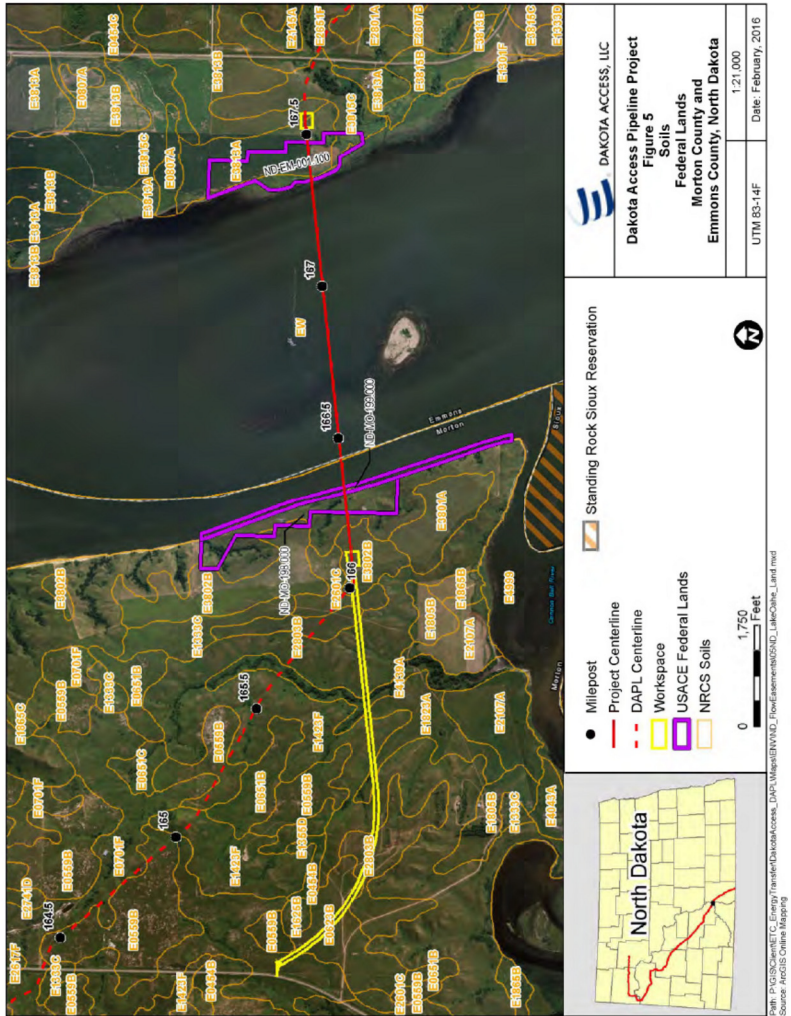


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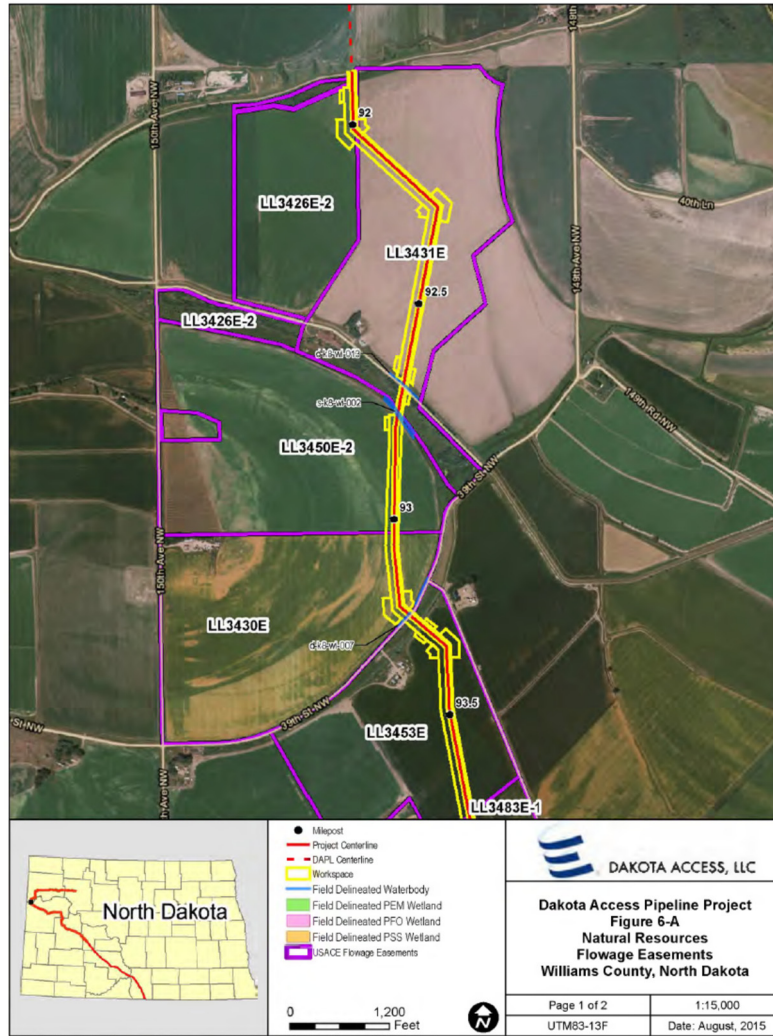
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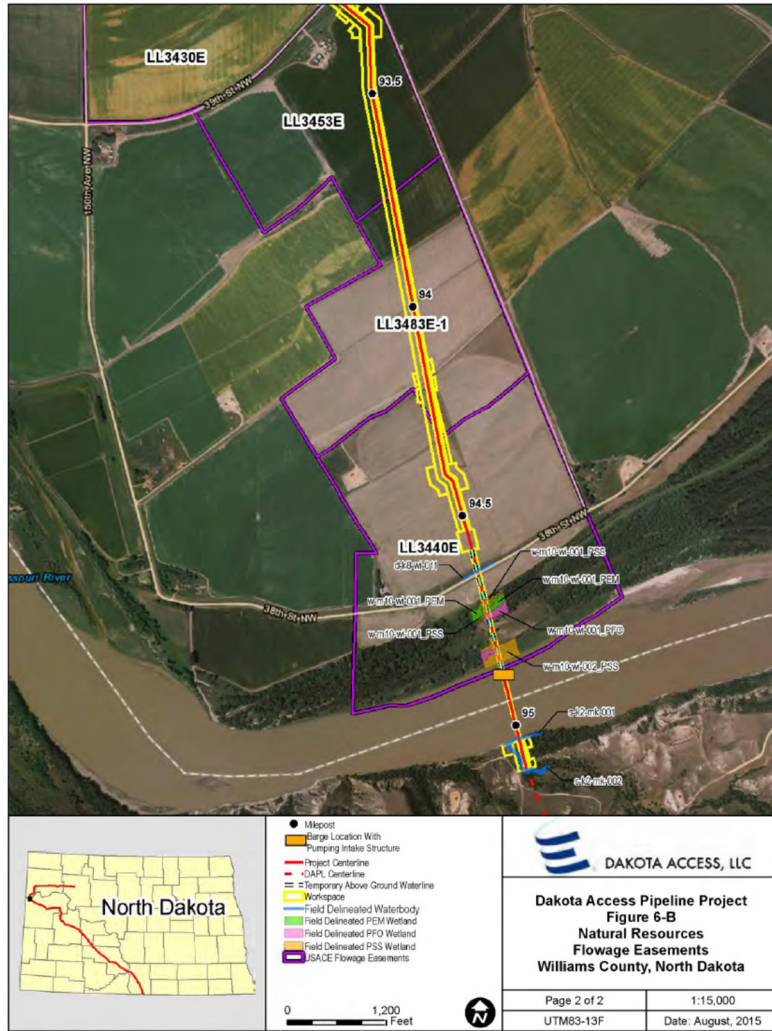
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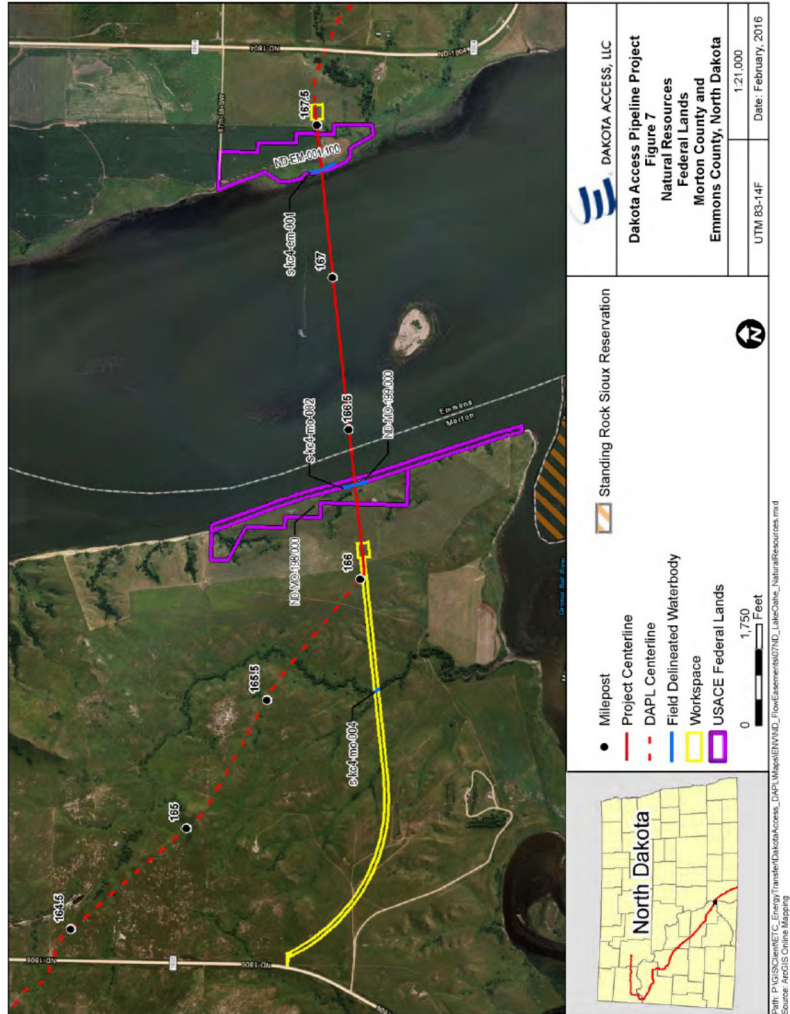
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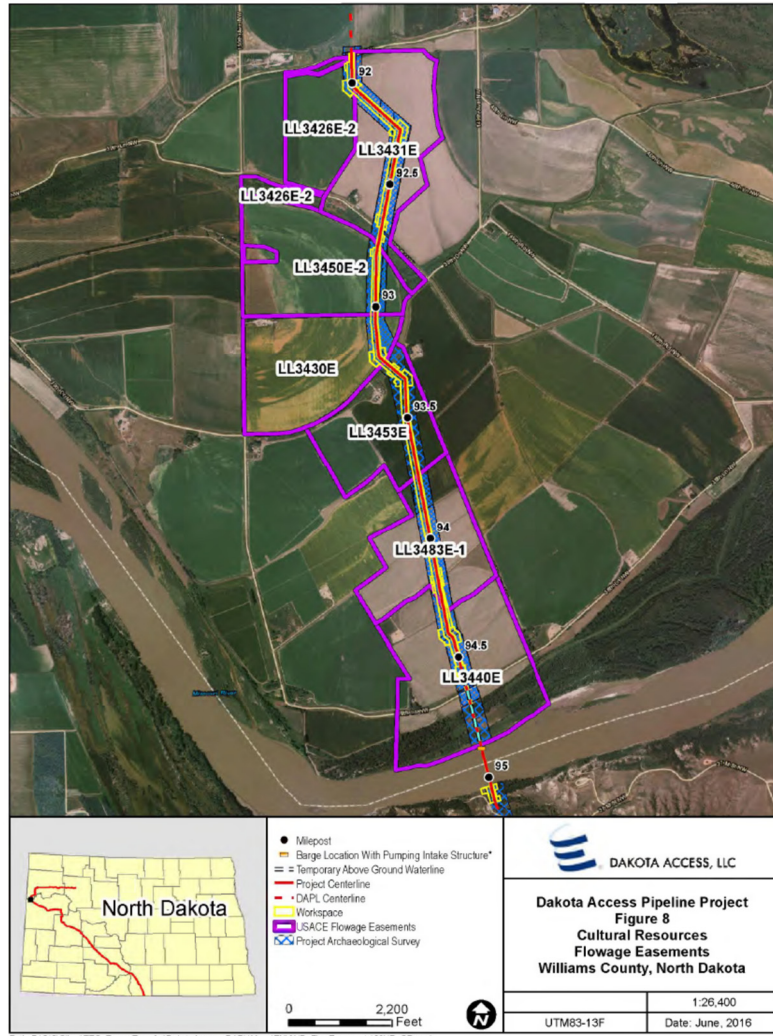
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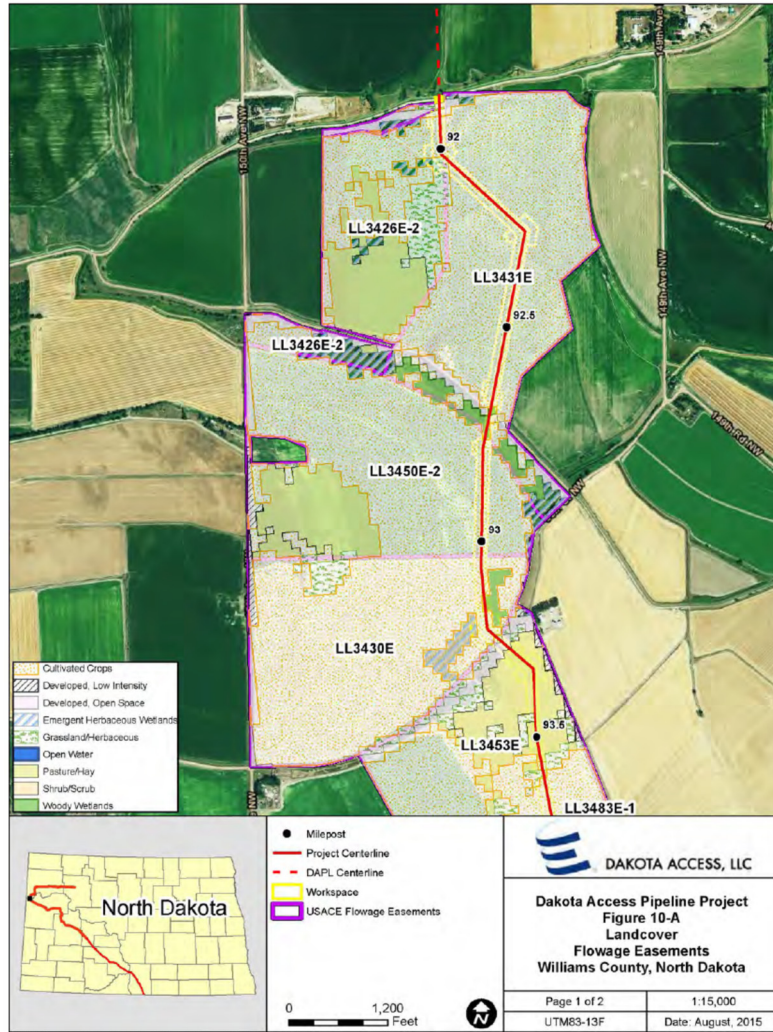
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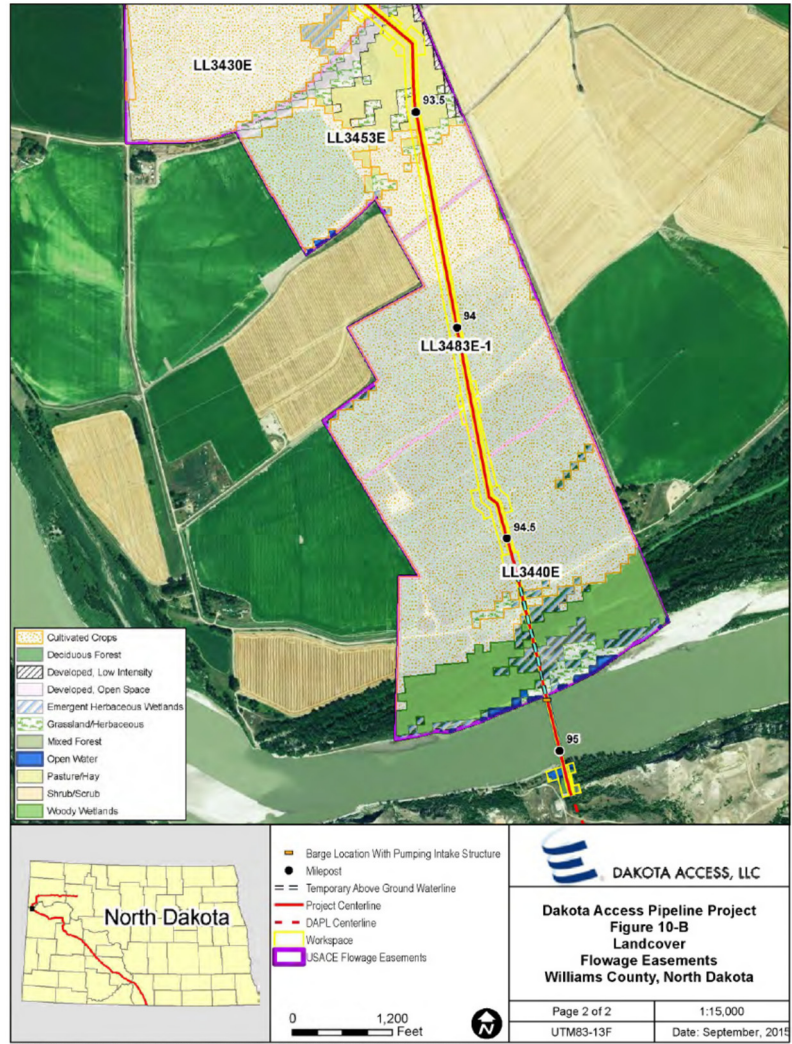
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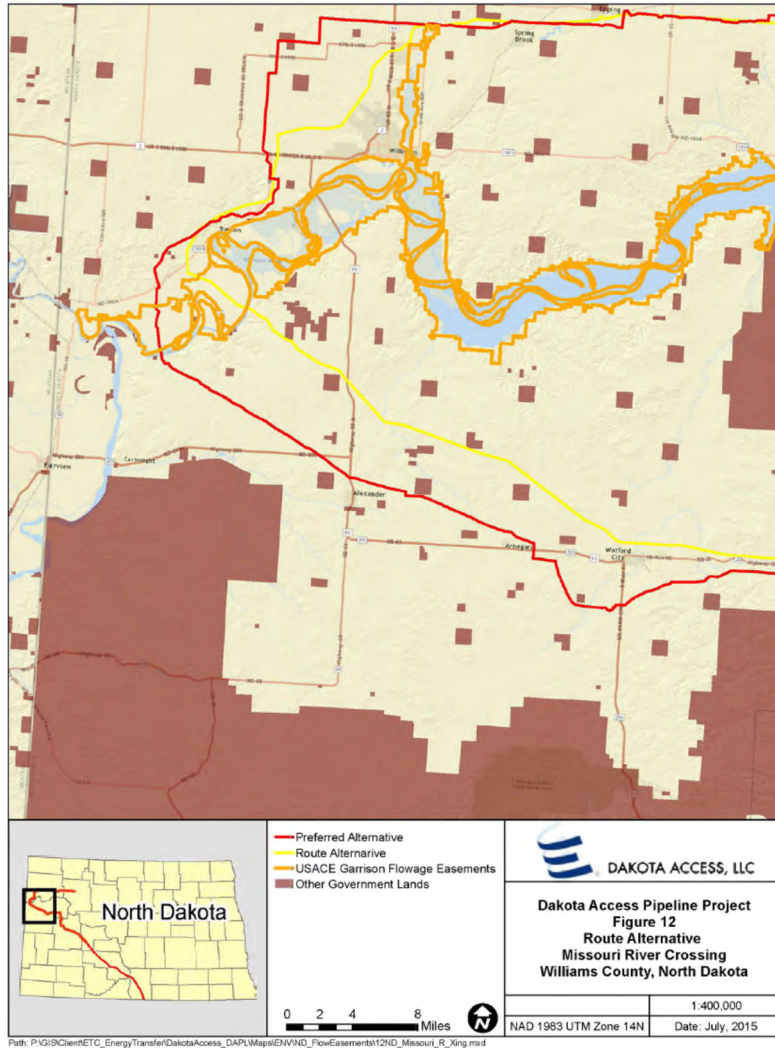
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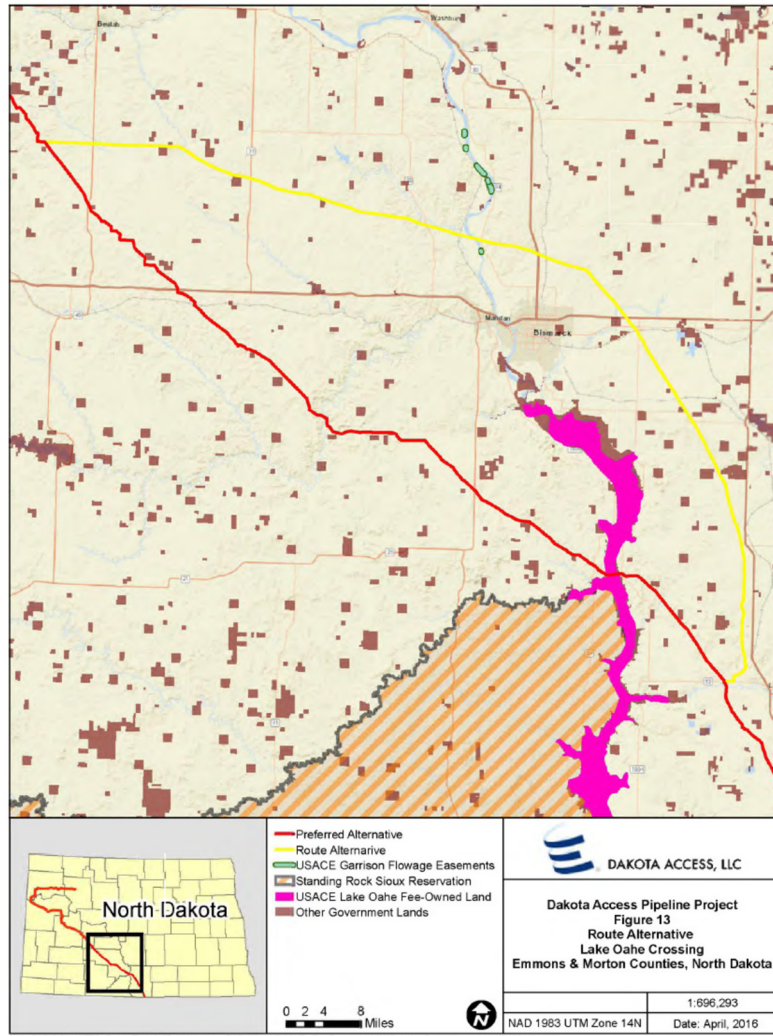
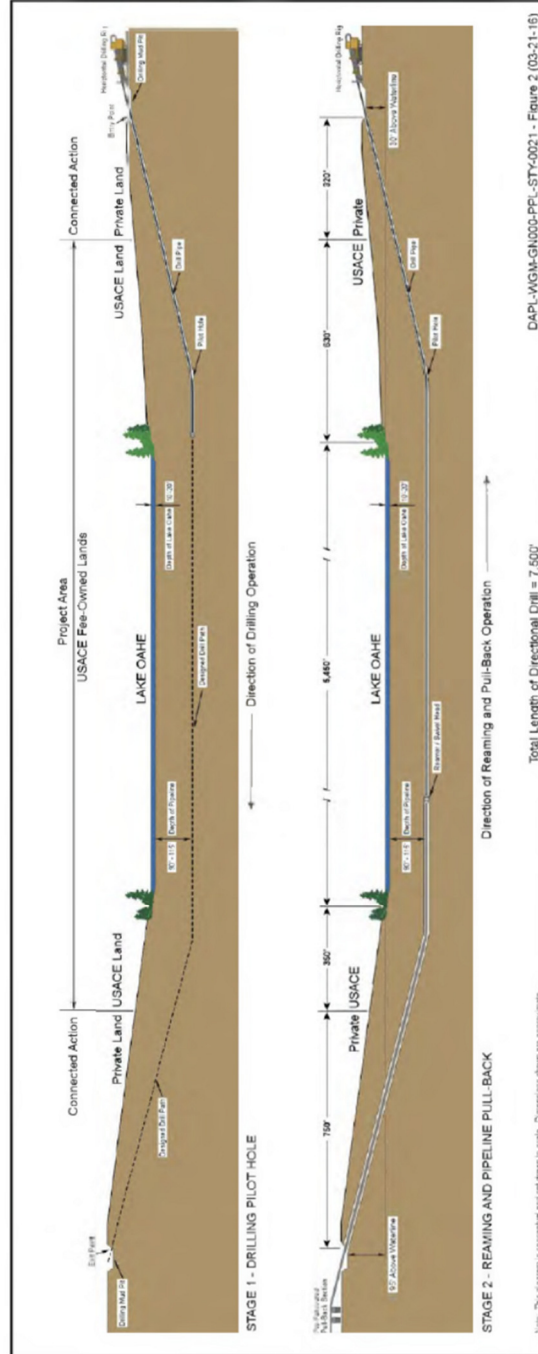
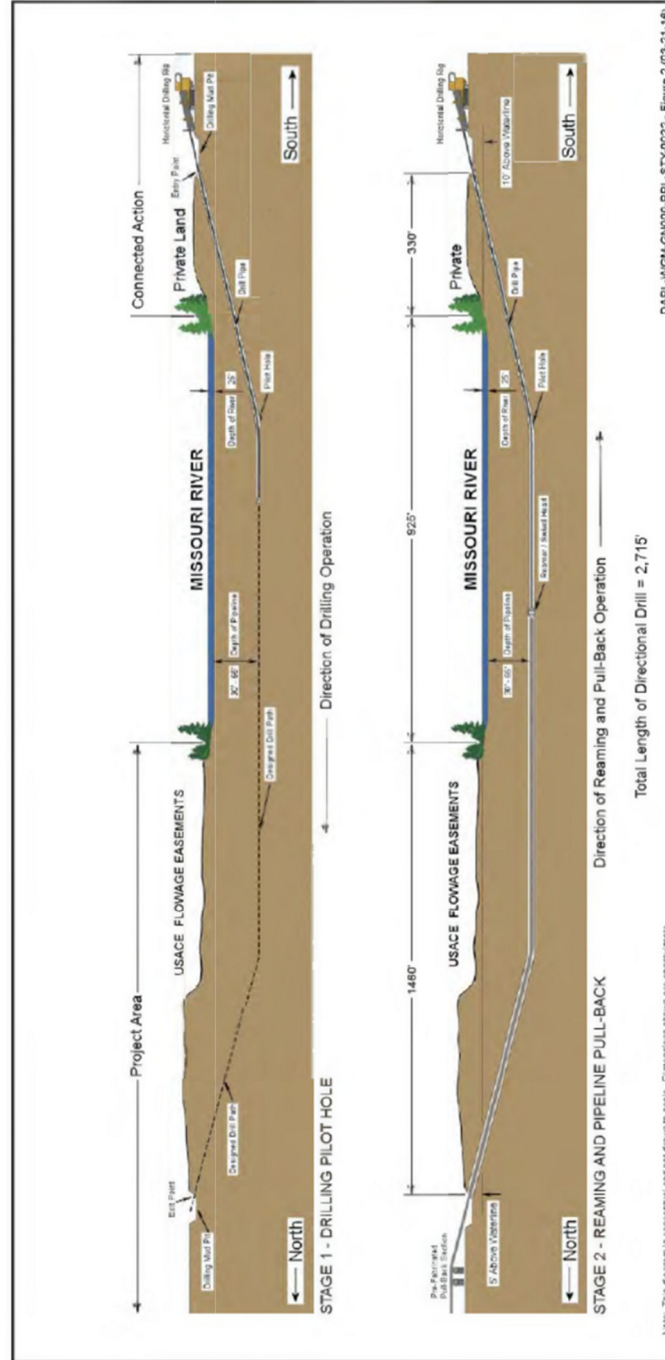


FIGURE 14

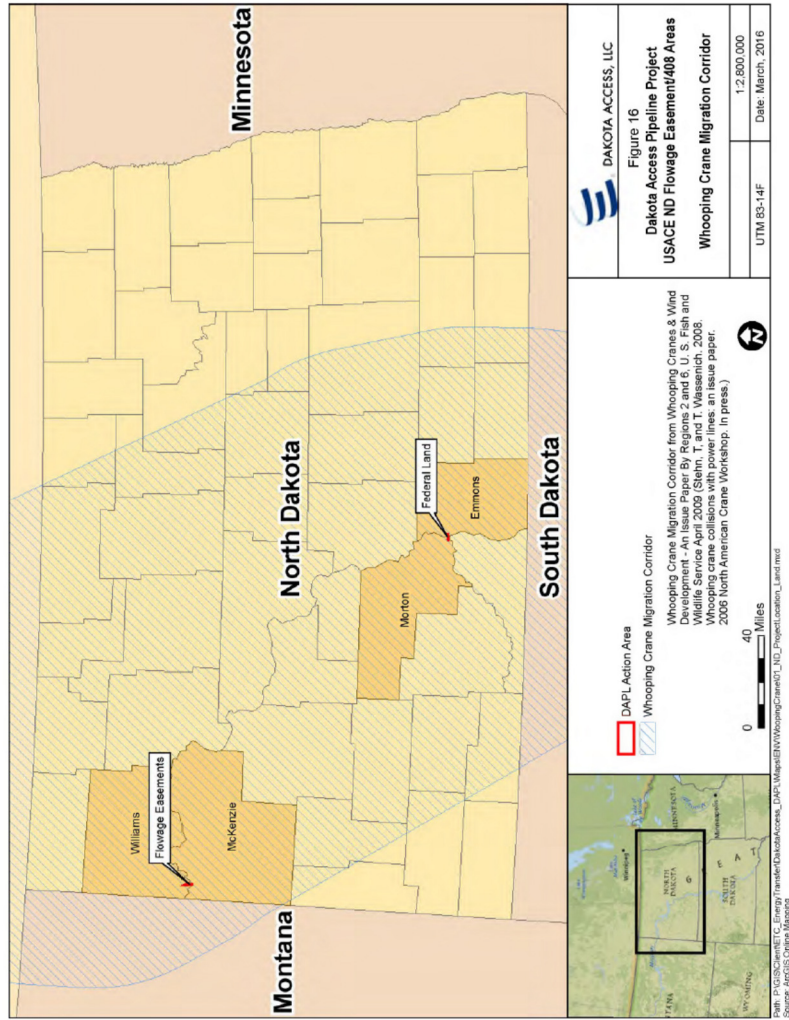


CROSS-SECTION DIAGRAM OF LAKE OaHE HDD CROSSING

FIGURE 15



CROSS-SECTION DIAGRAM OF LAKE OAHE HDD CROSSING



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APPENDIX K

Notice of Availability of Draft EA for Comment

An environmental assessment (EA) has been prepared to evaluate potential environmental impacts from construction and operation of a crude oil pipeline across private lands encumbered by federal flowage easements and federal land managed by the U.S. Army Corps of Engineers.

Dakota Access, LLC proposes to construct and operate the Dakota Access Pipeline Project (Project). The proposed Project would connect the Bakken and Three Forks crude oil production areas in North Dakota to existing infrastructure in Illinois. In North Dakota, the Project crosses federal flowage easements at the Missouri River upstream of Lake Sakakawea in Williams County and federally-owned lands at Lake Oahe in Morton and Emmons counties. The pipeline is 24 inches in diameter where it crosses approximately 2.83 miles of the U.S. Army Corps of Engineers' flowage easements at the Missouri River and is 30 inches in diameter where it crosses approximately 0.21 mile of federal lands at Lake Oahe. The Omaha District is seeking public comments on the EA for these two project areas.

The public is encouraged to provide comments on the draft EA which is available for viewing at <http://www.nwo.usace.army.mil/Missions/CivilWorks/Planning/ProjectReports.aspx>. A hard copy will also be available at the following public libraries:

Bismarck Veterans Memorial Public Library
515 N. Fifth Street
Bismarck, ND 58501

358a

Williston Community Library
1302 Davidson Dr.
Williston, ND 58801

Rawlins Municipal Library
1000 East Church Street
Pierre, SD 57501

Comments may be directed to: U.S. Army Corps of Engineers, Omaha District; CENWO-OD-TN; Attn: Brent Cossette; 1616 Capitol Avenue Suite 9000; Omaha, NE 68102. Comments can also be emailed to Brent.J.Cossette@usace.army.mil.

Comments must be postmarked or received no later than January 8, 2016.

APPENDIX C

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA****STANDING ROCK SIOUX
TRIBE, *et al.*,****Plaintiffs,****v.****U.S. ARMY CORPS OF
ENGINEERS, *et al.*,****Defendants.****Civil Action No.
16-1534 (JEB)****MEMORANDUM OPINION**

Designed to transport oil from the Bakken oil fields in North Dakota to a storage hub in southern Illinois, the Dakota Access Pipeline (DAPL) has also borne substantial controversy in its wake. Most significant has been the opposition from Indian tribes whose reservations lie in close proximity to the pipeline's crossing of the Missouri River at Lake Oahe. To block Dakota Access LLC's construction of that last segment and its operation of DAPL, the Standing Rock Sioux Tribe filed this suit in July 2016, and the Cheyenne River Sioux Tribe intervened shortly thereafter.

The Tribes have since mounted two substantial legal challenges to DAPL, neither of which yielded success. The first contended that the grading and clearing of land for the pipeline threatened sites of cultural and historical significance, and that the U.S. Army

Corps of Engineers had flouted its duty to engage in tribal consultations pursuant to the National Historic Preservation Act. See Standing Rock Sioux Tribe v. U.S. Army Corps of Eng'rs (Standing Rock I), 205 F. Supp. 3d 4, 7 (D.D.C. 2016). The second maintained that the presence of oil in the pipeline under Lake Oahe would desecrate sacred waters and make it impossible for the Tribes to freely exercise their religious beliefs, thus violating the Religious Freedom Restoration Act. See Standing Rock Sioux Tribe v. U.S. Army Corps of Eng'rs (Standing Rock II), No. 16-1534, 2017 WL 908538, at *1 (D.D.C. Mar. 7, 2017).

Now that the Court has rejected these two lines of attack, Standing Rock and Cheyenne River here take their third shot, this time zeroing in DAPL's environ-mental impact. They seek summary judgment on several counts related to the Corps' alleged failure to comply with the National Environmental Policy Act. In particular, the Tribes believe that the Corps did not sufficiently consider the pipeline's environmental effects before granting permits to Dakota Access to construct and operate DAPL under Lake Oahe, a federally regulated waterway. This volley meets with some degree of success. Although the Corps substantially complied with NEPA in many areas, the Court agrees that it did not adequately consider the impacts of an oil spill on fishing rights, hunting rights, or environmental justice, or the degree to which the pipeline's effects are likely to be highly controversial.

To remedy those violations, the Corps will have to reconsider those sections of its environmental analysis upon remand by the Court. Whether Dakota Ac-

cess must cease pipeline operations during that remand presents a separate question of the appropriate remedy, which will be the subject of further briefing.

* * *

I. Background

To familiarize the reader with the background information relevant to its analysis, the Court first briefly sets out the National Environmental Policy Act's statutory framework and then separately discusses the factual history and litigation to date.

A. NEPA

The National Environmental Policy Act, the statute under which the majority of the Tribes' claims are brought, has two aims: it "places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action," and "it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process." Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc., 462 U.S. 87, 97 (1983) (citation omitted). NEPA's requirements are "procedural," requiring "agencies to imbue their decisionmaking, through the use of certain procedures, with our country's commitment to environmental salubrity." Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 193-94 (D.C. Cir. 1991). Importantly, "NEPA does not mandate particular consequences," id. at 194, and courts are discouraged from substituting their own policy judgments for that of the agency. See N. Slope Borough v. Andrus, 642 F.2d 589, 599 (D.C. Cir. 1980); see also Marsh v. Or. Nat. Res. Council, 490 U.S. 360, 378 (1989). "NEPA merely prohibits

uninformed—rather than unwise—agency action.” Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351 (1989). Agency actions with adverse environmental effects can thus be NEPA compliant where “the agency has considered those effects and determined that competing policy values outweigh those costs.” Ohio Valley Envtl. Coal. v. Aracoma Coal Co., 556 F.3d 177, 191 (4th Cir. 2009) (citations omitted).

Under NEPA, an agency must prepare an Environmental Impact Statement for any proposed major federal action “significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). An EIS must detail the environmental impact of the proposed action, any unavoidable adverse effects, alternatives to the proposed action, the relationship between short-term uses of the environment and long-term productivity, and any irreversible commitments of resources. Id.

To determine whether an agency must prepare an EIS, it first drafts an Environmental Assessment. See 40 C.F.R. § 1501.4(b). An EA is a “concise public document” that “[b]riefly provide[s] sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.” Id. § 1508.9(a). The EA must discuss the need for the proposal, the alternatives, the environmental impacts of the proposed action and alternatives, and the agencies and persons consulted. Id. § 1508.9(b). If, after preparing an EA, the agency determines that an EIS is not necessary, it must prepare a Finding of No Significant Impact (FONSI) setting forth the reasons why the action will not have any significant impact on the environment. Id. §§ 1501.4(e), 1508.13; cf. Grand Canyon Trust v. FAA,

290 F.3d 339, 340 (D.C. Cir. 2002) (“If any ‘significant’ environmental impacts might result from the proposed agency action then an EIS must be prepared before agency action is taken.”) (quoting Sierra Club v. Peterson, 717 F.2d 1409, 1415 (D.C. Cir. 1983)). If the action will not have such impact because of the agency’s commitment to ensure the performance of mitigation measures, the agency prepares a Mitigated FONSI. See Council on Environmental Quality, Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact 2, 7 (2011), https://energy.gov/sites/prod/files/NEPA-CEQ_Mitigation_and_Monitoring_Guidance_14Jan2011.pdf. Mitigation includes “[a]voiding an impact by not taking a certain action”; “[m]inimizing an impact by limiting the degree or magnitude of the action”; “[r]ectifying an impact by repairing, rehabilitating, or restoring the affected environment”; “[r]educing or eliminating an impact over time, through preservation and maintenance operations”; and “[c]ompensating for an impact by replacing or providing substitute resources or environments.” Id. at 4-5. As will be explained below, the Corps here prepared an EA and a Mitigated FONSI. The central question this Opinion answers is whether that was sufficient.

B. Factual History

As those who have followed this litigation and the concomitant public debate well know, DAPL is a nearly 1,200-mile pipeline designed to move more than half a million gallons of crude oil from North Dakota to Illinois every day. Standing Rock I, 205 F. Supp. 3d at 7. Although no government approval is necessary for oil pipelines traversing private lands, it

is required for those segments that cross federally regulated waters. Id. DAPL crosses such waterways at hundreds of discrete places along its route, including, most prominently, at Lake Oahe. Id.

Created by the Corps in 1958 via a dam constructed on the Missouri River, Lake Oahe is a reservoir that spans North and South Dakota and borders the Standing Rock and Cheyenne River Sioux Reservations to the east. Id. at 13; ECF No. 172-1 (Environmental Assessment) at 35, 75; ECF No. 97-1 (CRST Second Amended Complaint), ¶ 29. DAPL crosses the Lake 0.55 miles north of the Standing Rock Reservation and 73 miles north of the Cheyenne River Reservation. See Standing Rock II, 2017 WL 908538, at *1; EA at 75. For orientation purposes, the southern border of the former Reservation also acts as the northern border of the latter. See ECF No. 117-5 (Map of Current Sioux Reservations).

Lake Oahe holds special significance for the Standing Rock and Cheyenne River Sioux Tribes. Its creation necessitated the taking of approximately 56,000 acres of some of “the best land” from Standing Rock’s Reservation, as well as 104,420 acres of Cheyenne River’s trust lands. See Act of Sept. 2, 1958, Pub. L. No. 85-915, 72 Stat. 1762; S. Rep. No. 102-267, at 188 (1992); Standing Rock II, 2017 WL 908538, at *16 (citing South Dakota v. Bourland, 508 U.S. 679, 683 (1993)). Today, Standing Rock members rely on Lake Oahe’s waters to service “homes, a hospital, clinics, schools, businesses and government buildings throughout the Reservation” and to support agriculture and industrial activities. See ECF No. 117 (SRST MSJ) at 4. The Lake is also the primary source of water for the Cheyenne River Reservation. See CRST

Second Amend. Compl., ¶ 2. Both Tribes consider the waters to be “sacred” and “central to [their] practice of religion.” SRST MSJ at 4; see Standing Rock II, 2017 WL 908538, at *6, 8.

Dakota Access notified the Corps of its intent to construct a portion of DAPL under Lake Oahe in June 2014, see ECF No. 183-1 (Email from Monica Howard, Dir. Env'tl. Sci., Dakota Access, to Jason Renschler, Project Manager, Corps, June 23, 2014), and first sought the Corps' approval to do so in October 2014. See ECF No. 159-1, Exh. A (Letter from Monica Howard to Brent Cossette, Nat. Resource Specialist, Corps, Oct. 21, 2014). Specifically, the Company needed three authorizations from the Corps: (1) verification that its activities satisfied the terms and conditions of Nationwide Permit 12; (2) permission under the Rivers and Harbors Act, 33 U.S.C. § 408; and (3) a real-estate easement under the Mineral Leasing Act, 30 U.S.C. § 185. See ECF No. 172-6 (Memorandum from John Henderson, Omaha District Commander & Engineer, Corps, Dec. 3, 2016), ¶ 4. The Court has previously discussed some of the details of these permitting schemes, see Standing Rock I, 205 F. Supp. 3d at 10-12, and will not repeat them here.

In December 2015, the Corps published and sought public comment on a Draft Environmental Assessment that evaluated the environmental effects of DAPL's proposed crossing of Lake Oahe and concluded that “construction of the proposed Project [was] not expected to have any significant direct, indirect, or cumulative impacts on the environment.” ECF No. 6-19 (Draft EA) at 1; see EA at 1. Standing Rock promptly submitted comments touching on a range of

concerns, including that the Draft EA failed to adequately address potential harm from the pipeline's construction and operations to the Lake's water and the Tribe's rights thereto; did not acknowledge the pipeline's proximity to the Reservation; insufficiently analyzed the risks of an oil spill; and did not properly address environmental-justice considerations. See ECF No. 159-1, Exh. C (SRST Comments on Draft EA, Jan. 8, 2016) at 9-17; id., Exh. D (SRST Suppl. Comments on Draft EA, Mar. 24, 2016) at 2-3. The Tribe, accordingly, asked that the Corps prepare an Environmental Impact Statement to assess the pipeline's effects, a request it had also made prior to the Draft EA's release. See ECF No. 209-6 (Notes for Feb. 18-19, 2016, Tribal Meeting) at 51; ECF No. 209-9 at 33-34 (Letter from Waste Win Young, Tribal Historic Preservation Officer, Standing Rock Sioux Tribe, to Martha Chieply, Omaha District Regulatory Branch, Corps, Feb. 25, 2015). Cheyenne River expressed similar views. See ECF No. 185-1, Exh. II (Letter from Steve Vance, Tribal Historic Preservation Officer, Cheyenne River Sioux Tribe, to Richard Harnois, Sr. Field Archaeologist, Corps, May 2, 2016); ECF No. 183-19 (Letter from Steve Vance to John Henderson, May 19, 2016); ECF No. 183-20 (Letter from Harold Frazier, Chairman, Cheyenne River Sioux Tribe, June 3, 2016).

Other federal agencies also weighed in on the Draft EA. Like the Tribes, the Department of the Interior requested that the Corps prepare an EIS, a step it believed necessary given DAPL's "potential impact on trust resources"—*i.e.*, 800,000 acres of land held in trust for the Tribe by Interior, as well as waters on which the Tribe and its members depend for drinking

and other purposes—should a leak or spill occur. See ECF No. 209-7 at 21 (Letter from Lawrence Roberts, Acting Assistant Secretary for Indian Affairs, Dep’t of Interior, to Brent Cossette, Mar. 29, 2016). Interior criticized the Corps for, *inter alia*, “not adequately justify[ing] or otherwise support[ing] its conclusion that there would be no significant impacts upon the surrounding environment and community” and not assigning a level of intensity to those potential adverse impacts that were acknowledged. Id.

The Environmental Protection Agency similarly expressed concern that the Draft EA “lack[ed] sufficient analysis of direct and indirect impacts to water resources,” did not adequately address “the measures that will be required to assure that impacts from construction and operation of the pipeline are not significant,” and did “not identify the related effects from the entire project segment.” ECF No. 209-16 at 184 (Letter from Philip Strobel, Director of NEPA Compliance & Review Program, EPA, to Brent Cossette, Jan. 8, 2016). Although the EPA did not believe that the Draft EA “would support a FONSI,” it did not call for the Corps to prepare an EIS; instead, it suggested that “information and mitigation could be added to the EA in order to support a mitigated FONSI.” Id. at 187.

After “becom[ing] aware of the proximity” of DAPL to Standing Rock’s Reservation, the EPA supplemented its comments. See ECF No. 209-8 at 123 (Letter from Philip Strobel to Brent Cossette, Mar. 11, 2016). It recommended that the Corps revise the Draft EA and provide a second public-comment period “to assess potential impacts to drinking water and the Standing Rock Sioux Tribe,” as well as “additional

concerns regarding environmental justice and emergency response actions to spills/leaks.” Id. Notably, the EPA took some issue with the Draft EA’s spill analysis, stating that although it indicated only a minimal spill risk associated with the project, based on its “experience in spill response,” a break or leak could significantly affect water resources. Id. at 124. Given DAPL’s proposed capacity of 13,100 to 16,600 gallons per minute of crude oil and the proximity of drinking-water intakes to the Oahe crossing, the agency explained, “There would be very little time to determine if a spill or leak affecting surface waters is occurring, to notify water treatment plants and to have treatment plant staff on site to shut down the water intakes.” Id. at 125. Finally, the EPA urged the Corps to expand its analysis for purposes of assessing environmental-justice considerations from “the area of construction disturbance” to “the impacts of the proposed project,” and to look at route alternatives. Id. at 126; see also ECF No. 209-9 at 209 (Email “Quick Summary of Conference Call with EPA,” Feb. 25, 2016) (“EPA concerned over the lack of Environmental justice Tribal interests have not been addressed sufficiently.”).

On July 25, 2016, about eight months after releasing the Draft EA, the Corps published its Final EA and a Mitigated Finding of No Significant Impact. See EA; ECF No. 172-2 (FONSI). The Final EA—like the Draft EA—was prepared by Dakota Access with involvement from the Corps, as is permitted, when certain conditions are met, by Council on Environmental Quality regulations. See EA at 1; Draft EA at 1; 40 C.F.R. § 1506.5(a)-(b). The Mitigated FONSI explained that the Corps had “coordinated closely with

Dakota Access to avoid, mitigate and minimize potential impacts of the Proposed Action”—largely via horizontal directional drilling (HDD) technology—and that the Company was required to comply with a set of mitigation measures set out in the EA. See FONSI at 3. Given those measures and its evaluation of DAPL’s “anticipated environmental, economic, cultural, . . . social[, and] . . . cumulative effects,” the Corps concluded that the crossing at Lake Oahe would not “significantly affect the quality of the human environment,” and preparation of an EIS was therefore not required. Id. at 6. The Corps, accordingly, verified that the pipeline activities satisfied the terms and conditions of NWP 12 and granted permission under Section 408 of the Rivers and Harbors Act for DAPL’s placement at Lake Oahe. See ECF No. 209-9 at 149-53 (NWP 12 Permit); ECF No. 209-10 at 54 (Section 408 Permit). The parties disagree as to whether the Corps also at that time granted an easement pursuant to the Mineral Leasing Act, 30 U.S.C. § 185. See ECF Nos. 57, 66, 73. For purposes of this Opinion—and consistent with its understanding throughout the litigation—the Court will assume that it did not. Without such easement, Dakota Access could not construct the pipeline under the Lake.

C. Litigation

1. *Filing of Suit*

While factual backgrounds to lawsuits are often considerably more involved than the litigation itself, that is not the case here. In part, that is because this action (as well as the 2016 election) generated significant further maneuvers. To begin, two days after the release of the EA on July 25, 2016, Standing Rock filed

this suit against the Corps for declaratory and injunctive relief pursuant to the National Historic Preservation Act, National Environmental Policy Act, Clean Water Act, and the Rivers and Harbors Act. See ECF No. 1 (Complaint), ¶¶ 128-212. Dakota Access successfully moved to intervene in support of the Corps on August 5, see ECF No. 7, and the Cheyenne River Sioux Tribe intervened as a Plaintiff on August 10. See ECF No. 11. Cheyenne River then filed its own Complaint, see ECF No. 11-12, which it later amended on September 8. See ECF No. 37. Like Standing Rock's Complaint, Cheyenne River's pleadings stated claims under the NHPA, NEPA, CWA, and RHA, as well as for breach of trust responsibility and violations of the Flood Control Act and the Administrative Procedure Act. Id. at 38-56.

The Tribes initially sought a preliminary injunction based solely on the NHPA, contending principally that the clearing and grading of land along the pipeline route desecrated sites sacred to them. On September 9, 2016, immediately after this Court issued its Opinion denying that motion, see Standing Rock I, 205 F. Supp. 3d at 7, the Departments of Justice, the Interior, and the Army issued a joint statement explaining that, because "important issues raised by the Standing Rock Sioux Tribe and other tribal nations and their members regarding the Dakota Access pipeline" remained, "construction of the pipeline on Army Corps land bordering or under Lake Oahe [would] not go forward" until the Army could determine whether reconsideration of any of its previous decisions regarding the Lake Oahe crossing under NEPA or other federal laws was necessary. See ECF No. 42-1 at 1. More

specifically, the Corps at that time refused to grant the necessary MLA easement.

2. Further Consideration

In response to the opportunity for additional consideration, Standing Rock sent several letters to Assistant Secretary of the Army for Civil Works, Jo-El-len Darcy, expressing its concerns regarding DAPL, the EA's spill-risk analysis, and the impact of a potential spill on hunting, fishing, and other Treaty rights. See ECF Nos. 117-11 (Sept. 22, 2016), 117-12 (Oct. 28, 2016), 117-13 (Oct. 3, 2016), 117-14 (Oct. 21, 2016). It also submitted an expert review of the EA, which concluded that it was "seriously deficient and [could not] support the finding of no significant impact, even with the proposed mitigations." ECF No. 117-15 (Accufacts, Inc. Review of EA, Oct. 28, 2016).

As part of the Corps' internal-review process, its Chief Counsel prepared a memorandum concluding that the agency had "adequately considered and disclosed the environmental, cultural and other potential impacts of its actions and that its decisions were not arbitrary or capricious," and that "supplementation of the EA to address any new information [was] not legally required." ECF No. 117-24 (Memorandum from David Cooper, Chief Counsel, Corps, Oct. 20, 2016) (Cooper Memo) at 36. He also issued a memorandum that listed 36 possible conditions to be included in an easement that would "provide further protection from any perceived risks posed by the pipeline crossing at Lake Oahe." ECF No. 209-3 at 55 (Memorandum from David Cooper, Oct. 31, 2016).

On November 14, 2016, Assistant Secretary Darcy wrote to Standing Rock and Dakota Access to inform

them that the Army had completed the review called for on September 9, “accounting for information it . . . received from the Tribes and the pipeline company since September,” and had “concluded that its previous decisions comported with legal requirements.” ECF No. 56-1 (Letter from Jo-Ellen Darcy, Nov. 14, 2016). Nonetheless, in light of the United States’ history with the Great Sioux Nation, the importance of Lake Oahe to Standing Rock, the government-to-government relationship with Standing Rock, and the mandates of the Mineral Leasing Act regarding public safety and the interests of those who rely on fish, wildlife, and biotic resources in the general area of a requested right-of-way, see 33 U.S.C. §§ 185(g), (h)(2)(D), (k), “the Army determined that additional discussion with the Standing Rock Sioux Tribe and analysis [were] warranted.” Darcy Nov. 2016 Letter at 2. The Army thus invited Standing Rock to engage in discussions concerning “[p]otential conditions in an easement for the pipeline crossing” that would reduce spill risk “or otherwise enhance the protection of Lake Oahe, the Tribe’s water supplies, and its treaty rights”; the impact of those conditions on spill risk; “whether to grant an easement for the pipeline to cross Lake Oahe at the location currently proposed” given those conditions; and anything else “the Tribe believes is relevant to the proposed pipeline crossing or easement.” Id. Darcy also wrote to Frazier to inform him of the Corps’ decision and to express the Corps’ interest in “confer[ring] with [him] to better understand” his concerns. See ECF No. 131-4, Attach. A (Letter from Jo-Ellen Darcy to Harold Frazier, Nov. 14, 2016); see also ECF No. 131-4 (Declaration of Harold Frazier, Feb. 22, 2017), ¶ 15. Two days later,

Darcy and other Corps officials met with representatives of the Great Plains Tribal Chairpersons' Association, including Frazier, to confirm that the November 14 letters "constituted an invitation to the [T]ribes to provide any new information . . . relevant to the Corps' consideration of the easement." Id., ¶ 16.

During this next review phase, Standing Rock offered further comments urging the Corps to deny the easement because of the pipeline's potential harm to its water, hunting, fishing, and gathering rights. See ECF No. 117-17 (Dec. 2, 2016). The Oglala Sioux Tribe, which had brought a related case against the Corps that has been consolidated with Standing Rock's action, see Minute Order of Mar. 16, 2017, submitted an expert report critiquing the EA's spill-volume analysis. See ECF No. 117-18 (EarthFax Review of EA, Dec. 2, 2016). The Corps' Omaha District Commander met with representatives of Standing Rock and Dakota Access to review the Tribe's concerns and discuss conditions that could be imposed on an easement to reduce the risk of spill or rupture. See ECF No. 209-5 at 1-2 (Email from Scott Spellmon, Commanding General, NW Division, Corps, to Jo-Ellen Darcy, Dec. 2, 2016). The day after the meeting, the District Commander issued a memorandum recommending that the Corps grant an easement to Dakota Access to cross Lake Oahe. See Henderson Memo.

The Corps also used this review phase to solicit the opinion of the Department of the Interior "on the extent to which tribal treaty rights . . . weigh in favor of or against authorizations needed for the Lake Oahe crossing." ECF No. 117-6 (Memorandum from Hilary C. Tompkins, Solicitor, Dep't of Interior, Dec. 4, 2016)

at 1. Interior's Solicitor accordingly supplied a memorandum concluding that the Corps had "ample legal justification to decline to issue the proposed Lake Oahe easement on the current record," and that it "would be equally justified in suspending or revoking the existing Section 408 permit as it relates to the Lake Oahe crossing." Id. at 4. Alternatively, the Solicitor recommended that the Corps not make a decision to issue the easement prior to engaging in government-to-government consultation with the Tribe; preparing an EIS to "adequately evaluate[] the existence of and potential impacts to tribal rights and interests," "consider a broader range of alternative pipeline routes," and undertake "a catastrophic spill analysis prepared by an independent expert"; and more comprehensively assessing "DAPL's impact on tribal rights, lands, and resources, including the socio-economic impacts, . . . in light of the fact that the reservation is a permanent homeland for the Tribes, as well as other federal obligations towards the Tribes." Id.

On December 4, the same day the Interior Solicitor issued her Opinion, Assistant Secretary Darcy issued a memorandum to the Corps' Commander. She explained that, to date, the Army had "not made a final decision on whether to grant the easement pursuant to [the Mineral Leasing Act]." ECF No. 172-7 (Memorandum from Jo-Ellen Darcy, Dec. 4, 2016), ¶ 6. Despite the Omaha District Commander's recommendation that the Corps do so, Darcy stated that she had "concluded that a decision on whether to authorize the Dakota Access Pipeline to cross Lake Oahe at the proposed location merits additional analysis, more rigorous exploration and evaluation of reasonable sit-

ing alternatives, and greater public and tribal participation and comments.” *Id.*, ¶ 12. “Accordingly,” she continued, the Army would “not grant an easement to cross Lake Oahe at the proposed location based on the current record.” *Id.* She directed a “robust consideration of reasonable alternatives . . . , together with analysis of potential spill risk and impacts, and treaty rights,” which she thought would be “best accomplished . . . by preparing an Environmental Impact Statement.” *Id.* Darcy emphasized, though, that her “policy decision” did “not alter the Army’s position that the Corps’ prior reviews and actions have comported with legal requirements.” *Id.*, ¶ 15.

On January 18, 2017, Darcy followed up by publishing in the Federal Register a notice of intent to prepare an EIS. *See* 82 Fed. Reg. 5,543 (Jan. 18, 2017). Cheyenne River sent a letter to her that same day requesting that the Corps include it as a Cooperating Agency in the preparation and drafting of the EIS given the potential for the pipeline to affect the Tribe and its Reservation. *See* ECF No. 131-4, Attach. B (Letter from Harold Frazier to Jo-Ellen Darcy, Jan. 18, 2017).

3. *A New Administration*

As we all know, elections have consequences, and the government’s position on the easement shifted significantly once President Trump assumed office on January 20, 2017. A Presidential Memorandum issued on January 24 directed the Secretary of the Army to instruct the Assistant Secretary of the Army for Civil Works and the Corps “to take all actions necessary and appropriate to . . . review and approve in an expedited manner, to the extent permitted by law

and as warranted, and with such conditions as are necessary or appropriate, requests for approvals to construct and operate the DAPL, including easements or rights-of-way” and to “consider, to the extent permitted by law and as warranted, whether to rescind or modify” the December 4 memorandum and the Notice of Intent to Prepare an EIS. See ECF No. 172-8, § 2.

The Army completed a technical and legal review on February 3 and determined that the Final EA and FONSI “satisfy[ied] the NEPA requirements for evaluating the easement required for the DAPL to cross Corps-managed federal lands at Lake Oahe” and “support[ed] a decision to grant an easement.” ECF No. 172-9 (Memorandum from Todd Semonite, Lieutenant General, Corps, Feb. 3, 2017) at 10. Based on a review of the entire record, including the input received since September 2016, the Corps also concluded that the Final EA did not require further supplementation, as there were no “substantial changes in the proposed action” or “new significant circumstances or information relevant to environmental concerns.” Id. at 11 (citing 40 C.F.R. §§ 1502.9(c)(1)(i)-(ii)). The Corps thus published in the Federal Register a notice of termination of its intent to prepare an EIS, see ECF No. 95-3, provided notice to Congress of its intent to issue the easement, see ECF No. 172-10 (Congressional Notifications, Feb. 7, 2017), and did so on February 8. See ECF No. 172-11 (Easement). The final easement contains 36 conditions intended to mitigate the risk of rupture at Lake Oahe and otherwise address the Tribe’s concerns. Id. at 37-43. To facilitate the Corps’ granting of the easement, the Acting Secretary of the Interior withdrew the Interior Solicitor’s December 4

Opinion. See ECF No. 127-15 (Memorandum from K. Jack Haugrud, Acting Secretary, Dep't of Interior, Feb. 6, 2017). Having finally been given the green light, Dakota Access, by late March, completed construction of this last segment beneath Lake Oahe and began placing oil in the pipeline. See ECF No. 191 (DA Status Report, Mar. 27, 2017). DAPL became fully operational on June 1, 2017. See Energy Transfer, Energy Transfer Announces the Bakken Pipeline Is in Service Transporting Domestic Crude Oil from the Bakken/Three Forks Production Areas, June 1, 2017, <http://ir.energytransfer.com/phoenix.zhtml?c=106094&p=irol-newsArticle>.

The day after the Corps granted Dakota Access the easement, Cheyenne River moved for leave to file a Second Amended Complaint, see ECF No. 97, and also filed a motion for preliminary injunction and application for a temporary restraining order, both based solely on the Religious Freedom Restoration Act. See ECF Nos. 98, 99; Standing Rock II, 2017 WL 908538, at *3. Standing Rock joined the TRO application, but not the preliminary-injunction motion. See ECF No. 107. In both filings, Cheyenne River argued that its members “believe that the mere existence of a crude oil pipeline under the waters of Lake Oahe will desecrate those waters and render them unsuitable for use in their religious sacraments,” and that DAPL “correlates with a terrible Black Snake prophesied to come into the Lakota homeland and cause destruction.” Standing Rock II, 2017 WL 908538, at *3 (quoting ECF No. 98 at 2-3). After orally denying the TRO, see Minute Order of Feb. 13, 2017; ECF No. 119 (TRO Oral Arg. Tr., Feb. 13, 2017) at 29:20-30:19, the Court issued an Opinion similarly denying the preliminary-

injunction motion, as it concluded that the extraordinary relief requested was not appropriate in light of the equitable doctrine of laches and Cheyenne River's unlikelihood of success on the merits. Standing Rock II, 2017 WL 908538, at *1.

In the midst of these proceedings, Standing Rock—after moving for leave to amend its Complaint to address new developments since it first filed this case in July 2016, see ECF No. 106—filed the instant Motion for Partial Summary Judgment on claims concerning the Corps' decision not to prepare an EIS for the Lake Oahe crossing; its granting of the easement; and its permitting of the Lake Oahe crossing under NWP 12. The Corps responded with its own Cross-Motion for Partial Summary Judgment on these causes of action, see ECF No. 172 (Corps SRST MSJ), and Dakota Access filed briefs opposing Standing Rock's Motion and joining the Corps' Cross-Motion. See ECF Nos. 159 (DA SRST Opp.), 184 (Notice of Joinder), 202-1 (DA SRST Reply). Cheyenne River joined Standing Rock's Motion, see ECF No. 131 (CRST MSJ) at 8, and filed its own Motion for Partial Summary Judgment on claims concerning the Corps' decisions to grant Dakota Access a permit under Section 408 of the RHA and an easement under the MLA. The Corps and Dakota Access then cross-moved for partial summary judgment on those claims as well. See ECF No. 183 (Corps CRST MSJ); ECF No. 185 (DA CRST MSJ).

These Motions are now ripe. Although the Tribes do not raise exactly the same causes of action, because their Motions are closely related and sometimes overlap, the Court addresses both in this Opinion, turning first to Standing Rock's claims and then to Cheyenne

River's. For purposes of their resolution, the Court has also today issued a Minute Order granting the Tribes' motions for leave to amend, such that the claims relating to post-July 2016 events are properly before it. After setting out the governing legal standard, the Court first addresses the relevant claims raised by Standing Rock, see Section III, *infra*, and then turns to those asserted by Cheyenne River. See Section IV, *infra*.

II. Legal Standard

The parties have cross-moved for partial summary judgment on the administrative record. The summary-judgment standard set forth in Federal Rule of Civil Procedure 56(c), therefore, “does not apply because of the limited role of a court in reviewing the administrative record.” Sierra Club v. Mainella, 459 F. Supp. 2d 76, 89 (D.D.C. 2006); see also Bloch v. Powell, 227 F. Supp. 2d 25, 30 (D.D.C. 2002), aff'd, 348 F.3d 1060 (D.C. Cir. 2003). “[T]he function of the district court is to determine whether or not as a matter of law the evidence in the administrative record permitted the agency to make the decision it did.” Sierra Club, 459 F. Supp. 2d. at 90 (quotation marks and citation omitted). “Summary judgment is the proper mechanism for deciding, as a matter of law, whether an agency action is supported by the administrative record and consistent with the [Administrative Procedure Act] standard of review.” Loma Linda Univ. Med. Ctr. v. Sebelius, 684 F. Supp. 2d 42, 52 (D.D.C. 2010) (citation omitted), aff'd, 408 Fed. App'x 383 (D.C. Cir. 2010).

The Administrative Procedure Act “sets forth the full extent of judicial authority to review executive

agency action for procedural correctness.” FCC v. Fox Television Stations, Inc., 556 U.S. 502, 513 (2009). It requires courts to “hold unlawful and set aside agency action, findings, and conclusions” that are “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A). Agency action is arbitrary and capricious if, for example, the agency “entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins., 463 U.S. 29, 43 (1983).

This is a “narrow” standard of review, under which “a court is not to substitute its judgment for that of the agency.” *Id.* Rather, the Court “will defer to the [agency’s] interpretation of what [a statute] requires so long as it is ‘rational and supported by the record.’” Oceana, Inc. v. Locke, 670 F.3d 1238, 1240 (D.C. Cir. 2011) (quoting C & W Fishing Co. v. Fox, 931 F.2d 1556, 1562 (D.C. Cir. 1991)). In other words, an agency is required to “examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made.” State Farm, 463 U.S. at 43 (quoting Burlington Truck Lines v. United States, 371 U.S. 156, 168 (1962)). Courts, accordingly, “do not defer to the agency’s conclusory or unsupported suppositions,” United Techs. Corp. v. Dep’t of Def., 601 F.3d 557, 562 (D.C. Cir. 2010) (quoting McDonnell Douglas Corp. v. Dep’t of the Air Force, 375 F.3d 1182, 1187 (D.C. Cir. 2004)), and “agency ‘litigating positions’ are not entitled to deference when they are

merely [agency] counsel’s *‘post hoc* rationalizations’ for agency action, advanced for the first time in the reviewing court.” Martin v. Occupational Safety & Health Review Comm’n, 499 U.S. 144, 156 (1991). Although a reviewing court “may not supply a reasoned basis for the agency’s action that the agency itself has not given,” a decision that is not fully explained may, nevertheless, be upheld “if the agency’s path may reasonably be discerned.” Bowman Transp., Inc. v. Arkansas-Best Freight System, Inc., 419 U.S. 281, 285-86 (1974) (citation omitted).

III. Analysis of Standing Rock’s Claims

As earlier noted, Standing Rock seeks summary judgment on three claims: (1) The Corps’ July 25, 2016, and February 8, 2017, conclusions that the Oahe crossing did not warrant an EIS violated NEPA because the agency did not make a convincing case that no significant impacts would result and failed to take a hard look at the project’s effects on Treaty rights and environmental-justice considerations; (2) The Corps’ February 8, 2017, decision to grant the easement was arbitrary, capricious, and contrary to law because the Corps reversed a prior policy without reasoned justification and because the decision constituted a breach of trust responsibilities; and (3) The Corps wrongfully concluded on July 25, 2016, that the pipeline activities satisfied the terms and conditions of NWP 12. The Court addresses each in turn.

A. Decision Not to Prepare EIS

In reviewing an agency’s decision not to issue an EIS, the Court’s role is a “‘limited’ one, designed primarily to ensure ‘that no arguably significant consequences have been ignored.’” TOMAC, Taxpayers of

Michigan Against Casinos v. Norton, 433 F.3d 852, 860 (D.C. Cir. 2006) (quoting Pub. Citizen v. Nat'l Highway Traffic Safety Admin., 848 F.2d 256, 267 (D.C. Cir. 1988)). An agency's decision to issue a FONSI and thus not to prepare an EIS will be overturned only "if the decision was arbitrary, capricious, or an abuse of discretion." Sierra Club v. Peterson, 717 F.2d 1409, 1413 (D.C. Cir. 1983).

When examining the adequacy of the FONSI and the EA upon which it was based, courts must determine whether the agency:

(1) has accurately identified the relevant environmental concern, (2) has taken a hard look at the problem in preparing its [FONSI or Environmental Assessment], (3) is able to make a convincing case for its finding of no significant impact, and (4) has shown that even if there is an impact of true significance, an EIS is unnecessary because changes or safeguards in the project sufficiently reduce the impact to a minimum.

Sierra Club v. Van Antwerp, 661 F.3d 1147, 1154 (D.C. Cir. 2011) (quoting TOMAC, 433 F.3d at 861) (internal quotation marks omitted). In so doing, courts in this circuit apply "a rule of reason to an agency's NEPA analysis" and decline to "'flyspeck' the agency's findings in search of 'any deficiency no matter how minor.'" Myersville Citizens for a Rural Cmty., Inc. v. FERC, 783 F.3d 1301, 1322-23 (D.C. Cir. 2015) (quoting Nevada v. Dep't of Energy, 457 F.3d 78, 93 (D.C. Cir. 2006)).

Standing Rock contends that the EA for DAPL "runs afoul of these standards." SRST MSJ at 19. In

particular, the Tribe argues that the Corps did not take a hard look at or make a convincing case that the Lake Oahe crossing will have no significant environmental impact, and that it did not sufficiently consider route alternatives or environmental-justice implications. *Id.* at 19-31. For these reasons, it asserts that “[t]he Corps’ conclusion that the Oahe crossing was not significant enough to warrant an EIS is arbitrary, capricious, and contrary to law.” SRST MSJ at 17; see *Nevada*, 457 F.3d at 87 (“[Courts] apply the APA’s arbitrary and capricious standard to a NEPA challenge.”). The Court begins its analysis with environmental impact and then turns to alternatives and environmental justice.

1. *Hard Look/Convincing Case*

Pursuant to NEPA’s “hard look” requirement, the agency must ensure that “the adverse environmental effects of the proposed action are adequately identified and evaluated.” *Robertson*, 490 U.S. at 350. In evaluating the significance of a proposed action’s impact, an agency is to consider, *inter alia*, the effect on “public health or safety”; “[u]nique characteristics of the geographic area such as proximity to historic or cultural resources”; the extent to which the environmental effects “are likely to be highly controversial” or “are highly uncertain or involve unique or unknown risks”; “[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts”; and the degree to which the action “may cause loss or destruction of significant . . . cultural[] or historical resources.” 40 C.F.R. § 1508.27.

The Tribe identifies several ways in which the Corps allegedly failed to take a hard look at the environmental consequences of permitting DAPL's construction and operation and to make a convincing case of no significant impact. It principally argues that the agency did not properly assess the risk of a spill under Lake Oahe or sufficiently consider the environmental impacts on Treaty rights of the construction of the pipeline or of a spill. Before proceeding to address each of the Tribe's points, however, the Court must dispense with a threshold issue.

a. Extent of Record

To substantiate many of its critiques of the EA's analysis, the Tribe relies on expert reports and other records dated after July 25, 2016, when the Final EA and Mitigated FONSI were published. Dakota Access argues that the Court should not consider these reports or any evidence from the Tribe that post-dates July 25.

"It is a widely accepted principle of administrative law that the courts base their review of an agency's actions on the materials that were before the agency at the time its decision was made." IMS, P.C. v. Alvarez, 129 F.3d 618, 623 (D.C. Cir. 1997) (listing cases). Here, in challenging the Corps' decision not to prepare an EIS, the Tribe in effect challenges authorizations made at two different times: the RHA Section 408 authorization and NWP 12 verification on July 25, 2016, and the easement approval on February 8, 2017. See ECF No. 196-1 (SRST Reply) at 3. The Section 408 and NWP 12 decisions were based on the conclusion set out in the EA and FONSI that the permissions

would not have a significant impact on the environment, and the easement decision was also based on “additional review, analysis of terms and conditions for the easement, and on the Corps’ decision that supplementation of the EA/FONSI was not required.” Corps SRST MSJ at 10. The Corps thus decided at two junctures that an EIS was not required, and it prepared an administrative record encompassing the materials that were before it at each decision date. Although Dakota Access is technically correct that the expert reports and other evidence submitted after July 25, 2016, are outside the record for the RHA Section 408 and NWP 12 decisions, that offers them little aid. This is because the Court can review the materials before the Corps as of February 8, 2017, for purposes of evaluating the decision to grant the easement absent an EIS. The Court, consequently, will consider all materials dated up to February 8.

To complicate matters further, however, the Tribe wishes the Court to also review “some uncontroversial background materials (e.g., maps) and declarations from its expert” that post-date February 8. *See* SRST Reply at 3. It argues that such extra-record evidence comes within the “accepted exceptions to the principle that the court cannot consider information that falls outside the agency record”—namely, where “the agency failed to examine all relevant factors or to adequately explain its grounds for decision, or . . . acted in bad faith or engaged in improper behavior in reaching its decision.” *IMS*, 129 F.3d at 624; SRST Reply at 3.

On this point, the Tribe first contends that the Corps engaged in improper behavior by withholding confidential spill-model discussions and geographic-

response plans to which its post-easement expert declarations respond. See SRST Reply at 3-4. But the showing required “to justify supplementing the record” is a “strong” one, IMS, 129 F.3d at 624 (quoting Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402, 420 (1971)), and the Court does not find that the Tribe has made it here. The Corps has explained that it withheld from the Tribe and the public a small number of documents supporting the EA “[b]ecause of security concerns and sensitivities.” Dec. 4 Memo, ¶ 5. Indeed, the Court recently concluded that there was good cause to protect from public disclosure certain information in some spill-model reports that, if released, could endanger life or physical safety. Standing Rock Sioux Tribe v. U.S. Army Corps of Eng’rs (Standing Rock III), No. 16-1534, 2017 WL 1316918, at *5-6 (D.D.C. Apr. 7, 2017). Absent a showing to the contrary, the Court thus cannot permit supplementation of the record on the ground of some withholding impropriety.

The Tribe next argues that its extra-record evidence describes how the Corps failed to examine all relevant factors and provide adequate grounds for its decision. But “[t]his is not a case where the agency failed ‘to explain administrative action [so] as to frustrate effective judicial review.’” IMS, 129 F.3d at 624 (quoting Camp v. Pitts, 411 U.S. 138, 142-43 (1973)). The EA addressed each factor for which the Tribe marshals extra-record evidence, even if not with the depth or ultimate conclusion the Tribe would prefer. Compare SRST MSJ at 21 (criticizing Corps’ failure to address “slow leaks in the HDD bore,” which, based on Tribe-commissioned expert review, would be “complicated if not impossible to clean up and likely would

have significant impacts on soils' and underlying aquifers") (quoting ECF No. 117-23 (Envy Report, Jan. 5, 2017) at 14); SRST Reply at 11 ("Landslides are a major source of pipeline failures and a critical factor in route selection.") (citing ECF No. 195-4 (Corrective Action Order, Belle Fourche Pipeline Company, Dec. 20, 2016); Accufacts, Inc. Review at 3; ECF No. 120 (Sealed Declaration of Richard Kuprewicz, Feb. 12, 2017), 1121); id. at 12 (describing EA's failure to acknowledge "undisputed evidence" regarding failure rates of spill-detection systems) (citing ECF No. 209-5 at 110 (Letter from Sierra Club Indigenous Environmental Network, Oct. 10, 2016); Accufacts, Inc. Review at 5); id. at 12-13 ("[T]he EA fails to acknowledge that with a pipeline 90 feet underground, there is no way to discover a slow leak until the oil sheen appears on the surface of the water, at which point a massive release will have occurred that would be nearly impossible to clean up.") (citing Envy Report at 13-14; Oct. 28, 2016, SRST Letter at 5); id. at 13 (stating the EA's "startlingly optimistic times for responding to a spill after it has been detected . . . have been the subject of withering criticism") (citing Accufacts, Inc. Review at 5-6; EarthFax Report at 9; Sealed Kuprewicz Decl., ¶¶ 15-17; Envy Report at 27); id. at 13-14 ("One expert review found numerous flaws in the Corps' analysis of water quality impacts of a spill, including a failure to identify key pollutants; overstatement of flows that dilute likely pollutant impacts; use of an inappropriate standard to determine toxicity; and reliance on the wrong drinking water standard.") (citing EarthFax Report at 5-7); id. at 14 (arguing EA's treatment of impact of winter conditions on spill risk was inadequate) (citing EarthFax Report at 7-8; Oct. 28, 2016, SRST

Letter at 5; ECF No. 196-2 (Declaration of Elliott Ward, Mar. 25, 2017), ¶ 12) with EA at 19, 36 (borehole leaks); 26-28 (landslides); 42, 46, 90-91 (description of leak-detection system as “capable of detecting leaks down to 1 percent or better of the pipeline flow rate within a time span of approximately 1 hour or less and capable of providing rupture detection within 1 to 3 minutes”); 36-49 (discussing impacts of spill to water quality); 39, 43, 123 (discussing impact of “[s]ub-freezing temperatures during the winter months” and means of responding to spill in winter, including identifying “all-weather access and collection point” downstream of Oahe crossing and undertaking “full scale winter/ice” emergency response drills/exercises).

Disagreement with an agency’s analysis is not enough to warrant the consideration of extra-record evidence, which, after all, is “the exception, not the rule.” Oceana, Inc. v. Pritzker, 126 F. Supp. 3d 110, 113 (D.D.C. 2015) (quoting Theodore Roosevelt Conservation Partnership v. Salazar, 616 F.3d 497, 514 (D.C. Cir. 2010)). As it proceeds through Standing Rock’s arguments regarding the deficiencies in the EA’s analysis, therefore, the Court will not engage with those contentions that turn on evidence that post-dates February 8, 2017. This procedural brush now cleared away, the Court tackles the substance of the Tribe’s no-convincing-case position, beginning with spill risks and continuing to Treaty rights.

b. Spill-Risk Analysis

Although grouped under the “spill-risk” heading, Standing Rock’s challenges here encompass the risk of spills, the degree of scientific controversy, and the

cumulative risk of the project, each of which is analyzed separately.

i. Risk of Spill

Standing Rock first maintains that the EA understates and does not properly assess the risk of an oil spill under Lake Oahe. See SRST MSJ at 21 (“[T]he Corps falls back on a rote mantra that the risk of oil spills is low.”); id. at 22 (citing Solicitor Op. at 28-29 & n.171 (noting PHMSA data shows average of over 283 significant incidents involving gas, oil, or other pipelines per year since 1996)). It argues that, although the EA repeats that the spill risk is “very low,” “unlikely,” or “negligible,” see, e.g., EA at 48, 63, 87, it does not explain what “low” means. See SRST Reply at 9. And “to conduct a credible assessment of spill risks,” the Corps should have addressed concerns relating to landslide risks, inadequate spill-detection systems, underground leaks, response times, spill volumes, water-quality analysis, and winter conditions, id. at 11-14, and looked at portions of the pipeline entering and exiting the boreholes. Id. at 15-16.

The EA, in fact, devotes several pages to discussing DAPL’s “reliability and safety.” EA at 88-94. The relevant section first explains that, “[t]o prevent pipeline failures resulting in inadvertent releases,” DAPL will be constructed and maintained in accordance with “industry and governmental requirements and standards,” including those from PHMSA, the American Society of Mechanical Engineers, the National Association for Corrosion Engineers, and the American Petroleum Industry. Id. at 88. After its installation, the pipeline will undergo “hydrostatic pressure testing at the crossings, checking coating integrity, and X-

ray inspection of the welds.” Id. The pipeline right-of-ways will also “be patrolled and inspected by air . . . at least every three weeks and not less than 26 times per year[] to check for abnormal conditions or dangerous activities, such as unauthorized excavation along the pipeline route.” Id. In addition, Dakota Access plans to use “a supervisory control and data acquisition . . . system to provide constant remote oversight of the pipeline facilities,” including the detection of “rapid drops in pressure,” and pipeline-monitoring software to identify any leaks by tracking “pipeline pressure, flow, and temperature data” pulled every six seconds. Id. at 89-90. The EA reports that such a system “is capable of detecting leaks down to 1 percent or better of the pipeline flow rate within a time span of approximately 1 hour or less and capable of providing rupture detection within 1 to 3 minutes.” Id. at 90. If a leak is detected, remotely operated valves are to be triggered and closed within three minutes. Id.

Other courts, including this Circuit, have favorably viewed similar agency reliance on applicable regulatory standards when assessing impacts as part of a NEPA-required analysis. See, e.g., EarthReports, Inc. v. FERC, 828 F.3d 949, 957 (D.C. Cir. 2016) (holding agency fulfilled its NEPA obligations to evaluate ballast-water impacts by, *inter alia*, noting requirements of applicable regulatory agencies); Sierra Club v. Clinton, 746 F. Supp. 2d 1025, 1047 (D. Minn. 2010) (holding agency properly considered impacts of pipeline abandonment by referencing PHMSA regulations).

The EA then proceeds to review the basis for its conclusion that the risk of an oil spill is “low.” EA at 92. Specifically, that conclusion comes from a risk

analysis conducted by Dakota Access that was derived from criteria set out in “the W. Kent Muhlbauer Relative Index Methodology (2004), in accordance with 49 CFR 195.452 ‘Hazardous Liquid Pipelines in High Consequence Area’, API RP 1160 ‘Managing System Integrity for Hazardous Liquid Pipelines’, and ASME B31.8S ‘Managing System Integrity of Gas Pipelines.’ Id. That analysis “addressed nine industry-recognized pipeline integrity threat categories”: (1) third-party damage; (2) external corrosion; (3) internal corrosion; (4) pipe-manufacturing defects; (5) construction-related defects; (6) incorrect operations; (7) equipment failure; (8) stress-corrosion cracking; and (9) natural forces. Id. at 92-94.

The underlying analysis is not itself in the record, see SRST Reply at 8, but the EA summarizes its conclusions as to each of the nine factors. Although no explanation is provided, three of the nine factors—external corrosion, internal corrosion, and construction-related defects—are assessed only as to the crossing at Lake Sakakawea; the other six are applied to both Sakakawea and Oahe. See EA at 92-94. The EA’s explanation of its choice of methodology and subsequent treatment of the different factors is nonetheless enough to give substance to the Corps’ conclusion that the risk of a spill is low. See *Sierra Club v. Watkins*, 808 F. Supp. 852, 868 (D.D.C. 1991) (explaining courts should “defer to an agency’s decision to use a particular risk assessment methodology that is consistent with general principles of science”) (citing *Sierra Club v. Dep’t of Transp.*, 753 F.2d 120, 128-29 (D.C. Cir. 1985)). For example, the EA explains that, at the Oahe crossing, spill risk due to third-party damage is low because the pipeline is positioned 92 feet below

the lakebed; spill risk from manufacturing defects is also slim because the pipeline will be “hydrostatically strength-tested”; and spill risk from “incorrect operations (*e.g.*, overpressure event caused by human error)” is low because the pipeline is designed to withstand twice the maximum-allowable operating pressure. See EA at 92-94. The EA thus does not simply use “[a]n unbounded term” that “provides no objective standard for determining what kind of differential makes one impact more or less significant than another.” Mainella, 459 F. Supp. 2d at 101. Admittedly, the EA does not quantify the risk of a spill with exact numerical precision. But in setting out the specific factors that undergirded its risk analysis and explaining their application to DAPL, the EA reasonably gives the necessary content to its top-line conclusion that the risk of a spill is low.

As noted above in the discussion of extra-record evidence, moreover, the EA did not omit discussion of borehole leaks (EA at 19, 36); landslides (EA at 26-28); leak-detection systems (EA at 42, 46, 90-91); water quality (EA at 36-49); or winter temperatures (EA at 39, 43, 123). To the extent the Tribes’ experts disagree with the Corps’ technical assessments or overall conclusion, such disagreements are “a classic example of a factual dispute the resolution of which implicates substantial agency expertise.” Wisc. Valley Improvement Co. v. FERC, 236 F.3d 738, 746 (D.C. Cir. 2001) (quoting Marsh, 490 U.S. at 376). In such situations, courts “must defer to ‘the informed discretion of the responsible federal agencies.’” Id. at 747 (quoting Marsh, 490 U.S. at 377); see also Nat’l Comm. for the New River v. FERC, 373 F.3d 1323, 1327 (D.C. Cir. 2004) (“When an agency ‘is evaluating scientific data

within its technical expertise,’ an ‘extreme degree of deference to the agency’ is warranted.”) (quoting B&J Oil & Gas v. FERC, 353 F.3d 71, 76 (D.C. Cir. 2004)).

ii. Highly Controversial

Although the Court cannot agree with Standing Rock that the Corps did not adequately consider or explain its conclusion that the risk of an oil spill is low, a related position gains more traction. As explained above, CEQ regulations provide that one factor that “should be considered” in evaluating the significance of a proposed action’s impact is “[t]he degree to which the effects on the quality of the human environment are likely to be highly controversial.” 40 C.F.R. § 1508.27(b)(4). Standing Rock argues that evidence in the record indicated that the pipeline’s effects were highly controversial, and that the Corps therefore should have concluded that the project would have significant impacts on the environment. See SRST MSJ at 20-21.

Such controversy is not measured by newsworthiness; instead, according to the Court of Appeals, “The term ‘controversial’ refers to cases where a substantial dispute exists as to the size, nature, or effect of the major federal action rather than to the existence of opposition to a use.” Town of Cave Creek, Arizona v. FAA, 325 F.3d 320, 331 (D.C. Cir. 2003) (quoting Found. for N. Am. Wild Sheep v. Dep’t of Agric., 681 F.2d 1172, 1182 (9th Cir. 1982)). Despite that explanation, however, as other courts in this district have observed, “Just what constitutes the type of ‘controversy’ that requires a full EIS is not entirely clear.” Nat’l Parks Conservation Ass’n v. United States, 177 F. Supp. 3d 1, 33 (D.D.C. 2016) (quoting Nat’l Wildlife

Fed'n v. Norton, 332 F. Supp. 2d 170, 184 (D.D.C. 2004)). At a minimum, “something more is required besides the fact that some people may be highly agitated and be willing to go to court over the matter.” Id. (quoting Fund for Animals v. Frizzell, 530 F.2d 982, 988 n.15 (D.C. Cir. 1975)).

“Many courts have found ‘something more’ to be scientific or other evidence that reveals flaws in the methods or data relied upon by the agency in reaching its conclusions.” Id. (citing Nat'l Parks & Conservation Assoc. v. Babbitt, 241 F.3d 722, 736-37 (9th Cir. 2001) (holding agency action was highly controversial because “comments urg[ing] that the EA’s analysis was incomplete, and the mitigation uncertain, . . . cast substantial doubt on the adequacy of the Parks Service’s methodology and data,” and thus the dispute went “beyond a disagreement of qualified experts over the ‘reasoned conclusions’ as to what the data reveal[ed]”); Nat'l Wildlife Fed'n, 332 F. Supp. 2d at 185 (“Such a controversy exists where the Corps is presented with scientific evidence specifically evaluating the environmental effects of the proposed project or calling into question the adequacy of the EA.”); Fund for Animals v. Norton, 281 F. Supp. 2d 209, 235 (D.D.C. 2003) (“While plaintiffs have identified serious gaps in defendants’ assessment of the local effects of the proposed action, they do not appear to have identified any scientific controversy *per se* as to the extent of the effects.”); Sierra Club v. Van Antwerp, 719 F. Supp. 2d 58, 67-68 (D.D.C. 2010) (“While declarations were submitted to the Corps from numerous experts who claimed that [the development project] will have significant adverse impacts on Cypress Creek and its wetlands, these declarations alone fail

to rise to the level of ‘controversy’ under NEPA.”), aff’d in part, rev’d in part on other grounds, 661 F.3d 1147 (D.C. Cir. 2011), as amended (Jan. 30, 2012)); but cf. Humane Soc. of U.S. v. Dep’t of Commerce, 432 F. Supp. 2d 4, 19-20 (D.D.C. 2006) (finding agencies’ decision not to prepare EIS highly controversial based on comments from plaintiff and other agencies indicating disagreement with agencies’ conclusions).

Here, as evidence of controversy, Standing Rock refers only generally to “the multiple critiques of the Corps’ unexamined conclusions, expert evidence indicating greater risks, and critical comment from other federal agencies.” SRST MSJ at 20-21. The Tribe does not help the Court to evaluate its argument by, for example, following these general references with specific statements made by the Tribe, agencies, or experts critiquing the Corps’ methodology or data. In any event, based on its review of the record, the Court first concludes that none of the evidence before the Corps as of July 25, 2016—including Standing Rock’s comments, see ECF No. 159-1, Exh. C (SRST Comments on Draft EA, Jan. 8, 2016); id., Exh. D (SRST Suppl. Comments on Draft EA, Mar. 24, 2016); ECF No. 209-6 at 51 (Notes for Feb. 18-19, 2016, Tribal Meeting); ECF No. 209-9 at 33 (Letter from Waste Win Young to Martha Chieply, Feb. 25, 2015), and submissions from the EPA and the Department of the Interior, see ECF No. 209-7 at 21 (Letter from Lawrence Roberts to Brent Cossette, Mar. 29, 2016), ECF No. 209-16 at 184 (Letter from Philip Strobel to Brent Cossette, Jan. 8, 2016), ECF No. 209-8 at 123 (Letter from Philip Strobel to Brent Cossette, Mar. 11, 2016), ECF No. 209-9 at 209 (Email “Quick Summary of Conference Call with EPA,” Feb. 25, 2016)—suggested

substantial methodological or data flaws in the Corps' analysis.

The expert reports submitted to the Corps after the Final EA was published but before the Corps again decided in February 2017 that an EIS was not required, see Semonite Memo at 14, however, do present such scientific critiques. See, e.g., EarthFax Report at 1-3 (critiquing EA for considering spill volumes from pipelines generally, rather than from pipelines with 16-inch or larger diameters, like DAPL); id. at 4 (suggesting EA used incorrect river-flow rates to assess spill impacts); id. at 5-7 (explaining EA used inappropriate benzene-concentration limits); id. at 9 (arguing EA should have included quantitative analysis of risk of failure of system components); id. at 9 (contending EA wrongly relied upon premise that emergency block valves would close immediately upon leak detection); Accufacts, Inc. Review at 7 (stating corrosion threats should be assessed based on field readings of in-line inspection runs, not assumed rates); id. at 9-10 (arguing that complete risk analysis required, *inter alia*, consideration of pipeline elevation profile, maximum operating pressure, location of mainline valves, location and type of "critical leak detection monitoring devices by milepost").

It may well be the case that the Corps reasonably concluded that these expert reports were flawed or unreliable and thus did not actually create any substantial evidence of controversial effects. Dakota Access, for example, offers a scathing assessment of the reports' "material flaws." DA SRST Opp. at 21 n.4. But the Corps never said as much. Its February 3, 2017, memo determining that the Final EA and FONSI sat-

isfied NEPA's requirements and supported the decision to grant the easement is devoid of any discussion of the methodological and data flaws identified in the reports. Indeed, it acknowledges receiving only Standing Rock's Accufacts, Inc. Review and wholly ignores the others. See Semonite Memo at 12. As the agency did not demonstrate that it considered, as the CEQ regulations require, the degree to which the project's effects are likely to be highly controversial, despite being presented with evidence of scientific flaws, the Court cannot conclude that the Corps made a convincing case of no significant impact or took the requisite hard look. The remedy for such violation is discussed in Section III.D, *infra*.

iii. Cumulative Risk

Finally, the Tribe contends that the EA "fails to consider the cumulative risk imposed by the pipeline." SRST MSJ at 22 (citing 40 C.F.R. § 1508.27(b)(7) ("Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment.")). "Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. Such impacts "can result from individually minor but collectively significant actions taking place over a period of time." *Id.* Other pipelines cross under the Missouri River, but, the Tribe states, the EA does not analyze how the addition of DAPL compounds the overall risk of a pipeline spill in the Missouri River, nor does it consider "the cumulative risk to Tribal resources from the rest of the pipeline outside Lake

Oahe.” SRST MSJ at 23; see also id. at 23 n.12 (criticizing Corps for “unlawfully segmenting its NEPA review of one pipeline into [three] separate components”). This argument, like the Tribe’s first in this subsection, does not succeed.

The EA devotes eleven pages to a discussion of cumulative impacts on eleven types of resources, including geology and soils, water and aquatic life, agriculture, land use, cultural and historic resources, and environmental justice. See EA at 98-107. It acknowledges at the outset that in the vicinity of the Oahe crossing are “oil and gas development and associated infrastructure, utility installation, and agriculture,” and that the pipeline at the Oahe crossing is co-located with “a natural gas pipeline and a 345 kV power line.” EA at 98. Although the EA does not expressly state whether the presence of other pipelines increases the risk that DAPL (or those pipelines) will rupture, it acknowledges the potential for unanticipated releases and refers back to the analysis of minimization and remediation activities to conclude that the potential cumulative impacts on water and aquatic resources from spills “would be minor.” Id. at 101. It also considers the benefits of co-location, such as minimized land-use disturbance from construction. Id. at 105. The EA therefore does not simply conclude absent any actual analysis that cumulative impacts would be minimal; on the contrary, there is enough to “allow the Court to review the agency’s finding.” Friends of the Earth, Inc. v. U.S. Army Corps of Eng’rs, 109 F. Supp. 2d 30, 42 (D.D.C. 2000).

The Corps, moreover, was not required to consider the impacts from the whole pipeline. See Sierra Club v. U.S. Army Corps of Eng’rs, 803 F.3d 31, 34 (D.C.

Cir. 2015) (holding that where federal easement and CWA permitting encompassed only five percent of pipeline's length, "the federal government was not required to conduct NEPA analysis of the entirety of the . . . pipeline, including portions not subject to federal control or permitting"); Sierra Club v. Bostick, 787 F.3d 1043, 1051-54 (10th Cir. 2015) (holding Corps was not required to prepare NEPA analysis of entire pipeline when verifying NWP for 485-mile oil pipeline crossing over 2,000 waterways); Winnebago Tribe of Neb. v. Ray, 621 F.2d 269, 272-73 (8th Cir. 1980) (same for electric utility line). That it did not address the cumulative risk from the entire pipeline thus does not run afoul of NEPA.

c. Impacts Analysis Re: Treaty Rights

In addition to challenging the EA's analysis of the risk of a spill, Standing Rock raises concerns about its discussion of the effects of the project, including a potential spill, should one occur, on the Tribe's Treaty rights. According to Standing Rock, "NEPA requires the Army Corps to disclose and assess the suite of risks from the Lake Oahe crossing to the full range of the Tribe's Treaty rights, in the context of the Corps' heightened trust responsibilities." SRST MSJ at 24. Here, the relevant Treaty rights are those implicating water, hunting, and fishing. Id. at 25; Corps SRST MSJ at 20; see also Winters v. United States, 207 U.S. 564, 576-78 (1980) (holding that when federal government creates an Indian reservation, it impliedly reserves otherwise unappropriated water to extent necessary to accomplish purposes of reservation); Fort Laramie Treaty of 1851, art. 55, 11 Stat. 749, 1851 WL 7655 (reserving for the Sioux tribes "the privilege of hunting, fishing, or passing over" lands described in

Treaty); United States v. Dion, 476 U.S. 734, 738 (1986) (“As a general rule, Indians enjoy exclusive treaty rights to hunt and fish on lands reserved to them, unless such rights were clearly relinquished by treaty or have been modified by Congress.”). The Court first explains the manner of the Corps’ analysis of these rights and then turns separately to the effect of construction and the impact of a spill on such rights.

i. Manner of Analysis

Before turning to whether the Corps adequately considered these impacts, the Court discusses how it was required to do so. The Tribe contends that the Corps had to address these Treaty rights *qua* Treaty Rights, see SRST MSJ at 25-26; SRST Reply at 23-24, whereas the Corps asserts that it needed only to consider the effects on the resources implicated by the Treaty rights—*i.e.*, water, fish, and game. See Corps SRST MSJ at 20-21 & n.9. To explain more fully, Standing Rock believes that the Corps’ position “misunderstands the Tribe’s Treaty rights,” which “embody the fundamental rights of a people tied to a place since time immemorial” and thus demand a more “existential” analysis. See SRST Reply at 23-24. For example, the Tribe explains that, although “[e]cological impacts to fish and game habitat and populations present one dimension” of the impacts of an oil spill on aquatic resources, “[t]he impact to Tribal members of losing the right to fish and hunt, which provides both much-needed subsistence food to people facing extensive poverty as well as a connection to cultural practices that Tribal members have engaged in since time immemorial, is a separate issue.” Id.

Standing Rock may be right that the construction and operation of DAPL under Lake Oahe could affect its members in the broad and existential ways it details, but it offers no case law, statutory provisions, regulations, or other authority to support its position that NEPA requires such a sweeping analysis. The Corps, conversely, points to several cases in which courts have approved an approach consistent with its view of its NEPA obligations—*i.e.*, an agency may assess impacts on treaty rights by analyzing the effects on a specific resource identified in the treaty. See Ground Zero Ctr. for Nonviolent Action v. Dep't of the Navy, 918 F. Supp. 2d 1132, 1152 (W.D. Wash. 2013), on reconsideration in part No. 12-1455, 2013 WL 357509 (W.D. Wash. Jan. 29, 2013) (assessing impact on tribe's treaty fishing rights by considering surveys of fish patterns and Navy's mitigation efforts); Nw. Sea Farms, Inc. v. U.S. Army Corps of Eng'rs, 931 F. Supp. 1515, 1521-22 (W.D. Wash. 1996) (explaining Corps correctly concluded that project would impair treaty fishing rights by considering impact on tribe's access to fish); No Oilport! v. Carter, 520 F. Supp. 334, 356-57 (W.D. Wash. 1981) (concluding EIS's discussion of effect of pipeline rupture on "the fish resource," including via maps, adequately evaluated project's impact on tribe's treaty fishing rights). Absent any controlling or persuasive authority to the contrary, the Court sees no basis on which to conclude that NEPA demands the type of existential-scope analysis the Tribe advocates. Rather, it is sufficient that the agency adequately analyze impacts on the resource covered by a given treaty.

The next question, then, is whether the agency's weighing of those relevant Treaty rights here *viz.*, water, fishing, and hunting was adequate. The Court approaches that question by looking at the Corps' assessment of the impacts on the different Treaty rights from (1) the construction of the pipeline, and (2) an unanticipated oil spill. In so doing, the Court keeps in mind the definition of "hard look" recently articulated by the D.C. Circuit: "[A]n agency has taken a 'hard look' at the environmental impacts of a proposed action if the statement contains sufficient discussion of the relevant issues and opposing viewpoints, and the agency's decision is fully informed and well-considered." Myersville Citizens for a Rural Community, Inc. v. FERC, 783 F.3d 1301, 1324-25 (D.C. Cir. 2015).

ii. Construction

The EA discussed in several places the potential impact of DAPL's construction on water resources, fish, and wildlife at Lake Oahe. See EA at 36 (acknowledging that, during HDD-construction phase, drilling fluid could inadvertently be released "directly or indirectly into the waterbody" and discussing mitigation measures); id. at 37 (explaining water required for HDD construction and hydrostatic testing at Oahe crossing would not be obtained from Lake Oahe); id. at 38 ("No waterbody would be permanently drained or filled as part of the DAPL Project, and effects on waterbodies are expected to be short-term and minor."); id. at 45 (addressing impacts of construction activities on groundwater); id. at 50 (explaining no wetlands exist within Oahe Project Area or Connected Action Area); id. at 58 (discussing "[t]emporary impacts on wildlife" that "could occur during construction," in-

cluding displacement of “larger and more mobile animals”); *id.* (“No impacts to treaty fishing and hunting rights are anticipated due to construction within the Project Area or Connected Actions.”); *id.* at 69 (discussing possible adverse impacts on “fish eggs, juvenile fish survival, benthic community diversity and health, and spawning habitat,” as well as “fish fry[] and invertebrates inhabiting the river,” from “subsurface disturbing activities,” inadvertent release of drilling mud, and water withdrawal from Missouri River); *id.* at 75 (“The recreational enjoyment of wildlife (such as hunting or bird watching) may be temporarily affected by construction activities, depending on season and location.”). Because the EA “clearly addressed” these impacts and concluded that they would either be insignificant or could be mitigated, the Court finds that, in this respect, it was adequate. *See Minisink Residents for Env'tl. Pres. & Safety v. FERC*, 762 F.3d 97, 112 (D.C. Cir. 2014) (finding EA adequately examined compressor-station project’s impact on property values where it recognized some adverse impacts might accrue but could be mitigated).

iii. Spill Impacts

As to the second issue—namely, the spill effects—the Tribe contends that the EA “never examined the impacts of spills on the Tribe and its Treaty rights.” SRST Reply at 1. The Court agrees in part.

First, it bears noting that even though a spill is not certain to occur at Lake Oahe, the Corps still had to consider the impacts of such an event on the environment. “[A]n agency conducting an EA generally must examine both the probability of a given harm occurring and the consequences of that harm if it does

occur.” New York v. Nuclear Regulatory Comm’n, 681 F.3d 471, 482 (D.C. Cir. 2012). “Only if the harm in question is so ‘remote and speculative’ as to reduce the effective probability of its occurrence to zero may the agency dispense with the consequences portion of the analysis.” Id. (quoting Limerick Ecology Action, Inc. v. Nuclear Regulatory Comm’n, 869 F.2d 719, 739 (3d Cir. 1989)). Yet, “the finding that the probability of a given harm is nonzero does not, by itself, mandate an EIS: after the agency examines the consequences of the harm in proportion to the likelihood of its occurrence, the overall expected harm could still be insignificant and thus could support a FONSI.” Id.; see also Gov’t of the Province of Manitoba v. Salazar, 691 F. Supp. 2d 37, 50 (D.D.C. 2010) (“It may be that the risk of a breach is low given the pipeline’s construction, but that is not an excuse for Reclamation to refuse entirely to analyze the consequences. When the degree of potential harm could be great, *i.e.*, catastrophic, the degree of analysis and mitigation should also be great”); Sierra Club v. Watkins, 808 F. Supp. 852, 868 (D.D.C. 1991) (holding that, given disputed evidence concerning the possibility of severe accidents, an agency may not simply “refus[e] to include certain low probability risks”—it must at least “admit that such accidents are possible,” determine the probability of occurrence, and “discuss[] their potential effects”). Here, the Corps did not wholly ignore the consequences of a possible oil spill, despite its conclusion that the risk of such an event was low. On the contrary, it adequately discussed the impacts of such “a low risk/high consequence event,” EA at 92, on water—but not on hunting or aquatic—resources.

As to water resources, the EA offered several comments. It acknowledged that, during operations, “[d]rinking water intakes located downstream from the Missouri River and Lake Oahe crossings could be at risk if there was a release that reached these bodies of water in the vicinity of the intake structures,” and that “the Standing Rock Sioux . . . have intake structures within the river downstream of the Lake Oahe Project area.” Id. at 38; see also id. at 42 (“In the unlikely event of a release during pipeline operations, drinking and irrigation water intakes located downstream from the Missouri River and Lake Oahe crossings could be at risk if hydrocarbons were to reach these bodies of water in the vicinity of the intake structures.”); id. at 87 (“Concerns have been expressed regarding an inadvertent release reaching intake structures on Lake Oahe. . . . In the unlikely event of a release, sufficient time exists to close the nearest intake valve to avoid human impact.”). Later, the EA further explained: “Accidental releases from the pipeline system during operations could potentially affect groundwater. . . . [C]rude oil released into soil can migrate toward water where certain constituents can dissolve into groundwater or surface water in limited amounts.” Id. at 45.

It then presented a model estimating the concentrations of benzene, a potentially toxic compound found in crude oil, that could be released during a very small, small, moderate, or large spill at the Oahe crossing, and discussed how those results might vary during winter months when temperatures are likely to be colder. Id. at 46-47. Even assuming that “[t]he entire volume of a crude oil spill was released due to a catastrophic failure of the pipeline and reached the

waterbody; [c]omplete, instantaneous mixing occurred; [and] [t]he entire benzene content of the crude oil was solubilized into the water column,” the model concluded that under no spill scenario would the acute toxicity threshold for aquatic organisms be exceeded, and that under the “most probable spill volume,” benzene concentrations would not “exceed the drinking water criteria.” *Id.* In addition, at the conclusion of its discussion of the nine spill-risk factors previously discussed, the EA, under the header “Consequences,” stated: “In the event that a pipeline failure occurs and product is released into the Missouri River at either crossing, the worst case consequence scenario is ranked high because several drinking water intake High Consequence Areas (HCAs) and multiple ecologically sensitive HCAs could be impacted.” *Id.* at 94.

The EA is not similarly attentive, however, to the impacts of a spill on fish or game, the resources implicated by the Tribe’s fishing and hunting rights. As to aquatic resources, the EA offered only a cursory nod to the potential effects of an oil spill, stating simply that “[t]he primary issue related to impacts on the aquatic environment from operation of the Proposed Action would be related to a release from the pipeline.” *Id.* at 69. It never explained, though, what those effects would be. Instead, it simply reasoned that adherence to Dakota Access’s response plan “would minimize potential impacts on aquatic wildlife.” *Id.* at 69-70; *see also id.* at 101. Likewise, regarding hunting, the EA only discussed the effects of construction on “recreationally and economically important species and nongame wildlife”; it said nothing about the effects of a spill. *Id.* at 57-58.

Standing Rock, though, had alerted the Corps to its fishing- and hunting-related concerns after the agency published the Draft EA. See, e.g., ECF No. 159-1, Exh. C (SRST Comments on Draft EA, Jan. 8, 2016) at 13 (“[A] pipeline leak would threaten to damage . . . the fish and wildlife on which many Tribal members depend for subsistence.”); ECF No. 159-1, Exh. D (SRST Suppl. Comments on Draft EA, Mar. 24, 2016) at 15 (“The waters of Lake Oahe also provide habitat for fish, wildlife, and plants important to the diet . . . of the Tribe.”). The Director of Standing Rock’s Department of Game, Fish, and Wildlife Conservation, moreover, explained that many of the Tribe’s members rely on fishing as “an important supplemental source of food and nutrition” and that the Tribe issued 199 family fishing permits in 2015. See ECF No. 117-16 (Declaration of Jeff Kelly, Nov. 28, 2016), ¶ 5. An oil spill, he said, could “cause extensive fish kills.” Id., ¶ 12. He also spelled out the ways in which an oil spill could seriously affect game along the Oahe shoreline, including by poisoning animals that ingest, inhale, or are otherwise externally exposed to oil and preventing those birds and mammals whose feathers or fur are coated with oil from maintaining their body temperatures. Id., ¶ 13. Although the Corps did not have Kelly’s declaration before it when it issued the EA in July 2016, his remarks were before the agency when it concluded that the easement could be issued based on the EA absent any supplementation.

Without any acknowledgment of or attention to the impact of an oil spill on the Tribe’s fishing and hunting rights, despite Plaintiff’s efforts to flag the issue, the EA—in this limited respect—was inadequate.

The appropriate remedy for such omission is discussed in Section III.D, *infra*.

2. *Alternatives*

To comply with NEPA, an Environmental Assessment must include a ‘brief discussion[]’ of reasonable alternatives to the proposed action.” Myersville, 783 F.3d at 1323 (quoting 40 C.F.R. § 1508.9(b)). This consideration “need not be as rigorous as the consideration of alternatives in an EIS.” Id.; compare 40 C.F.R. § 1508.9(b) (requiring “brief discussion[]”) with id. § 1502.14(a) (requiring agency to “[r]igorously explore and objectively evaluate all reasonable alternatives” when EIS required). “An alternative is ‘reasonable’ if it is objectively feasible as well as ‘reasonable in light of [the agency’s] objectives.” Myersville, 783 F.3d at 1323 (quoting Theodore Roosevelt Conservation P’ship v. Salazar, 661 F.3d 66, 72 (D.C. Cir. 2011)). An agency’s “specification of the range of reasonable alternatives is entitled to deference.” Id.

Standing Rock believes that the Environmental Assessment lacks an adequate consideration of such alternatives. Specifically, the Tribe posits that the EA did not appropriately examine an alternative route that would have had the pipeline cross the Missouri River further north. See SRST MSJ at 26, 30-31. The Court disagrees: on this front, the EA adequately discharged the Corps’ NEPA obligations.

Before settling on the current DAPL route, Dakota Access considered routing the pipeline to cross Lake Oahe approximately 10 miles north of Bismarck, North Dakota—*i.e.*, approximately 50 miles north of its current location, which sits just 0.5 miles north of

the Standing Rock Reservation. See EA at 8, 161 (Figure 13). The Company soon determined, however, that that route was not “a viable alternative.” Id. The EA explains why. A table therein compares the Bismarck and Oahe crossings in terms of overall route mileage; co-location with other pipelines and powerlines; the number of existing pipelines, floodplains, water features, and powerlines crossed; miles of agriculture, developed/low intensity, developed/open space, and grass/pasture land crossed; whether Corps-owned land would be crossed; the number of waterbodies crossed; the number of high-consequence areas affected; and the number of transportation crossings. Id. at 9-10. A separate table compares the two crossings in terms of total pipeline and total HDD length, as well as in terms of cost for road/railroad bores, installation for non-HDD areas, HDD, geotechnical investigation, above-ground facilities, right-of-way acquisition, and engineering and consulting. Id. at 11.

That data reveals that the Bismarck alternative would have required an additional 11 miles of pipeline, “consisting of roughly 165 additional acres of impact,” 11 more floodplain crossings, 1 more powerline crossing, and 27 more transportation crossings. Id. at 8-10. In addition, it would have “crossed through or in close proximity to several wellhead source water protection areas” and “crossed other populated PHMSA high consequence areas”—*i.e.*, “locales where a release from a pipeline could have the most significant adverse consequences”—“not present on the [selected] route.” Id. at 8. The North Dakota Public Service Commission, moreover, requires a 500-foot residential buffer, which would have “severely constrained” the Bismarck route. Id. By contrast, on the

Reservation, the residence closest to the pipeline at Oahe is located more than 1.5 miles away. Id. at 86. And finally, the Bismarck alternative would have cost nearly \$33 million more and been co-located with other pipelines or utility corridors for only 3% of the route as compared to the selected route's 41%. Id. at 9, 11.

Standing Rock largely focuses its critique on the EA's reliance on a memo prepared by DAPL consultants, which it argues offers "a one-sided analysis that considered downstream impacts for the Bismarck alternative, but not for the Oahe crossing." SRST MSJ at 30. But that memo, which the EA does not expressly cite, provides another reasonable basis on which the Corps could have rejected the Bismarck crossing in favor of Oahe. It explains that the two closest municipal-water intakes to the Bismarck crossing would have been at Mandan, 7.3 miles downstream and serving 19,381 people, and Bismarck, 11.6 miles downstream and serving 65,123 people. See ECF No. 209-16 at 18 (Memorandum from Tom Signaw, Dakota Access, & Steve Rove, HDR Engineering, Apr. 12, 2016). The first downstream intake from the Oahe crossing, comparatively, is 4.2 miles downstream but is non-tribal and for agricultural use. Id. The second is 7.6 miles downstream and is used by Standing Rock also for agricultural purposes. Id. The third—and the first to be used for drinking water—is 11.1 miles downstream and belongs to the South Central Regional Water District, which serves 3,491 people in Emmons County, North Dakota. Id. The fourth—and the first Standing Rock intake for public consumption—is 26.2 miles downstream at Fort Yates and serves 229 people in Fort Yates and up to 4,317 in

Sioux County. Id. The Bismarck crossing thus would have been much closer nearly four miles—to a drinking-water intake than the Oahe crossing. The drinking-water intakes near Bismarck also serve many more people than the two closest to the Oahe crossing. This difference will be even more pronounced once construction is complete on a new water-intake structure being built to serve all communities on the Standing Rock Reservation, as that system will be located approximately 50 miles further downstream from the Oahe crossing than the existing structure serving the Tribe at Fort Yates. See Cooper Memo at 19.

This is not to say that the EA’s analysis of the Bismarck alternative is without flaws. As the Cooper Memo points out, when counting the number of wetland and water features crossed, the EA uses raw numbers of crossings, rather than “the total [number] of impacts measured as acreage or linear feet,” which would have given “a more accurate comparison of the route.” Cooper Memo at 9. And although the Bismarck route would have crossed PHMSA high-consequence areas that the Lake Oahe route does not, the Lake Oahe route also crosses high-consequence areas. Id.; EA at 94. Despite these issues, by identifying and comparing several features of the two routes as described, the EA easily clears NEPA’s hurdle requiring “brief discussion” of reasonable alternatives.

3. *Environmental Justice*

Standing Rock next contends that the Corps’ environmental-justice analysis was arbitrary and capricious. A 1994 Executive Order requires that, “[t]o the greatest extent practicable and permitted by law,” federal agencies “shall make achieving environmental

justice part of [their] mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of [their] programs, policies, and activities on minority populations and low-income populations.” Exec. Order 12,898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 7629 (Feb. 11, 1994), § 1-101. The Order expressly states that it does not create a private right to judicial review, *id.* § 6-609, but the D.C. Circuit has permitted challenges to environmental-justice analyses under NEPA and the APA. See Communities Against Runway Expansion, Inc. v. F.A.A., 355 F.3d 678, 689 (D.C. Cir. 2004) (“The [agency] exercised its discretion to include the environmental justice analysis in its NEPA evaluation, and that analysis therefore is properly subject to arbitrary and capricious review under the APA.”).

As the EA acknowledges, see EA at 84, the Council on Environmental Quality developed guidance to assist federal agencies in ensuring that environmental-justice concerns “are effectively identified and addressed.” ECF No. 117-19 (CEQ, Environmental Justice Guidance Under the National Environmental Policy Act, Dec. 10, 1997) at 1. That guidance instructs that agencies “should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes”; “should recognize the interre-

lated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action”; and “should recognize that the impacts within . . . Indian tribes may be different from impacts on the general population due to a community’s distinct cultural practices.” Id. at 9. “Where environments of Indian tribes may be affected,” CEQ advises, “agencies must consider pertinent treaty, statutory, or executive order rights and consult with tribal governments in a manner consistent with the government-to-government relationship.” Id. at 14. Finally, the “unit of geographic analysis” for the environmental-justice assessment should “be chosen so as not to artificially dilute or inflate the affected minority population.” Id. at 26.

Here, the Corps defined the unit of geographic analysis for its environmental-justice assessment as a 0.5-mile radius around the crossing, yielding a focus on the two census tracts in which the HDD boreholes would be drilled—*i.e.*, the places on either side of Lake Oahe at which the pipeline would enter the ground to pass under the water. See EA at 84. Those two census tracts were in Morton County and Emmons County; they did not include Sioux County, where the Reservation is located. Id. at 80, 83.

To identify the impact of the project on the populations in the chosen census tracts, the Corps compared the average demographic data from the two census tracts to that of “counties in the general vicinity” of the Oahe crossing—Emmons, Morton, and Sioux Counties—and to that of North Dakota generally. Id. at 84. Specifically, the Corps compared the areas by

percentage of racial minorities and percentage of persons living below the poverty level. Id. at 83. That data analysis revealed that the minority population in the two census tracts was 2% *i.e.*, 29% lower than the minority population in the general-vicinity counties and 9% lower than the minority population in North Dakota as a whole. Id. at 83, 85. It also showed that the percentage of persons living below the poverty level in the two census tracts was 9%. Id. at 83. The EA states that this figure was 3% lower than the impoverished population in the general-vicinity counties and 50% higher than in North Dakota as a whole. Id. Based on these comparisons, the EA concluded that “there is no concern regarding environmental justice to minority populations at the Proposed Action Area at . . . Lake Oahe.” Id. at 85. In actuality, some of the EA’s calculations are incorrect. See Cooper Memo at 24 (identifying one of two errors). Using the correct figures, the percentage of persons living below the poverty line in the two census tracts was 11% lower than in the general-vicinity counties and 3% lower than in North Dakota as a whole. Id. at 83; Cooper Memo at 24. (As will be seen, the calculation errors play no significant role in the outcome on this issue.)

The Tribe challenges the Corps’ decision to use a 0.5-mile buffer and the resulting analysis as arbitrary and capricious gerrymandering. See SRST MSJ at 28. The Standing Rock Reservation is 0.55 miles—or 80 yards beyond the 0.5-mile limit—downstream of the HDD site, and the Tribe contends that there was no principled basis on which to narrowly exclude it from the bounds of the Corps’ analysis. Id. at 29. It also notes that the two census tracts selected as the “affected area” are “mostly upstream of the crossing site”

with a 98% white population. Id. By comparing these tracts to a baseline of three counties that included Sioux County, Standing Rock argues, the EA “compar[ed] an area that will be almost entirely unaffected by a spill from the pipeline, and where few Tribal members live, against a baseline that included a significant portion of the Reservation.” Id. “Unsurprisingly,” the Tribe observes, the “‘affected area’ did not have a higher population of minority and low-income people than the claimed baseline, allowing the Corps to dismiss environmental justice concerns.” Id.

The Corps and Dakota Access defend the reliance on a 0.5-mile buffer by repeating the justification given in the EA: “Transportation projects, such as under the Federal Transit Administration, and natural gas pipeline projects under the Federal Energy Regulatory Commission . . . typically use a 0.5 mile buffer area to examine Environmental Justice effects.” EA at 84; see also id. at 87 (“As stated above, linear projects typically use a 0.5 mile buffer area to examine Environmental Justice effects.”); DA SRST Opp. at 29; Corps SRST MSJ at 27.

Although “[t]he ‘identification of the geographic area’ within which a project’s impacts on the environmental resources may occur ‘is a task assigned to the special competency of the appropriate agencies,’” Powder River Basin Res. Council v. BLM, 37 F. Supp. 3d 59, 75 (D.D.C. 2014) (quoting Tri-Valley CAREs v. Dep’t of Energy, 671 F.3d 113, 1127 (9th Cir. 2012)) (quoting Kleppe v. Sierra Club, 427 U.S. 390, 414 (1976)), the Court is hard pressed to conclude that the Corps’ selection of a 0.5-mile buffer was reasonable. DAPL is neither a transportation project nor a natural-gas pipeline; it is a crude-oil pipeline. The EA does

not identify any project involving a crude-oil pipeline for which a 0.5-mile buffer was employed. The Corps, likewise, points only to other types of infrastructure projects. See Corps SRST MSJ at 27 (citing Coal. for Healthy Ports v. Coast Guard, No. 13-5347, 2015 WL 7460018, at *25 (S.D.N.Y. Nov. 24, 2015) (project to raise height of bridge); Bitters v. Fed. Highway Admin., No. 14-1646, 2016 WL 159216, at *14 (E.D. Cal. Jan. 13, 2016) (project to reintroduce vehicle traffic lanes to particular streets)).

The Corps nonetheless rejoins that there is no meaningful distinction between those projects and DAPL. Id. (“Analysis of a half-mile buffer, which is appropriate for bridges or other construction projects with street-level noise, traffic or other impacts, is certainly appropriate for the Lake Oahe crossing, where the construction is deep under the bed of Lake Oahe and is staged on private lands.”); Corps SRST Reply at 13 n.3 (“[A] bridge that carries rail cars or truck traffic transporting oil or hazardous substances which could just as easily suffer low probability accidents resulting in releases to the waterways underneath the bridges.”). The problem with the Corps’ argument, however, is that the cases it cites did not consider an oil spill when evaluating impacts; if they had, perhaps a different geographic scope may have been selected. Standing Rock, conversely, points to two oil-pipeline projects for which a much larger affected area was used to assess environmental-justice impacts. See SRST MSJ at 30 n.16 (citing ECF No. 117-22 (Final Supplemental Environmental Impact Statement, Keystone XL Project) at 3.10-3) (assessing environmental-justice impacts 14 miles downstream of crossings)); SRST Reply at 25 n.23 (citing ECF No. 195-6

(Draft Supplemental Environmental Impact Statement for Line 67 Expansion, Jan. 2017) at 3.0-2 (looking at spill impacts up to 40 river-miles downstream)).

Standing Rock is not the only entity to criticize the 0.5-mile-buffer choice. In its comments on the Draft EA, the EPA advised the Corps that “the area of analysis to assess potential impacts to EJ communities should correspond to the impacts of the proposed project instead of only the area of construction disturbance.” ECF No. 209-8 at 126 (Letter from Philip Strobel to Brent Cossette, Mar. 11, 2016). “For oil pipeline projects, potential impacts to EJ communities would include the effects of leaks and spills to downstream water supplies (both drinking water quality, agricultural uses, and costs) and aquatic resources such as fish and riparian vegetation used by EJ populations.” Id. Even the Corps’ Chief Counsel expressed concern about the agency’s geographic selection when reviewing the EA’s legal sufficiency:

The Corps’ determination of the affected environment . . . can be questioned here. . . . Sioux County is just outside the 0.5-mile pipeline buffer. While the equally sized buffer on both sides of the pipeline seems reasonable along land areas, it is arguably less so at water areas because of the potential for water currents to carry a spill downstream. Sioux County is located just south and downstream of the pipeline. Thus, the SRST population present immediately outside of the proposed area or affected environment and downstream reasonably could have been within the area identified as the affected en-

vironment in the EA. If that area was included, the EA would then determine whether there might a disproportionately high and adverse human health or environmental effect on the SRST.

Cooper Memo at 25-26.

The Corps argues that the Court need not confine its analysis to the use of a 0.5-mile buffer, however, because the EA also devoted a separate section to environmental-justice impacts on the Standing Rock Sioux Reservation. See EA at 85-87. That additional section, as it turns out, does not yield the Corps a full reprieve. The Standing Rock-focused environmental-justice section begins with the “recogni[tion] that the Standing Rock Sioux Tribe is downstream of the Lake Oahe Crossing” and “has a high population of minorities and low-income residents.” Id. at 85. It first discusses impacts from the project’s construction and anticipated operation, and it explains that: the crossing will be installed via HDD on private lands adjacent to Corps-owned land, HDD drilling has no anticipated environmental effects, the pipeline’s route “maintain[s] a minimum distance of 0.5 mile[s] from Tribal land,” and the closest residence on the Reservation to the Oahe crossing is more than 1.5 miles away. Id. at 85-86. “As a result of this routing criteria, the nature of the action (construction associated with laying an underground oil pipeline), the short term duration of effects, construction and operation on private lands, the concurrent reclamation activities, state of the art construction techniques, [and] use of high quality materials and standards that meet or exceed federal standards,” the EA concludes, “there will be no direct or indirect effects to the Standing Rock

Sioux Tribe. This includes a lack of impact to its lands, cultural artifacts, water quality or quantity, treaty hunting and fishing rights, environmental quality, or socio-economic status.” Id. at 86. Given the absence of impacts, it continues, “there is no resulting adverse or disproportionate impacts of the Proposed Action with respect to Environmental Justice considerations.” Id.

The problem here, as the Tribe points out, is that this analysis covers only construction impacts, not spill impacts. See SRST Reply at 26. As to the effects from a spill (as distinct from the risk of a spill occurring), the EA’s discussion is minimal:

Concerns have been expressed regarding an inadvertent release reaching intake structures on Lake Oahe. Given the engineering design, proposed installation methodology, quality of material selected, operations measures and response plans[,] the risk of an inadvertent release in, or reaching, Lake Oahe is extremely low. While the locations of water intakes is not public information for disclosure in this document, there are private and/or non-tribal intakes closer to the Lake Oahe crossing than any intakes owned by the tribe; further demonstrating the lack of disproportionate impacts of an inadvertent release to the Tribe and the reservation. We understand that due to the rural nature of this area, tribal drinking water supplies are obtained from a combination of wells and surface area. The siting and construction of oil pipelines upstream of drinking water intakes is not uncommon throughout the United

States and is not considered an Environmental Justice issue. In the unlikely event of a release, sufficient time exists to close the nearest intake valve to avoid human impact.

EA at 87. This limited analysis, the Court believes, is not enough to discharge the Corps' environmental-justice responsibilities under NEPA.

“The purpose of an environmental justice analysis is to determine whether a project will have a disproportionately adverse effect on minority and low income populations.” Allen v. Nat'l Institutes of Health, 974 F. Supp. 2d 18, 47 (D. Mass. 2013) (quoting Mid States Coal. for Progress v. Surface Transp. Bd., 345 F.3d 520, 541 (8th Cir. 2003)). The EA takes some steps toward satisfying this purpose. It acknowledges that Standing Rock, a community with a high percentage of minorities and low-income individuals, is based downstream of the Oahe crossing and could be affected by an oil spill, and it observes—without providing any specifics—that a non-tribal community's drinking-water intake is closer to the Oahe crossing than is Standing Rock's. But these statements are not enough to reasonably support the conclusion that the Tribe will not be disproportionately affected by an oil spill in terms of adverse human health or environmental effects. See CEQ Guidance at 9.

The EA is silent, for instance, on the distinct cultural practices of the Tribe and the social and economic factors that might amplify its experience of the environmental effects of an oil spill. Id. at 9, 14. Standing Rock provides one such example in its briefing: many of its members fish, hunt, and gather for subsistence. See SRST MSJ at 41. Losing the ability

to do so could seriously and disproportionately harm those individuals relative to those in nearby non-tribal communities.

The Corps need not necessarily have addressed that particular issue, but it needed to offer more than a bare-bones conclusion that Standing Rock would not be disproportionately harmed by a spill. Given the cursory nature of this aspect of the EA's analysis, the Court agrees with the Tribe that the Corps did not properly consider the environmental-justice implications of the project and thus failed to take a hard look at its environmental consequences. Once again, the remedy for such omission is considered in Section III.D, *infra*.

B. Decision to Grant the Easement

The Tribe's second set of arguments centers around the Corps' February 8, 2017, decision to grant an easement to Dakota Access to construct and operate DAPL under Lake Oahe. As a reminder, the Corps had previously said, in a memo issued on December 4, 2016, that it would not grant such an easement based on the current record and would undertake additional analysis before making a final decision. Standing Rock first contends that the Corps' February 2017 easement decision was an arbitrary and capricious reversal of its previous position. It also asserts that the decision was in conflict with the Corps' trust-responsibility obligations. The Court addresses each in turn.

1. *Policy Change*

When an agency action changes or reverses a prior policy, it must "display awareness that it is changing position"; it may not, e.g., "depart from a prior policy

sub silentio.” FCC v. Fox Television Stations, Inc., 556 U.S. 502, 515 (2009). It also “must show that there are good reasons for the new policy.” Id. Generally, however, those reasons need not be better than the reasons for the old policy. To satisfy the APA’s procedural-correctness requirements, it is sufficient “that the new policy is permissible under the statute, that there are good reasons for it, and that the agency believes it to be better, which the conscious change of course adequately indicates.” Id. Sometimes, though, more is required. If the “new policy rests upon factual findings that contradict those which underlay its prior policy,” the agency must “provide a more detailed justification than what would suffice for a new policy created on a blank slate,” for “[i]t would be arbitrary and capricious to ignore such matters.” Id.; see also id. at 537 (Kennedy, J., concurring) (“[A]n agency’s decision to change course may be arbitrary and capricious if the agency ignores or countermands its earlier factual findings without reasoned explanation for doing so. An agency cannot simply disregard contrary or inconvenient factual determinations that it made in the past, any more than it can ignore inconvenient facts when it writes on a blank slate.”). The agency need not, though, “refute the factual underpinnings of its prior policy with new factual data.” United States Sugar Corp. v. Envtl. Prot. Agency, 830 F.3d 579, 626 (D.C. Cir. 2016), on reh’g en banc in part No. 11-1108, 2016 WL 7427434 (D.C. Cir. Dec. 23, 2016), and on reh’g en banc, 2016 WL 7427453 (D.C. Cir. Dec. 23, 2016). It is enough that it offer a “reasoned explanation . . . for disregarding facts and circumstances that underlay . . . the prior policy.” Fox, 556 U.S. at 516.

Standing Rock argues that the Corps' decision to grant the easement on February 8, 2017, was a reversal of the decision announced in the December 4, 2016, memorandum. Because the Corps "failed to address, let alone provide a reasoned explanation for, abandoning the determinations undergirding its December 4 decision to require an EIS," the Tribe contends, its action was arbitrary and capricious. See SRST MSJ at 36.

In response, the Corps and Dakota Access first argue that Fox simply does not apply: the decision to grant the easement was not a change in policy because the Corps had never denied the easement in the first place. See Corps SRST MSJ at 34; DA SRST Opp. at 32. That position, however, mischaracterizes the Tribe's argument. Standing Rock does not assert that the Corps previously denied the easement; indeed, it could not plausibly do so. Assistant Secretary Darcy clearly stated in her December 4 memo: "To date, the Army has not made a final decision on whether to grant the easement." Dec. 4 Memo, ¶ 6. Instead, Standing Rock's argument is that the Corps announced on December 4 that it would "not grant an easement to cross Lake Oahe at the proposed location based on the current record"—as "additional analysis, more rigorous exploration and evaluation of reasonable siting alternatives, and greater public and tribal participation and comments" were merited, id., ¶ 12 (emphases added)—but nonetheless granted the easement on February 8 without having undertaken such additional analysis. The reversal, then, is the decision to grant the easement on the current record—*i.e.*, as it stood on December 4—when the Corps had previously said it would not do so. This, the Tribe believes,

was arbitrary and capricious. Standing Rock does not, it clarifies in its Reply, assail the withdrawal of the notice of intent to prepare an EIS. See SRST Reply at 30 n.24.

The Corps' reversal plainly constituted a change in "official policy." See, e.g., Alaska Oil & Gas Ass'n v. Pritzker, 840 F.3d 671, 682 (9th Cir. 2016) (applying Fox to policy change in agency's approach to assessing foreseeable threats to endangered species triggered by internal agency memorandum); Sierra Club v. Bureau of Land Management, 786 F.3d 1219, 1226 (9th Cir. 2015) (explaining Fox did not apply to an agency's "evolving analysis" that "was not a change in a published regulation or official policy"); Loving v. I.R.S., 742 F.3d 1013, 1021 (D.C. Cir. 2014) (suggesting Fox applies where initial policy was articulated via testimony to Congress and guidance document—*i.e.*, not final agency actions—and policy change was accomplished via rulemaking). As the decision to grant the easement on the record as of December 4 did not rest on new factual findings not relied upon by Darcy or ignore or countermand prior factual findings absent reasoned explanation, the Corps need only have shown good reasons for its new policy. Taking Fox's framework into account, the Court concludes that the Corps here satisfied its dictates.

First, the Corps displayed "awareness that it [was] changing position." Fox, 556 U.S. at 515. The February 3, 2017, memo from the Corps' Lieutenant General that recommended granting the easement acknowledged that Darcy had previously "directed the Corps to engage in additional review and analysis concerning" alternative locations, the potential risk of an oil spill and potential impacts to the Tribe, and the

Tribe's treaty rights, but explained that, "[a]fter reviewing the record in its entirety and giving further consideration to the input received over the past four months, including additional review and analyses of the subjects identified by [Darcy], other federal executive offices, and the SRST, the Corps finds that the Final EA concerning the crossing of the DAPL at Lake Oahe is sufficient and does not need further supplementation." Semonite Memo at 9, 11.

Second, the Corps provided a reasoned explanation for its new policy. Darcy's memo affirmed that "the Corps' prior reviews and actions"—including the EA and FONSI "comported with legal requirements." Dec. 4 Memo, ¶ 15. Her "policy decision" that "a more robust analysis of alternatives [could] be done and should be done" was "based on the totality of the circumstances"—namely, "the specific mandates of the Mineral Leasing Act (30 U.S.C. § 185), the involvement of historic tribal homelands, the close proximity to reservation lands that extend into the potentially affected waters, and the potential impacts on treaty hunting and fishing rights." *Id.* In reversing course, the Corps started from the same premise as Darcy *viz.*, that the EA and FONSI satisfied NEPA's requirements. *See* Semonite Memo at 10. It then explained that the EA "fully informed . . . the decision on whether to grant an easement under the Mineral Leasing Act." *Id.* Supplementation of an EA or EIS, it noted, is required by CEQ NEPA regulations only when there are "substantial changes in the proposed action that are relevant to environmental concerns" or when "significant new circumstances or information relevant to environmental concerns" emerge after an

EA or EIS is final. Id. at 11 (quoting 40 C.F.R. §§ 1502.9(c)(1)(i), (ii)).

Here, the proposed action described in the EA did not change between July 2016 and February 2017. Id. The Corps also concluded that no new significant circumstances or information relevant to environmental concerns, including the federal government’s trust relationship to the Tribe, the Corps’ analysis of alternatives, risks from oil spills, and the impact of a spill on the Tribe’s Treaty rights and water intakes, had emerged since the EA was finalized. It did so by comparing the various letters received from the Tribe after the EA was issued, including its expert report, with comments the Tribe previously submitted on the Draft EA, as well as by looking at the Corps’ analysis in the Final EA, the subsequent review memos, and the 36 special conditions imposed on the easement. Id. at 11-13. In response to the Interior Solicitor’s memo “address[ing] a series of issues rooted in the perceived risk that the DAPL would leak into Lake Oahe,” the Corps explained that, as set out in the EA and Cooper Memo, the risk of a spill was low and was further mitigated by the easement conditions. Id. at 13.

By explaining why it was not compelled by the Tribe’s letters, the Interior Solicitor’s Opinion, or the Corps’ post-EA reviews to supplement the EA—which Darcy did not dispute was legally sound—the Corps did enough to satisfy the APA’s requirements regarding policy reversals.

2. *Trust Responsibilities*

In addition to challenging the decision to grant the easement as an arbitrary-and-capricious reversal of

prior agency policy, Standing Rock contends that this and other authorizations to cross Lake Oahe violate the Corps' trust responsibility to protect the Tribe's Treaty rights. This trust responsibility, the Tribe argues, is "even higher than the one imposed by NEPA." SRST MSJ at 39. In other words, "compliance with general environmental statutes" is not sufficient "to discharge [the Corps'] trust duty"; a greater fiduciary duty is required. See SRST Reply at 34.

As best the Court can tell from the briefing, the Tribe argues that the Corps' failure to act in accordance with its trust-responsibility obligations renders the granting of the easement arbitrary and capricious under the APA. See SRST MSJ at 35-43 (situating discussion of Treaty rights under heading stating "The Granting of the Easement and Other Corps Authorizations is Arbitrary, Capricious, and Contrary to Law"); SRST Reply at 30-34 (similar). Whether that is so or Plaintiff intends to also state a separate breach-of-trust action, see ECF No. 106-1 (SRST First Amended Complaint), ¶¶ 266-285 (stating separate claims for relief for breach of trust responsibility and violation of APA), Standing Rock's position comes up short for the same reason.

According to the Tribe, to fulfill its trustee duties, the Corps needed to "have before it a full and comprehensive understanding of how the project impacts treaty rights and tribes." SRST MSJ at 40. It did not so have here, the Tribe asserts, because it "assumed oil spills will never happen and on that basis refused to consider the impacts of an oil spill on the Tribe's Treaty rights and resources." Id. Standing Rock further argues that the Corps did not fulfill its fiduciary obligation to share information about the project, as it

withheld from the Tribe the spill assessment, spill-response plans, and environmental-justice and route analyses. Id. at 41-42.

The problem for Standing Rock, however, is that “[t]he trust obligations of the United States to the Indian tribes are established and governed by statute rather than the common law.” United States v. Jicarilla Apache Nation, 564 U.S. 162, 165 (2011). To bring a breach-of-trust claim, the Tribe “must identify a substantive source of law that establishes specific fiduciary or other duties, and allege that the Government has failed faithfully to perform those duties.” United States v. Navajo Nation, 537 U.S. 488, 506 (2003). Standing Rock asserts that “[t]he federal government has a duty, arising from the Treaties and the federal trust responsibility, and reinforced in the MLA and other statutes, to protect treaty rights and resources,” but it does not point in its Motion to a specific statute, treaty, executive order, or other provision that gives rise to specific fiduciary duties. See SRST MSJ at 39. In its Reply, the Tribe cites Section 185(h)(2)(D) of the Mineral Leasing Act, which provides that the Corps, “prior to granting a right-of-way or permit . . . for a new project which may have a significant impact on the environment,” shall impose “requirements to protect the interests of individuals living in the general area of the right-of-way or permit who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes.” 30 U.S.C. § 185(h)(2)(D); see SRST Reply at 36. Yet that provision does not contain any trust or fiduciary language, and, in any case, the Corps imposed such conditions on the easement. See Easement at 37-43. “Without an unambiguous provision by Congress that clearly

outlines a federal trust responsibility, courts must appreciate that whatever fiduciary obligation otherwise exists, it is a limited one only.” N. Slope Borough v. Andrus, 642 F.2d 589, 612 (D.C. Cir. 1980). “Thus, although the United States does owe a general trust responsibility to Indian tribes, unless there is a specific duty that has been placed on the government with respect to Indians, this responsibility is discharged by the agency’s compliance with general regulations and statutes not specifically aimed at protecting Indian tribes.” Morongo Band of Mission Indians v. FAA, 161 F.3d 569, 574 (9th Cir. 1998).

Standing Rock argues that the line of cases requiring a showing that the government owes a specific statutory fiduciary duty is limited to damages actions brought under the Indian Tucker Act, 28 U.S.C. § 1505, which waives sovereign immunity for certain claims brought by a tribe against the United States. That statute, it contends, does not apply here because “the APA establishes both the cause of action and waiver of sovereign immunity.” SRST Reply at 36. Recent Circuit precedent, however, undermines such a position.

In El Paso Natural Gas Company v. United States, 750 F.3d 863 (D.C. Cir. 2014), the D.C. Circuit considered, *inter alia*, claims by the Navajo Nation concerning environmental hazards at uranium, waste, and dump sites. As to the Tribe’s breach-of-trust cause of action, the court held that it had failed to state a claim for relief because it “ha[d] not identified a substantive source of law establishing specific fiduciary duties, a failure which [was] fatal to its trust claim regardless of whether [the court] read the claim as brought under the APA or under a cause of action

implied by the nature of the fiduciary relationship itself.” Id. at 892. The Navajo Nation had argued that its breach-of-trust claim could “be maintained either (1) under the APA or (2) under a cause of action inferred from the fiduciary responsibilities undertaken by the Government.” Id. The D.C. Circuit concluded that, “[o]n either conception of the claim,” its inquiry would be “largely the same because, under controlling precedent, a cause of action will be inferred from a fiduciary relationship only where a plaintiff can identify specific trust duties in a statute, regulation, or treaty. And [that] analysis overlaps with the APA’s requirement that a plaintiff allege ‘that an agency failed to take a discrete agency action that it is required to take.’” Id. (quoting Norton v. S. Utah Wilderness Alliance, 542 U.S. 55, 64 (2004)).

To explain that conclusion, the court addressed the Supreme Court’s case law concerning Indian trust claims and the law of the circuit. It stated, as this Court has above, “The existence of a general trust relationship between the Government and Indian tribes is long established. But this general trust relationship alone does not afford an Indian tribe with a cause of action against the Government Something more is needed.” Id. (citations omitted). It then explained, “[W]e apply these same principles” derived from “Indian trust claims arising in the context of the Indian Tucker Act” to “trust claims brought under the APA.” Id. at 892-93; see also id. at 895 (“These principles control here, even though the claim is for equitable relief (not money damages) and even though sovereign immunity is waived under § 702 of the APA (and not the Indian Tucker Act).” Indeed, it noted, the

D.C. Circuit has “consistently relied on principles announced in Indian Tucker Act cases in trust cases not arising under the Act.” *Id.* at 895 (citing, *e.g.*, Andrus, 642 F.2d at 611 (“[T]rust responsibility can only arise from a statute, treaty, or executive order.”); Cobell v. Norton, 240 F.3d 1081, 1099 (D.C. Cir. 2001) (reiterating that fiduciary relationship depends on substantive laws and stating that “the government’s obligations are rooted in and outlined by the relevant statutes and treaties”).

This Court is bound by El Paso. It thus cannot accept the Tribe’s position that “[t]he Tucker Act line of cases has no bearing on the existence of a claim here,” SRST Reply at 36, or that of *amici curiae* that the APA affords broader trust enforcement than the statute. *See* ECF No. 137 (Amicus Brief of Assoc. of American Indian Affairs, *et al.*) at 8. Because Standing Rock has not identified a specific provision creating fiduciary or trust duties that the Corps violated, its breach-of-trust argument—whether considered a separate count or part of its larger APA cause of action—cannot survive.

C. NWP 12

Standing Rock’s final claim is that the Corps’ decision to issue a verification that the project complied with the terms of Nationwide Permit 12 was arbitrary and capricious. As the Court explained in a previous Opinion, the Rivers and Harbors Act forbids certain construction activities within the “navigable water of the United States” absent permission from the Corps. *See Standing Rock I*, 205 F. Supp. 3d at 12 (quoting 33 U.S.C. § 403). Because DAPL is, in part, a “structure . . . under . . . a navigable water of the United

States,” 33 C.F.R. § 322.3(a), Dakota Access required a permit under Section 10 of the RHA. The Corps often authorizes such activities through a general, nationwide permit. Standing Rock I, 205 F. Supp. 3d at 10. Nationwide Permit 12, the general permit at issue here, authorizes “[a]ctivities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.” Reissuance of Nationwide Permits, 77 Fed. Reg. 10,184, 10,271 (Feb. 21, 2012). On July 25, 2016, the Corps verified that the Oahe crossing would satisfy the terms and conditions of NWP 12.

To qualify for NWP authorization, a permittee must comply with certain General Conditions. General Condition 17, for example, provides that “[n]o activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.” 77 Fed. Reg. at 10,283. General Condition 7 states, moreover, that “[n]o activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.” Id. The Tribe argues that because the Oahe crossing does not comply with these conditions, it does not qualify for NWP 12. See SRST MSJ at 43-44.

The Court, however, is already remanding on certain of these issues—*e.g.*, Treaty rights and environmental-justice considerations—and the Tribe offers no other basis for concluding that the project does not comply with GCs 7 and 17.

The Corps, furthermore, asserts that it was not obligated to evaluate whether these General Conditions were satisfied prior to verifying that the project was authorized under NWP 12. See Corps SRST MSJ at 45 (citing Snoqualmie Valley Preservation Alliance v. U.S. Army Corps of Eng'rs, 683 F.3d 1155, 1164 (9th Cir. 2012) (“The nationwide permit system is designed to streamline the permitting process. We decline to impose a new requirement of a full and thorough analysis of each general condition based on documentation the Corps may or may not have.”)). Instead, it explains, “[A] permittee must adhere to the General Conditions to maintain eligibility for a Nationwide Permit.” Id. (citing 77 Fed. Reg. at 10,282). Standing Rock insists that it is not asking the Court to require the Corps to undertake an in-depth analysis of each General Condition prior to issuing an NWP 12 verification, but rather is simply demanding that the Corps give GCs some attention when faced with “abundant information.” SRST Reply at 43; see also id. (“While it need not necessarily conduct a ‘full and thorough’ analysis of each and every GC, it must deal with the information in front of it.”).

The Tribe, however, offers no case law to support its position. Other district courts in this circuit, moreover, have articulated the Corps’ obligations as it presents them here. See Sierra Club v. U.S. Army Corps of Eng'rs, 990 F. Supp. 2d 9, 27 (D.D.C. 2013) (“When a prospective permittee files a pre-clearance notice [under the general permit process], the only thing left to be done is for the Corps’s district engineers to verify that the planned project does, in fact, fit within the category of activities that the Corps has already authorized.”). Given the streamlining and efficiency

goals behind the nationwide-permit program, this view makes sense:

[F]orcing the Corps to perform an extensive environmental review in the verification context under NWP 12 would (i) duplicate work already performed at the nationwide permit stage in pre-clearing this category of activities; (ii) contravene the purpose of the nationwide permit process; (iii) increase exponentially the documentation a permittee must submit to the Corps, including numerous items not specifically delineated as required documentation in the General Conditions; and (iv) multiply the delay and expense associated with verifications so as to render them functionally indistinguishable from individual permit decisions, thus collapsing two conceptually distinct regulatory processes into one.

Mobile Baykeeper, Inc. v. U.S. Army Corps of Eng'rs, No. 14-32, 2014 WL 5307850, at *15 (S.D. Ala. Oct. 16, 2014); see also id. at *16 (“[T]he Corps was not required to study compliance with General Condition 7 before issuing NWP 12 verifications.”).

The Court thus agrees that the Corps need not have investigated compliance with General Conditions 7 and 17 before issuing NWP verifications on the DAPL crossing at Lake Oahe, and that its permitting decision was not arbitrary and capricious. This conclusion, however, does not forever insulate the NWP 12 permitting decision from challenge. Dakota Access has a duty to comply with these conditions if it wishes to maintain its eligibility for a Nationwide Permit.

* * *

To summarize its conclusions on Standing Rock's claims, therefore, the Court finds that the Corps' decision on July 25, 2016, and February 3, 2017, not to issue an EIS largely complied with NEPA. Yet there are substantial exceptions: the agency failed to adequately consider the impacts of an oil spill on Standing Rock's fishing and hunting rights and on environmental justice, and in February 2017, it did not sufficiently weigh the degree to which the project's effects are likely to be highly controversial in light of critiques of its scientific methods and data.

D. Remedy

So where does that leave us? The Court turns now to the question of remedy. The cure for the Corps' NEPA violation is governed by the APA, which provides that the reviewing court shall "hold unlawful and set aside agency action, findings, and conclusions found to be . . . arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2)(A). In this Circuit, vacatur is the "standard remedy" for a NEPA violation. Pub. Employees for Env'tl. Responsibility v. U.S. Fish & Wildlife Serv., 189 F. Supp. 3d 1, 2 (D.D.C. 2016) (quoting Humane Soc'y of U.S. v. Johanns, 520 F. Supp. 2d 8, 37 (D.D.C. 2007)); see also Realty Income Tr. v. Eckerd, 564 F.2d 447, 456 (D.C. Cir. 1977) ("[W]hen an action is being undertaken in violation of NEPA, there is a presumption that injunctive relief should be granted against continuation of the action until the agency brings itself into compliance."). In other words, the Court would vacate DAPL's permits and easement, thus forcing it to cease operations until the

Corps fully complied with the aforementioned NEPA requirements.

Such a move, of course, would carry serious consequences that a court should not lightly impose. In fact, courts have discretion to depart from that presumptive remedy and decide not to vacate an EA, FONSI, and corresponding authorizations pending NEPA compliance. Allied-Signal, Inc. v. U.S. Nuclear Regulatory Comm’n, 988 F.2d 146, 150-51 (D.C. Cir. 1993). “The decision whether to vacate depends on ‘the seriousness of the order’s deficiencies (and thus the extent of doubt whether the agency chose correctly) and the disruptive consequences of an interim change that may itself be changed.’” Id. (quoting Int’l Union, United Mine Workers of Am. v. Fed. Mine Safety & Health Admin., 920 F.2d 960, 967 (D.C. Cir. 1990)). “[A] serious possibility that the [agency] will be able to substantiate its decision on remand” cautions in favor of remanding rather than vacating. Id. at 151.

Here, Standing Rock argues that “[v]acatur is the appropriate remedy,” SRST MSJ at 45, whereas Dakota Access counters that the Allied-Signal factors require remand without vacatur. See DA SRST Opp. at 44-45. These discussions, however, are quite brief, and the Corps never even addresses the issue. This is not surprising—absent knowledge of whether or to what extent the Court would remand, the parties were unable to fully address the Allied-Signal factors in their summary-judgment briefs. That mystery now solved, the Court will order the litigants to submit briefing on whether remand with or without vacatur is appropriate in light of the deficiencies herein identified and any disruptive consequences that would result given the current stage of the pipeline’s operation.

As is set out in a contemporaneous Order, the Court will discuss the schedule of that briefing and the remand at an upcoming status conference to be held next week.

IV. Analysis of Cheyenne River's Claims

The Standing Rock Sioux are not the only Tribe at the table. The Court thus now turns to Cheyenne River's Motion for Partial Summary Judgment and the Corps' and Dakota Access's Cross-Motions. Cheyenne River seeks summary judgment on four claims: (1) The Corps' issuance of the Section 408 permit was arbitrary, capricious, and unlawful; (2) The Corps' issuance of the MLA easement was arbitrary, capricious, and unlawful; (3) The Corps' issuance of both constituted a breach of trust responsibility; and (4) The Corps issued both in violation of its pre-decisional consultation duty.

Before addressing each of these separately, a few preliminaries: First, certain aspects of these claims have been addressed in the Standing Rock analysis above—namely, the sufficiency of the EA's spill-risk analysis and the nature of the Corps' trust responsibilities and the Court will refer back to those conclusions rather than repeat them here. Second, in light of the principles regarding extra-record evidence in administrative-law cases discussed in Section III.A.1.a, *supra*, the Court will consider only documents created on or before July 25, 2016, when evaluating the Corps' Section 408 decision and only documents created on or before February 8, 2017, when assessing the Corps' easement decision.

A. Section 408 Decision

Section 408 of the Rivers and Harbors Act makes it unlawful for a person to “take possession of or make use of for any purpose, or build upon, alter, deface, destroy, move, injure, . . . or in any manner whatever impair the usefulness of any . . . work built by the United States, . . . in whole or in part, for the preservation and improvement of any of its navigable waters or to prevent floods.” 33 U.S.C. § 408(a). The Corps “may,” however, permit the alteration, permanent occupation, or use of such public works when, in its judgment, such activity (1) “will not impair the usefulness of such work” and (2) “will not be injurious to the public interest.” *Id.* The Corps so concluded here. See ECF No. 183-9 (Section 408 Decision Package) at 6. Cheyenne River contends that those conclusions were arbitrary, capricious, and contrary to law. In evaluating that argument, the Court considers the two Section 408 factors separately.

1. *Impairment*

As to the first prong, the Corps’ objective “is to ensure that the proposed alteration will not limit the ability of the project to function as authorized and will not compromise or change any authorized project conditions, purposes or outputs.” ECF No. 73-15 (Policy and Procedural Guidance for Processing Requests to Alter US Army Corps of Eng’rs Civil Works Projects Pursuant to 33 USC 408, Engineering Circular 1165-2-216 ¶ 7.c.(4)(b)i. (2015)). To do so, “[a]ll appropriate technical analyses including geotechnical, structural, hydraulic and hydrologic, real estate, and operations and maintenance requirements, must be conducted

and the technical adequacy of the design must be reviewed.” Id. If the Corps concludes “at any time . . . that the usefulness of the authorized project will be negatively impacted,” its inquiry ends. Id.

To challenge the Corps’ decision that DAPL would not impair the ability of the Lake Oahe project to function as authorized and would not compromise or change any of its conditions, purposes, or outputs, the Tribe first points to 33 U.S.C. § 701-1(b), a provision of the Flood Control Act of 1944. Cheyenne River reads § 701-1(b) to establish that consumptive uses of Lake Oahe’s waters “may not be subrogated . . . to non-consumptive uses,” and that no activity with the potential to have an adverse effect on the water’s use—*e.g.*, an oil pipeline with some potential to leak—may be lawfully authorized. See CRST MSJ at 11-12.

Section 701-1(b), however, does not apply here. That provision provides:

The use for navigation, in connection with the operation and maintenance of such works herein authorized for construction, of waters arising in States lying wholly or partly west of the ninety-eighth meridian shall be only such use as does not conflict with any beneficial consumptive use, present or future, in States lying wholly or partly west of the ninety-eighth meridian, of such waters for domestic municipal, stock water, irrigation, mining, or industrial purposes.

33 U.S.C. § 701-1(b) (emphasis added). As is clear from the statutory language, the provision applies to navigational uses of water, which DAPL is not. See also 33 U.S.C. § 701-1 (stating federal policy is to

“limit the authorization and construction of navigation works to those in which a substantial benefit to navigation will be realized therefrom and which can be operated consistently with appropriate and economic use of the waters of such rivers by other users”) (emphasis added).

The Tribe next maintains that the Corps did not adequately consider the risk of an oil spill or the environmental impacts of the pipeline; as a result, it could not reasonably have concluded that DAPL would not impair the purposes of the Lake Oahe project. Cheyenne River asserts, for example, that the Corps failed to assess the risk of landslides after mitigation efforts, the effects of a landslide or earthquake, or the impacts of a spill on vegetation, recreation, water quality, or the Tribe’s water intake. See CRST MSJ at 16-18. It also points to the Missouri River Mainstem Reservoir System Master Water Control Manual, which explains that Congress “authorized the System to be operated for the purposes of flood control, navigation, irrigation, power, water supply, water quality control, recreation, and fish and wildlife.” Missouri River Mainstem Reservoir System Master Water Control Manual, U.S. Army Corps of Engineers (March 2006), § 1-02, <http://www.nwd-mr.usace.army.mil/rcc/reports/mmanual/MasterManual.pdf>. Cheyenne River interprets the Manual to “make[] clear that the Corps lacks authority to approve an oil pipeline crossing of the Missouri River that could impair the beneficial consumptive uses of the river both present and future.” CRST MSJ at 12; see also id. at 14 (“The Master Manual does not provide any authorization to the Corps to permit the use of the Mainstem System for oil pipeline

rights-of-way when they place any of the authorized purposes at risk.”).

As the Court explained in Section III.A.1.b, *supra*, however, considering the record as of July 25, 2016, when the Corps issued the Section 408 permit, it had taken a hard look at the risk of an oil spill and provided sufficient explanation to support its conclusion that such a risk was low. The Corps’ July 2016 determination that the Lake Oahe project’s purposes would not be impaired by DAPL’s construction and operation was therefore not arbitrary or capricious. Nothing in the Manual mandates a different result.

2. *Injurious to Public Interest*

As to the second prong, the Corps must compare “[t]he benefits that reasonably may be expected to accrue from” a proposed alteration or use of the federal project “against its reasonably foreseeable detriments.” Engineering Circular 1165-2-216 ¶ 7.c.(4)(b)ii. “If the potential detriments are found to outweigh the potential benefits, then it may be determined that the proposed alteration is injurious to the public interest.” *Id.* In making that evaluation, the Corps may consider factors such as “conservation, economic development, historic properties, cultural resources, environmental impacts, water supply, water quality, flood hazards, floodplains, residual risk, induced damages, navigation, shore erosion or accretion, and recreation.” *Id.*

Cheyenne River raises two challenges to the Corps’ determination that permitting DAPL to cross under Lake Oahe would not be injurious to the public interest. First, the Tribe contends that it was improper for the Corps to consider “benefits to Dakota

Access, the oil industry, and the economy generally” in assessing the public interest. See CRST MSJ at 20-21 (citing EA at 105-06 (stating that DAPL’s construction “would contribute more than \$1 billion in direct spending” on materials and “\$195 million in easement payments to landowners” with property crossed by the pipeline, and “would provide a benefit to local merchants and vendors” and “temporary employment opportunities to the local workforce”)). This argument fares poorly. The Corps’ Policy and Procedural Guidance on Section 408 expressly permits consideration of “economic development” in determining a proposed project’s benefits. See Engineering Circular 1165-2-216 ¶ 7.c.(4)(b)ii.

Second, the Tribe argues that the Corps did not explain how it “weighed the risks against the claimed benefit,” CRST Reply at 17, failed to consider the consequences from an oil spill, see CRST MSJ at 18-19, did not adequately consider landslide risk or the impacts of a spill on vegetation or recreation, id. at 16-17, and never considered effects on Cheyenne River or its water intake. See CRST Reply at 18-19. This argument gains more traction because, as the Court previously explained, see Sections III.A.1.c, III.A.2.b., *supra*, the Corps’ assessment of the impacts of a spill, although largely adequate, fell short as to fishing rights, hunting rights, and environmental justice. Because the Corps must submit its assessment of those impacts upon remand, see Section III.D, *supra*, the Court will await receipt of such information to decide whether the agency’s conclusion that DAPL will not be injurious to the public interest was arbitrary and capricious.

3. *Other Arguments*

Finally, in addition to its arguments regarding the impairment and public-injury prongs, Cheyenne River asserts that the Corps' spill-risk and spill-impact conclusions were cursory, that the permit should not have been granted absent an EIS, and that the Corps did not satisfy its obligation to independently review the EA. See CRST MSJ at 2, 10, 18-21. The Court has already addressed the first two of these points. See Sections III.A.1, III.A.2, III.B.1, *supra*. As to the third, it is not persuaded.

CEQ regulations permit an applicant—here, Dakota Access—to prepare the EA as long as the agency independently evaluates the information submitted, “make[s] its own evaluation of the environmental issues[,] and take[s] responsibility for the scope and content of the environmental assessment,” including its accuracy. See 40 C.F.R. § 1506.5(a)-(b). Here, the EA states that it was “prepared in accordance with” those regulations, and that the Corps “independently evaluated and verified the information and analysis undertaken in this EA and takes full responsibility for the scope and content contained herein.” EA at 1. The record supports this assertion.

First, the Corps provided ample input to Dakota Access on the proper EA drafting procedure and on its substance. See ECF No. 183-3 (Email from Brent Cossette to Corps & Dakota Access Personnel, Mar. 5, 2015) (announcing start of “routine bi-weekly meetings to discuss the status of the Dakota Access Pipeline project”) at 2; ECF No. 183-4 (Email from Brent Cossette to Monica Howard, Apr. 24, 2015) at 2 (advising Dakota Access that public and tribes had 30

days to submit comments, company had to address Corps' comments, Corps could not grant Section 408 permit absent certain geotech investigation, and Corps could not issue decision regarding historical properties absent concurrence of North Dakota State Historic Preservation Office); ECF No. 183-5 (Email from Brent Cossette, Sept. 18, 2015) (soliciting comments from twenty-two Corps employees on Draft EA and associated plans); ECF No. 183-12 (Email from Brent Cossette to Larry Janis, Corps, Recreation & Natural Resources Branch, May 6, 2016) (summarizing meeting with Dakota Access where Corps pushed company to use different spill-model data and disagreed with its assessment that potential impact to water intakes did not need to be in EA); ECF No. 183-11 (Email from Brent Cossette to Tom Sigauw & William Harlon, Dakota Access, May 11, 2016) (discussing need for sufficient information "to ensure no negative impacts on irrigation and water supply"); ECF No. 212-2 (ProjNet: Environmental Review of DAPL) (record of 178 comments from Corps); ECF No. 209-16 at 147-56 (EA Comment Matrix) (spreadsheet of Corps' comments on Draft EA and Dakota Access's responses); Section 408 Decision Package at 23 (confirming Dakota Access satisfactorily addressed geotechnical comments from Corps reviewers); ECF No. 183-10 (Geotechnical Investigation Package) at 13-16.

To illustrate the meaningful back-and-forth engagement between the Corps and Dakota Access about the EA's content, the Court highlights one comment on the draft EA from the Corps and the exchange it sparked. In June 2015, a Corps official noted, "I did not see reference of a risk analysis for pipeline spills in the EA. Recommend inclusion of

such analysis into the EA due to the size and scope of this transportation pipeline.” ECF No. 183-6 at 24 (Comment 6139320). After Dakota Access supplied the spill model for Lake Oahe, the Corps asked the company to “include booming strategies and collection points for worst case scenario discharges” and “where [it] would gain access via water for response.” Id. It also asked Dakota Access to show how spill volume and response times were calculated and to explain its plans for “cultural up front inspections/clearances at the control points.” Id. at 25. Several more comments, document submissions by Dakota Access, and telephone calls between the company and the Corps followed. Id. at 25-26. The Corps only considered the initial comment in May 2016, nearly a year later, after Dakota Access agreed to insert the requested risk analysis into the EA and to adopt certain mitigation measures. Id. at 27.

Ultimately, seventeen different Corps officers are listed as having been involved in the EA’s review, see EA at 126, and a range of Corps personnel reviewed the Section 408 application and certified that DAPL would not be injurious to Lake Oahe or the public interest. See Section 408 Decision Package at 2, 5. On this record, the Court concludes that the Corps met its responsibility to make its own evaluation of the environmental issues and take responsibility for the scope and content of the EA. See City of Roseville v. Norton, 219 F. Supp. 2d 130, 165-66 (D.D.C. 2002) (holding agency satisfied 40 C.F.R. § 1506.5(a)-(b) where record showed contractor worked with agency employees on EA and included “extensive copies of email communications between the agency staff discussing their comments on, and edits of, the EA”).

B. Easement Decision

Cheyenne River's next claim is that the Corps' issuance of the easement was arbitrary, capricious, and inconsistent with the requirements of the Mineral Leasing Act, 30 U.S.C. § 185. This stance makes minimal headway.

The Mineral Leasing Act was enacted by Congress in 1920 "to promote wise development of [the nation's] natural resources and to obtain for the public a reasonable financial return on assets that 'belong' to the public." Devon Energy Corp. v. Kempthorne, 551 F.3d 1030, 1033 (D. C. Cir. 2008) (quoting California Co. v. Udall, 296 F.2d 384, 388 (D.C. Cir. 1961)). It permits "appropriate agency head[s]" to grant "Rights-of-way through any Federal lands . . . for pipeline purposes for the transportation of oil . . . to any applicant possessing" the requisite statutory qualifications. See 30 U.S.C. § 185(a).

The Tribe challenges the Corps' decision to grant Dakota Access a right-of-way to cross Lake Oahe on the basis of three provisions in the MLA: (1) The Corps did not adequately analyze whether the easement would be "inconsistent with the purposes of the reservation," as required by 30 U.S.C. § 185(b)(1), and instead simply cross-referenced its Section 408 approval; (2) The Corps failed to impose stipulations protecting the "interests of individuals living in the general area . . . who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes," as required by 30 U.S.C. § 185(h)(2); and (3) The Corps did not impose sufficient liability on Dakota Access, as required by 30 U.S.C. § 185(x). See CRST MSJ at 37-

44; CRST Reply at 20-22. Each is discussed separately.

1. *Section 185(b)(1)*

Section 185(b)(1) of the MLA provides that “[a] right-of-way through a Federal reservation”—*i.e.*, federally owned or managed land, rather than a federal Indian reservation “shall not be granted if the Secretary or agency head determines that it would be inconsistent with the purposes of the reservation.” 30 U.S.C. § 185(b)(1); see also Corps CRST MSJ at 22 n.11. Here, the reservation is the Lake Oahe project, and its “Congressionally-authorized purposes . . . include flood control, navigation, hydropower, recreation, water supply, and water quality.” Henderson Memo at 3.

The Tribe contends that the Corps ran afoul of Section 185(b)(1) because it did not “articulate any rationale” for its conclusion that DAPL was consistent with the purposes of the Lake Oahe project and improperly relied on the documents and analysis from its Section 408 determination in undertaking its easement decision. See CRST MSJ at 40; Henderson Memo at 3 (explaining Corps’ easement decision was “supported by the Final EA . . . and various memoranda supporting the District Commander’s Section 408 approval”). But Cheyenne River cites no authority for the proposition that the Corps could not rely on its Section 408 decision in making its easement decision, and the Court can think of no reason why that would be so. While the approval procedures set out in the RHA and the MLA are not identical, compare 33 U.S.C. § 408 with 30 U.S.C. § 185—a point acknowledged by the Corps in its briefing on Dakota Access’s

now-dismissed cross-claim, see ECF No. 73 at 15-16, 21-22—the inquiry concerning project impairment, injury to the public interest, and inconsistency with project purpose are certainly related and largely overlapping.

Cheyenne River also contends that any pipeline for which a right-of-way is sought that has the potential to have a high negative impact necessarily “is not ‘consistent’ with the authorized purposes” and cannot satisfy Section 185(b)(1). See CRST MSJ at 40. In other words, the MLA requires the Corps to reject every right-of-way application that poses any level of risk of serious harm because such risk renders the right-of-way inconsistent with the purposes of the federal project. The Court cannot accept this view, which is in direct tension with the text and purpose of the statute. The MLA expressly contemplates that agencies may grant rights-of-way through federal lands for pipelines used to transport “oil, natural gas, synthetic liquid or gaseous fuels, or any refined product produced therefrom.” 30 U.S.C. § 185(a). Such pipelines necessarily involve some level of risk; no reasonable engineer, scientist, or agency official could assert that a pipeline project—or any construction or transportation project, for that matter involves absolutely zero risk. It would be nonsensical for Congress to have created a mechanism for granting rights-of-way for oil pipelines if that mechanism could never be used.

Last, in arguing that DAPL specifically is inconsistent with the purposes of the Lake Oahe project, the Tribe relies on its already-discussed position that the Corps failed to consider impacts on most of the Lake’s authorized purposes and underestimated the risks posed by the pipeline. Because the Corps did not

adequately consider certain effects of a spill should one occur and because it did not, as of February 8, 2017, when it granted the easement, demonstrate that it had considered the degree to which DAPL's effects are likely to be highly controversial, see Sections III.A.1.c, III.A.2.b, *supra*, the Court will reserve its ultimate conclusion on this issue until the Corps submits its additional analysis after remand.

2. *Section 185(h)(2)*

The Tribe next turns to Section 185(h)(2), which instructs that the agency in charge of granting the right-of-way

shall issue regulations or impose stipulations which shall include, but shall not be limited to: (A) requirements for restoration, revegetation, and curtailment of erosion of the surface of the land; (B) requirements to insure that activities in connection with the right-of-way or permit will not violate applicable air and water quality standards nor related facility siting standards established by or pursuant to law; (C) requirements designed to control or prevent (i) damage to the environment (including damage to fish and wildlife habitat), (ii) damage to public or private property, and (iii) hazards to public health and safety; and (D) requirements to protect the interests of individuals living in the general area of the right-of-way or permit who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes.

30 U.S.C. § 185(h)(2). According to Cheyenne River, the Corps “ignore[d] the requirement to protect the

‘interests of individuals living in the general area . . . who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes’ because the EA does not address impacts of an oil spill on vegetation, recreational fishing, or land-based wildlife. See CRST MSJ at 42 (quoting 30 U.S.C. § 185(h)(2)(D)); CRST Reply at 21.

The Corps, however, imposed several stipulations on the easement granted to Dakota Access. See Easement, Exh. D (listing 36 special conditions). Those conditions relate to the construction, operation, and maintenance of the pipeline in order to minimize the risk of a spill and the effects from any spill that might occur. Id. For example, the Corps has required Dakota Access to perform certain girth-weld and pressure-level tests; use specific pipe and field-joint coatings; install mainline valves to be remotely controllable and equipped with automatic-shutdown capabilities; install adequate pressure sensors; implement particular mitigation measures to avoid impacts on soils; protect against overpressure in the pipeline; install a cathodic protection system within six months; perform interference and corrosion surveys within six months of DAPL’s entry into operation; patrol the pipeline at least twenty-six times per year; undertake specific training exercises; establish a storage facility for spill-response equipment; keep records of spill-response plans; and adopt all mitigation measures set out in the EA. Id.

By aiming to reduce the likelihood of an oil spill and to mitigate the impacts of a spill should one occur, these requirements clearly constitute “requirements designed to control or prevent . . . damage to the envi-

ronment (including damage to fish and wildlife habitat)” and “to protect the interests of individuals living in the general area . . . who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes.” 30 U.S.C. § 185(h)(2)(C)(i), (D). The Corps thus satisfied its responsibilities under 30 U.S.C. § 185(h)(2).

3. *Section 185(a)*

Finally, the Tribe takes issue with the liability provisions set out in the easement. The easement provides that Dakota Access “shall be strictly liable to the United States for damage or injury which may arise from or be incident to” its activities under the easement, and it limits strict-liability damages to \$10 million per incident. See Easement, ¶ 12(a), (b). Liability for damages in excess of \$10 million is to be determined according to “ordinary rules of negligence.” Id., ¶ 12(b). The easement also contemplates liability to third parties—*e.g.*, Standing Rock and Cheyenne River. It states: “The Grantee does hereby accept liability, if any, imposed by Federal and state statutes to third parties for injuries incurred in connection with the use and occupancy of the pipeline right-of-way.” Id., ¶ 12(c). Cheyenne River contends that these liability provisions are “an abdication of [the Corps’] fiduciary responsibility to protect the resources it pervasively regulates and controls,” CRST MSJ at 44, and inconsistent with the requirements of 30 U.S.C. § 185(x). See CRST Reply at 22.

Setting aside the fiduciary-duty question, which the Court deals with in Section IV.C, *infra*, the Tribe is mistaken in believing that the Corps has run afoul of 30 U.S.C. § 185(x). That provision permits the

Corps to “impose stipulations specifying the extent to which holders of rights-of-way and permits under [the MLA] shall be liable to the United States for damage or injury incurred by the United States in connection with the right-of-way or permit.” 30 U.S.C. § 185(x)(1). It further permits the Corps to “impose a standard of strict liability” and requires that if it does so, it must “include a maximum limitation on damages commensurate with the foreseeable risks or hazards presented.” *Id.* § 185(x)(2), (4).

The Corps has complied with these requirements. Although the Tribe asserts that “Dakota Access’[s] statistics on the cost of cleanup of oil spills in the Environmental Justice Considerations Memo to the Corps demonstrates that \$10 million will not begin to cover the cost of a cleanup,” CRST Reply at 22 (citing ECF No. 203-1, Exh. BBB (Incident Rate Documents) at 3), that memo demonstrates just the opposite. It includes a table of PHMSA pipeline incidents between 1996 and 2015 in terms of number, fatalities, injuries, total cost in current-year dollars, barrels spilled, and net barrels lost. Between 1996 and 2015, there were 1,191 incidents with a total cost of \$2,640,408,583, making the average cost per incident \$2,216,968—*i.e.*, far less than \$10 million. The \$10 million strict-liability-per-incident figure, then, is certainly commensurate with the foreseeable risks or hazards presented by an oil pipeline running under Lake Oahe.

C. Trust Responsibilities

Cheyenne River’s next claim is virtually identical to one pursued by Standing Rock: the Corps’ issuance of the Section 408 permit and the easement violated its trust responsibility to protect the Tribe’s treaty

rights. Cheyenne River contends that several sources give rise to such a fiduciary obligation: the 1851 and 1868 Fort Laramie Treaties; the Oahe Taking Act, Pub. L. 83-776, 68 Stat. 1191-1193 (1954); Winters v. United States, 207 U.S. 564 (1908); the Master Water Control Manual, § 7-01.1 (explaining one of four objectives behind development of Missouri River Mainstem Reservoir System Water Control Plan was “to fulfill the Corps’ responsibilities to Federally recognized Tribes”); the Corps’ “pervasive[] and exclusive control over the Missouri River . . . and the entire project area”; 25 U.S.C. § 1632(a)(5) (“The Congress hereby finds and declares that . . . it is in the interest of the United States, and it is the policy of the United States, that all Indian communities and Indian homes, new and existing, be provided with safe and adequate water supply systems and sanitary sewage waste disposal systems as soon as possible.”); and 30 U.S.C. § 185(x)(1) (permitting federal agencies to impose stipulations specifying permit holder’s liability to United States for damage or injury incurred in connection with permit). See CRST MSJ at 5, 31-33, 35. None of these sources, however, establishes specific fiduciary or other duties. Cheyenne River’s breach-of-trust cause of action thus meets the same fate as Standing Rock’s. See Section III.B.2., *supra*.

D. Consultation

Last, Cheyenne River argues that the Corps violated various duties when it granted the Section 408 permit and easement absent the requisite pre-decisional tribal consultation. See CRST MSJ at 22-30. Whereas Standing Rock—joined by Cheyenne River—brought a failure-to-consult claim in its preliminary-injunction motion under Section 106 of the National

Historic Preservation Act, which requires a federal agency to consult with Indian tribes that attach cultural or religious significance to property affected by the agency's "undertakings," Standing Rock I, 205 F. Supp. 3d at 7-8, Cheyenne River here takes a different tack. Instead of relying on the NHPA, it invokes Department of Defense Instruction 4710.02 and NEPA's implementing regulations.

The Defense Instruction sets out "procedures for DoD interactions with federally-recognized tribes" and requires all organizational entities in the Department—*e.g.*, the Corps to "involve tribal governments early in the planning process for proposed actions that may have the potential to affect protected tribal rights, land, or resources." Department of Defense Instruction 4710.02 (2006), §§ 1, 6.6, <http://www.dtic.mil/whs/directives/corres/pdf/471002p.pdf>. "Early involvement," the Instruction explains, "means that a tribal government is given an opportunity to comment on a proposed action in time for the tribal government to provide meaningful comments that may affect the decision." Id. § 6.6. If an action "ha[s] the potential to significantly affect protected tribal resources, tribal rights, or Indian lands," the agency is to "[c]onsult with federally-recognized tribal governments on a government-to-government basis." Id. § 5.3.4 (emphasis added); see also id. §§ 6.1-6.5. Similarly, NEPA's implementing regulations require agencies to "consult[] early with appropriate State and local agencies and Indian tribes and with interested private persons and organizations" when actions are planned by private applicants. See 40 C.F.R. § 1501.2(d)(2). Based on the record of communication between the Corps

and Cheyenne River in the lead-up to the EA's publication in July 2016, the Court concludes that the Corps did endeavor to consult early with the Tribe and gave it the opportunity to offer meaningful comments on the proposed crossing at Lake Oahe. It thus need not address the Corps' alternative contention that the DoD Instruction and NEPA's implementing regulations do not impose binding consultation duties. See Corps CRST MSJ at 39.

The Corps first contacted Cheyenne River about DAPL in October 2014, when it sent a letter with information about proposed soil borings and maps illustrating portions of the pipeline and nearby cultural sites. See ECF No. 185-1, Exh. MM (Form Letter from Corps, Oct. 24, 2014); ECF No. 185-1, Exh. NN (Letter from Steve Vance to Richard Harnois, Aug. 17, 2015) (acknowledging receipt of Corps' October 2014 letter); EA at 80. The letter invited "comments or concerns regarding this project" within 30 days, see Form Letter, but Cheyenne River did not respond until March 23, 2015, when the Corps' Regulatory Project Manager in the South Dakota Regulatory Office spoke with Steve Vance, Cheyenne River's Tribal Historic Preservation Officer, by phone. See Standing Rock II, 2017 WL 908538, at *5; ECF No. 218-2 at 154 (Email from Jeff Breckenridge, Regulatory Project Manager, South Dakota Regulatory Office, to Corps Personnel, Mar. 23, 2015). Vance stressed the Tribe's request for formal consultation, involvement in the NHPA Section 106 process, and ability "to review any EA's/NEPA documentation for the project." Id. Several months then passed, however, without any comments submitted from Cheyenne River.

Richard Harnois, the Corps' Senior Field Archaeologist, spoke with Vance on August 17, 2015, to "express [his] concerns that [the Corps] had gotten no comments back yet." ECF No. 183-15 (Richard Harnois Notes, Aug. 17, 2015). Vance explained that he had been "promoting a coordinated response from the tribes through SRST," but Harnois encouraged the Tribes to respond individually, as "the way [the Corps] see[s] it, each response is like a vote—the more the better." Id. Vance committed to submitting a letter and requested an onsite meeting with "all of the interested tribal parties to inspect the crossing alignment and initiate a discussion of the pipeline as a whole." Id. His letter, sent that same day, acknowledged the "opportunity to comment [on] the proposed Dakota Access Pipeline . . . project," asked whether Standing Rock's previously submitted questions and comments had been addressed, and expressed concerns about, *inter alia*, impacts of DAPL on birds, fish, and wildlife, as well as pipeline corrosion, faulty welding, and oil spills. ECF No. 183-14 (Letter from Steve Vance to Richard Harnois, Aug. 17, 2015). Julie Price, Manager of the Corps' Cultural Resource Program, later followed up with Vance to thank him for his letter and inform him that a copy of the Draft EA would be "distributed for Tribal . . . comments in mid-December, 2015." ECF No. 183-17 (Letter from Julie Price, Manager, Cultural Resource Program, Corps, to Steve Vance, Nov. 19, 2015).

Around the same time Harnois was reaching out to Vance, Col. John Henderson, the Corps' Omaha District Commander, sent a letter to Harold Frazier, Cheyenne River's Chairman. See ECF No. 218-2 at 14-16 (Letter from John Henderson to Harold Frazier,

Sept. 3, 2015). Henderson described the DAPL project and explained that the purpose of his letter was “to initiate Section 106 consultation and review, determine [Frazier’s] interest in consulting, . . . and to gather information that will assist the Corps in identifying historic properties.” Id. at 14. He also noted that DAPL was “currently working to obtain the necessary easements for crossing federal lands, as well as” authorization under Section 408 of the RHA, and advised Frazier that “consultation on the project has also been initiated as part of the Corps Section 408 review process for the areas located on Corps Project Lands.” Id. at 16. Henderson requested “engagement and/or comments by September 30, 2015,” and supplied the contact information for three different Corps officials. Id.

Martha Chieply, the Corps’ Regulatory Chief for the Omaha District, sent a follow-up letter to Frazier at the end of November 2015 to notify him of an NHPA Section 106 consultation meeting that was to be held on December 8-9, 2015, in Sioux Falls, South Dakota. See ECF No. 183-18 (Letter from Martha Chieply to Harold Frazier, Nov. 20, 2015). She also emphasized the Corps’ interest in hearing from the Tribe about “any culturally significant concerns that may affect” areas within the Corps’ jurisdiction along the pipeline’s route. Id.

When the Corps released the Draft EA on December 8, 2015, it sent a notification to the Tribe and requested comments by January 8, 2016. See ECF No. 185-1, Exh. VV (Declaration of Jonathan Shelman, Environmental Resource Specialist, Corps, Aug. 18, 2016), ¶ 8; EA at 1.

Shortly thereafter, Vance attended the December consultation meeting, at which five Corps officials and Dakota Access personnel were present. See ECF No. 183-25 (Dakota Access Tribal Consultation Meeting Roster, Dec. 8, 2015); ECF No. 218-1 at 108 (DAPL Tribal Consultation Meeting Agenda); ECF No. 218-1 at 111 (Dakota Access Tribal Consultation Meeting, Dec. 8, 2015). According to the Corps' "[s]ummary of meeting results," Dakota Access agreed to provide the Tribes with inadvertent-discovery plan drafts and "information related to spill response plans" by December 18, and the Tribes agreed to review the data within 30 days. See ECF No. 218-1 at 112 (Email from Joel Ames, Tribal Liaison, Corps, to Corps Personnel, Dec. 10, 2015).

Vance then attended two more meetings—one on January 25, 2016, and one on February 18-19, 2016, held at Ponca Tribal Headquarters. See ECF No. 185-1, Exh. DD (Declaration of Martha Chieply, Aug. 18, 2016), ¶¶ 21-22. Cheyenne River maintains that "[t]he January and February 2016 meetings were . . . Section 106 meetings only," CRST Reply at 41, but the agenda for the February meeting lists a "Section 408 and Draft EA Update" to be given by "Brent Cossette, Omaha 408 Coordinator." ECF No. 218-2 at 1 (DAPL Tribal Consultation Agenda, Feb. 18-19, 2016). A transcript from that meeting confirms that the Corps' role under Section 408 and concerns relating to that permit were discussed. See ECF No. 143-1 (Transcript of DAPL Meeting, Feb. 18-19, 2016) at 1, 4. Vance also used that meeting to communicate to the Corps the Tribe's preference that the agency undertake an EIS rather than an EA, see ECF No. 183-26 (Tribal Consultation Meeting Notes, Feb. 18-19,

2016), and its concerns about DAPL's impact on water quality, fish, and birds. See Transcript of DAPL Meeting at 3-4.

After that meeting, Chieply and two other Corps personnel "agreed to meet again" with Standing Rock and Cheyenne Rock together, as Vance and Standing Rock's Tribal Archaeologist "wanted to discuss specific cultural resource issues of importance to their Tribes." Chieply Decl, ¶ 24. As a result of concerns Standing Rock expressed at that meeting regarding certain tribal cultural resources, including burial sites, at the James River crossing, the Corps successfully urged Dakota Access to move the pipeline's route to avoid them. Id.

In addition to those meetings, the Corps vainly tried for several months to contact and meet with Chairman Frazier. In response to a voicemail Frazier left for Joel Ames, the Corps' Tribal Liaison, on February 8, Ames left several phone messages with Frazier's secretary, called his cell phone, sent multiple emails, and even asked Vance and the Tribe's Vice Chairman for help, all to no avail. See ECF No. 183-22 (Emails from Joel Ames to Harold Frazier, Feb. 22—Mar. 7, 2016) (listing five emails from Corps to Frazier requesting phone call); ECF No. 185-1, Exh. EE (Declaration of Joel Ames, Aug. 18, 2016), ¶¶ 23-24 (describing repeated attempts to return Frazier's Feb. 8, 2016, voicemail), ¶ 26 (explaining how, in response to Vance's request that the Corps consult with Cheyenne River, he told Vance of his efforts to contact Frazier, and Vance "agreed to help make it happen"); ECF No. 218-1 at 292 (Emails between Julie Price and Larry Janis, Mar. 3, 2016) (discussing Price's commu-

nications with Vance and Frazier’s secretary to arrange meeting with Frazier); ECF No. 185-1, Exh. QQ (Email from Joel Ames to Corps Personnel, May 9, 2016) (stating Ames had recently met Cheyenne River’s Vice Chairman and communicated that he was trying to reach Chairman Frazier to arrange meeting). On May 6, Henderson sent an email to Frazier explaining that the Corps had “been unsuccessful in identifying any potential meeting dates” with the Tribe and expressing his desire “to meet to discuss not only the DAPL project, but any other topics you may want to discuss.” ECF No. 183-21 (Letter from John Henderson to Harold Frazier, May 6, 2016).

Vance sent two letters to the Corps in May that articulated concerns about DAPL’s impact on the Tribe’s historic sites, expressed frustrations with the lack of consultation to date, and repeated Standing Rock’s comments that the draft EA was “insufficient for oil pipelines” and an EIS should be completed. See ECF No. 185-1, Exh. II (Letter from Steve Vance to Richard Harnois, May 2, 2016); ECF No. 183-19 (Letter from Steve Vance to John Henderson, May 19, 2016). Frazier, however, did not respond to the Corps’ repeated outreach efforts until June, when he sent a letter stating that it had not initiated the requisite consultation and that the draft EA insufficiently analyzed DAPL’s impact on the Tribe’s cultural resources and historic sites and did not contain “proper environmental analysis.” ECF No. 183-20 (Letter from Harold Frazier, June 3, 2016). The Corps responded to these letters with “recent Question and Answer summar[ies]” from recent consultation meetings that addressed, *inter alia*, actions the Corps was considering

regarding DAPL, its expected decisionmaking timeline, and the impact of HDD on cultural resources. See ECF No. 183-23 (Letter from Martha Chieply to Steve Vance, June 13, 2016); ECF No. 185-1, Exh. JJ (Letter from John Henderson to Harold Frazier, June 22, 2016).

When the Corps published the EA in July 2016, it included an appendix with the various comments received in response to the public notice of the Draft EA. See ECF No. 172-4 (Appendix J) at 38-58. No comments from Cheyenne River appear in the appendix, and the EA does not list Cheyenne River as a consulting party on the EA. See EA at 111-14 (list of “all individuals and agencies consulted during preparation of the EA”). On this point, the Court must briefly digress from its review of the communication between the Corps and the Tribe. Cheyenne River protests its exclusion from Appendix J “even though the Corps received comments from the Tribe” as evidence of “the length to which the Corps went to exclude the Tribe from its analysis.” CRST MSJ at 29. Rather than responding, as Dakota Access did, that the Tribe did not submit any timely comments to the Draft EA, but rather sent letters much later, see DA CRST MSJ at 2, 5, the Corps puzzlingly accuses Cheyenne River of misstating the facts. “Appendix J explicitly states Cheyenne River provided comments and also states those comments,” it asserts. See Corps CRST MSJ at 35 n.18. But the Corps cites to comments from Northern Cheyenne, an entirely different tribe. See CRST Reply at 43 n.19. The Court trusts this error is simply a clerical oversight, albeit one with unfortunate connotations regarding how distinct Tribes may be perceived.

Appendix J confusion aside, the record clearly indicates that the Corps solicited Cheyenne River's views on the DAPL project well before publishing the EA and issuing the Section 408 permit and easement, and communicated regularly with Vance and Frazier via phone calls, letters, and in-person meetings. These actions were sufficient to satisfy the early-comment and consultation goals articulated in the Defense Department Instruction and NEPA's implementing regulations.

Cheyenne River's protests to the contrary do not persuade the Court otherwise. First, the cases on which the Tribe relies to demand a more robust consultation process rest on federal statutes governing the Bureau of Indian Affairs' consultation responsibilities and the NHPA's Section 106 substantive-consultation requirements, not the DoD Instruction and NEPA. See CRST MSJ at 23-24, 27-28 (citing Wyoming v. Dep't of Interior, 136 F. Supp. 3d 1317, 1345-46 (D. Wyo. 2015), vacated and remanded sub nom. Wyoming v. Sierra Club, No. 15-8126, 2016 WL 3853806 (10th Cir. July 13, 2016); Cheyenne River Sioux Tribe v. Jewell, 205 F. Supp. 3d 1052, 1057-58 (D.S.D. 2016); Quechan Tribe of Fort Yuma Indian Reservation v. Dep't of Interior, 755 F. Supp. 2d 1104 (S.D. Cal. 2010); Yankton Sioux Tribe v. Kempthorne, 442 F. Supp. 2d 774, 784 (D.S.D. 2006)).

The Tribe also argues that many of the contacts from the Corps were focused on the protection of cultural, religious, and historic sites implicated by Section 106 of NHPA and thus cannot "constitute consultation on the impact of DAPL on trust and treaty resources under NEPA." CRST MSJ at 30; see also CRST Reply at 40. The Corps, however, repeatedly

invited the Tribe to share comments on the project that went beyond Section 106 concerns. And NHPA's implementing regulations encourage federal agencies "to coordinate compliance" with Section 106 and NEPA. See 36 C.F.R. § 800.8(a)(1); see also id. ("Agencies should consider their section 106 responsibilities as early as possible in the NEPA process, and plan their public participation, analysis, and review in such a way that they can meet the purposes and requirements of both statutes in a timely and efficient manner."); Apache Survival Coal. v. United States, 21 F.3d 895, 906 (9th Cir. 1994) ("NHPA's implementing regulations contemplate that NEPA and NHPA review should be integrated closely.").

Cheyenne River further maintains that the Corps made its decision on the Section 408 permit long before the EA was published, thus truncating the time period for meaningful comment. See CRST MSJ at 24-25. Its support for that proposition is wanting. The Tribe relies, for example, on a December 10, 2015, memorandum from the Chief of the Corps' Geotechnical Engineering and Sciences Branch that it characterizes as "sign[ing] off" on the permit, and points to the lack of comments from the Water Control and Water Quality Branch on the draft EA and the absence of a "Record of Decision for the Recreation and Natural Resource Branch." Id. at 24-25. The cited memo, however, simply explains that the thirteen "geotechnical comments . . . generated during the technical review" had been "satisfactorily addressed by the Engineer-of-Record, Dakota Access LLC and GeoEngineers" and so "were closed out." ECF No. 209-10 at 73. In direct conflict with the Tribe's early-decision claim, it states:

“The comments herein pertain only to the geotechnical and flowable easement issues related [to] HDD and Geotechnical investigations in the floodway and do not constitute USACE approval of any permits that may be required.” *Id.* (emphasis added). The Water Quality Branch, moreover, did review the Lake Oahe crossing. *See* Section 408 Decision Package at 1.

The Tribe last argues that it could not have been adequately consulted prior to the permitting decisions because the Corps did not provide it with the Scoping Comments in Appendix J or the environmental-justice-considerations memo until December 2016, and it did not release the Spill and Analysis and Facility Response Plans to the Tribe’s experts until February 2017. *See* CRST MSJ at 28; CRST Reply at 40. As the Court has previously explained, however, some of those documents were appropriately withheld from public disclosure. *Standing Rock III*, 2017 WL 1316918, at *5-6. More important, Cheyenne River does not explain how lacking access to those documents hindered its ability to meaningfully comment and consult on the EA when it was given access to the draft several months before the final version was published and offered repeated access to Corps personnel.

* * *

In sum, then, the Court reaches the same decision on Cheyenne River’s claims as it did on *Standing Rock*’s. Aside from the discrete issues that will be the subject of remand, the Court concludes that the Corps complied with its statutory responsibilities. In addition, it will similarly permit Cheyenne River to participate in the briefing on vacatur pending remand, as set forth in Section III.D, *supra*.

V. Conclusion

For the foregoing reasons, the Court will grant in part and deny in part Standing Rock's Motion for Partial Summary Judgment and grant in part and deny in part the Corps' corresponding Cross-Motion for Partial Summary Judgment. The Court also will deny in part Cheyenne River's Motion for Partial Summary Judgment and defer a decision on those claims that may be affected by the remand ordered in response to Standing Rock's Motion. It accordingly grants in part the corresponding Cross-Motions for Partial Summary Judgment from the Corps and Dakota Access. A contemporaneous Order so stating will issue this day.

/s/ James E. Boasberg

JAMES E. BOASBERG

United States District Judge

Date: June 14, 2017