

Erica Edstrom

WRIT 3102W

(Senior Capstone Revision Fall 2019)

## Constructing the Dakota Pipeline

### 1. The Environmental Impact of DAPL

The Dakota Access Pipeline (DAPL) is a newly implemented system of transportation that takes the oil from the Bakken Formation in North Dakota down to Illinois through 1,172 miles of pipe (fig. 1). The extensive length of the line has been cause for many problems

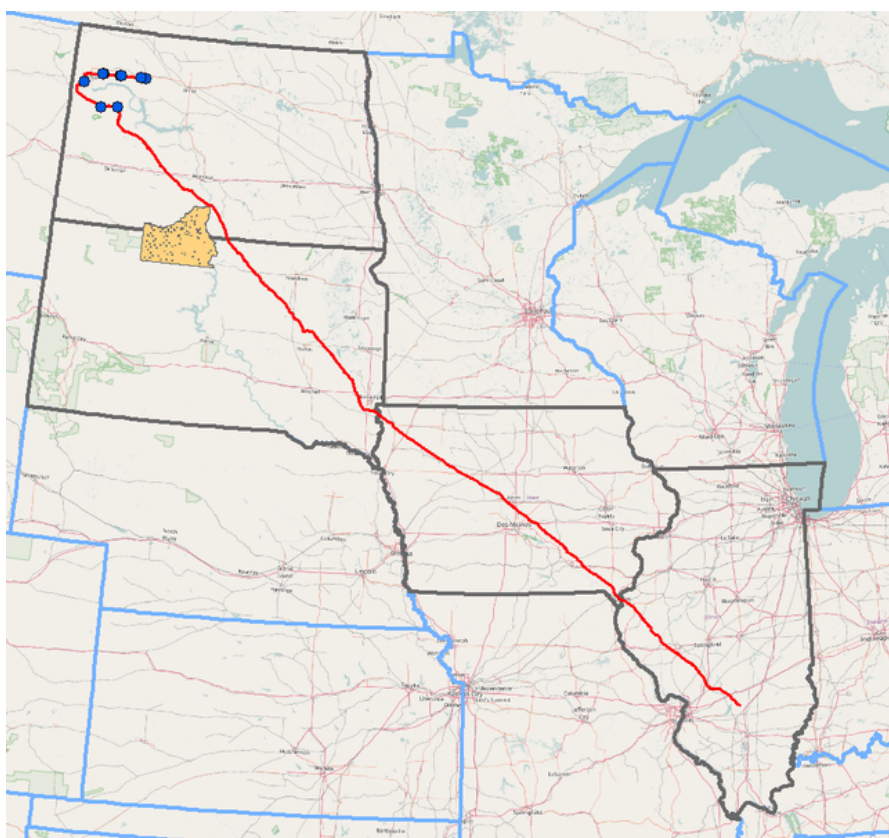


Figure 1 - Map of Dakota Access Pipeline

because it runs directly beneath major water sources and its length lends itself to a higher chance of an oil spill. It has been highly contested by the Standing Rock Sioux Tribe, who use Lake Oahe (it being the 4<sup>th</sup> largest reservoir in the nation and connected to the Missouri River) and live directly downstream from the intersection of the pipeline and the lake. They have been fighting

for the use of the pipeline to come to a halt for fear of the harmful effects it could have on the environment. The problem that is foreseen with DAPL is the same one that the United States has seen multiple times before, especially with the Keystone XL Pipeline that sprung a massive leak in November, spilling an estimated 200,000 gallons of oil in South Dakota. Parfomak, Pirog, Luther & Vann (2013) write about issues that other pipelines such as the Keystone have brought about, "...it has significant environmental impacts, including emissions of greenhouse gases during extraction and processing, disturbance of mined land, and impacts on wildlife and water quality" (p. 27). The DAPL runs the same risk of having a major oil spill that could have detrimental effects on not only the surrounding environment but could also help attribute to global warming.

The Environmental Assessment (EA) is an important document that is consistently referenced throughout this report because it offers necessary insight into the preparation and thought process of how the Dakota Access LLC justifies the use of the pipeline. Initially there was little documentation and research because the Environmental Assessment had not been published yet and the U.S. Fish and Wildlife Service (USFWS) had released a statement *Finding of No Significant Impact* (2016) concluding that, "after evaluating the anticipated environmental effects... it is my determination that allowing construction of the proposed Dakota Access Pipeline Project... would not constitute a major federal action that would significantly affect the quality of the crossed wetland and grassland easements..." (p. 3). Later it was found with the release of the EA (2016) that although construction poses no serious threat to endangered species habitats in the area, "impacts beyond direct, temporary construction impacts to water quality due to the project are not anticipated" (p. 20).

The major concern is with oil spills which the EA lacks in preparation and explanation to this key environmental problem. On the DAPL facts website, they claim that the pipe would not affect the drinking water of the Standing Rock Sioux Tribe and others living downstream, but many opposing organizations beg to differ because an oil spill would leak directly downstream and into where the Standing Rock Sioux Tribe and others get their drinking water and also constant fracking creates waste water that is unsafe to drink or use. Hearne & Fernando (2016) write on the problem with effected water; "wastewater from the fracking process is extremely saline and is...difficult to recycle. Only a very small percentage of Bakken fracking wastewater has been recycled". This problem with not being able to recycle that contaminated water easily is a large concern for all North and South Dakota residents and later in the article they go on to state "the oil industry and the state vehemently deny that fracking and wastewater disposal can have negative impact upon the much shallower groundwater aquifers. However, over 3900 wastewater spills have been recorded, with persistent inorganic contamination" (p. 4). With recorded incidents of prior oil and wastewater spills in the past, it is a very real fear that residents have of effecting their drinking water.

According to the DAPL EA (2016) "[Pipeline and Hazardous Materials Safety Administration] PHMSA prescribes pipeline design and operational requirements that limit the risk of accidental crude oil releases from pipelines" (p. 20). This is a major concern because of the fact that before the pipeline even became fully functional there was already a leak at the beginning of 2017. The Environmental Assessment stands to offer preventative methods that "limit the risks" of oil spills and "containments and clean up" methods but offer no information backing up why the likelihood of an oil spill would be lower than in the past within the

Environmental Assessment. Further investigation has reaped no information on how pipeline leaks and spills would be handled and there are no government publications on procedural measures that would be taken.

More research since 2016 has been conducted in the Dakotas on the effects of pipelines. Shoemaker (2017) writes “these pipelines bring up difficult, multilayered challenges involving the US energy future, environmental and climate effects of fossil fuel dependence (especially fuels from oil sands and hydraulic fracturing), pipeline safety, national security, tribal sovereignty, and the economy” (pp. 69-70). Although fossil fuel dependency is a much larger problem than DAPL itself, it is important to mention that the DAPL plays a role in feeding into national oil infrastructure. By focusing federal funding on constructing and maintaining the pipeline attention is taken away from searching for other renewable resources. Erickson & Lazarus (2014) write “broadly speaking, construction of fuel supply infrastructure could result in several categories of GHG impacts, including emissions associated with project construction and operation... and emissions associated with increased fuel use and combustion, due to price effects, if the infrastructure increases global fuel supply” (p. 778). By continually pumping thousands of gallons of oil to the refineries each day the pipeline is only helping perpetuate the cycle and consumption of fossil fuels which in turn will contribute to greenhouse gas emissions and global warming over all.

One of the final and lesser known problems that the pipeline causes is weed infestation in pipeline construction areas which effects vegetation growth. Espeland & Perkins (2017) write on the effects of constructing pipelines in North Dakota and what effect they have on the environment; “disturbance related to energy development, such as road and pipeline

construction, drilling activities, and reclamation, may provide an avenue for weed populations to expand” (p. 303-304). They later go on to explain why this weed population that is created by the disturbance of the land from pipeline construction is harmful to the area; “these weeds can interfere restoration establishment and decrease the ecological integrity and agricultural value (such as forage quality) of neighboring areas when they spread” (p. 308). The weed infestation makes it not only harder for native plants to grow but that then also takes away viable vegetation for species that live in the habitat on top of the disruption of construction.

## **2. Trucking, Train & Other Alternatives**

There have been multiple suggestions made to implement as solutions or alternatives to the DAPL, all addressing a different combination of problems but none of them have the capability of resolving everything. This complex issue lends itself to have no true solution, just alternatives that can be ranked by creating the greatest good for the largest amount of people.

Before getting into considering all the different ways to change the current system, it is always good to evaluate whether doing nothing could reap the most benefits, since there is always the option of allowing the pipeline to continue without any interference. Being that this option is obviously the most cost effective and the fastest method of transporting crude oil from North Dakota to Illinois, economically it is the most reasonable option. What makes this a difficult choice to make is the fact that it is so strongly opposed by the Standing Rock Sioux Tribe and stands to threaten the water source that many people in the area and downstream rely on. Also reiterating that the USFWS (2016) statement that was quoted earlier says that construction and maintenance of the pipeline would not affect the quality of the surrounding environment (p. 3). In the short term, the pipeline looks ideal because it will create lots of

revenue with this new deposit of oil and lessen gas prices in the for a time although it will have harmful effects on the nation's fossil fuel dependency and greenhouse gas emissions in the long term.

The next two alternatives, trucking and trains, were brought up to the USFWS but were “screened out from detailed considerations due to safety, reliability, and infrastructure concerns, all of which would create greater impact for the purpose of the project” (p.1). Starting by looking at the Rail Transportation Alternative because it offers a slightly better alternative than trucking although neither of them are truly viable options. This alternative would leave a much smaller carbon footprint than trucking would and would be easier to maintain because there would only need to be one long train instead of using a multitude of trucks to transport the oil which would be cheaper. The major problem with using a rail line to transport the oil is the fact that it would hurt other industries according to the DAPL EA (2016) because, “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” (p. 16). Also when considering using a rail system the Supreme Court case *Standing Rock Sioux Tribe v. Army Corps of Engineers* (2017) discussed the issue that “data reveals that the Bismarck Alternative would have required an additional 111 miles of pipeline, ‘consisting of roughly 165 additional acres of impact’” (p. 45). This would be more expensive to build a line with an extra 111 miles of tracks but the likelihood of an oil spill is exponentially smaller with a train so the pros and cons seem to somewhat balance out in that sense.

Secondly there is the Trucking Transportation Alternative which would use trucking systems in order to bring the oil from North Dakota down to Illinois. This alternative offers solutions

when it comes to problems such as worries with oil spillage, constructing & maintaining the pipeline and also the issue of disturbing sacred Native American land. Using trucking does pose some of its own obstacles to overcome as well such as that the greater expense transporting oil by truck will cost because these modes are manually operated by people for long distances in which the pipeline does not require. Also, there is the problem with carbon emissions from all of the trucking that would just be adding to the global warming situation and the fact that truckers may not want to drive that far of a distance over and over again when there could be a pipeline that could do it for them at a faster rate. Then there is the issue of trucks driving through populated areas that don't want to see or hear trucks constantly driving through there area and also a higher rate of heavy vehicles on the roads will cause an increased rate of decay for infrastructure meaning that more money will have to be spent on rebuilding roads. The DAPL EA (2016) goes on to talk about "the state's infrastructure still consists of single-lane, rural, and unpaved roads in many areas. Harsh winter weather and seasonal road restrictions compromise the reliability of truck transportation even further" (p. 16). Being more costly and more dangerous for the drivers, trucking is an option but not a logical one.

The problem with too much water consumption by the frackers, resulting in hard to recycle saline water waste and a scarce water source for North Dakota residents, has a slightly easier solution than trying to fix the entire pipeline issue as a whole because it is a more focused concern. Hearne & Fernando (2016) talk about how "incentives exist to develop improved recycling technologies, but, currently, fracking flowback water is trucked to deep saltwater wells" (p. 4) but has been discovered as a poor way of handling the wastewater so "limited groundwater capacity has led the state of North Dakota to maintain a policy to restrict further

allocation of groundwater in certain areas" (p. 5). By tightening up on restrictions for who can use certain water sources it helped the scarcity and quality of water replenish itself.

Lastly with the issue of non-native weeds overrunning the states' ecosystem because of the pipeline construction and disturbed soil that allowed these plants to grow, there are studies that look into their effect on the environment and whether they need to be removed or not. Espeland & Perkins (2017) explain "the possible introduction of noxious *H. niger* and definite arrival of invasive *A. cristatum* via the pipeline disturbance highlights the need to prevent invasive species dispersal into construction and restoration" (p. 309). It is clearly difficult to remove an entire plant species from a habitat, so Espeland and Perkins' study aims more at bringing awareness to the effects of these weeds and how they are introduced to the environment by being brought in on construction equipment and reseeded so that it won't happen as often in the future.

### **3. Social Impact**

After taking a look at the environmental effects that the pipeline has and will have on the surrounding area; it's time to take a look at the aforementioned social and cultural impacts this construction has had. Many know about this controversial pipeline project because of its prominence in the media that has brought it to fame. The Standing Rock Sioux Native American Tribe are the undertakers of this movement that then grew to gain national recognition and even celebrities joined their ranks in order to protest the construction of the DAPL. This became such an issue with the Standing Rock Sioux tribe not only because it poses a very real threat of environmental damage to all of those who live down stream, but also because there has been international efforts to afford Native peoples' more of a voice when it comes to decisions that directly affect them. Walter Mengden (2017) commented on the infringement of their human



rights, “currently, a consultation process to engage tribes is employed when their lands and resources are impacted. This process includes the affected tribe but offers no mechanisms for tribes to oppose any substantive decisions that are made by the federal government” (pg. 441).

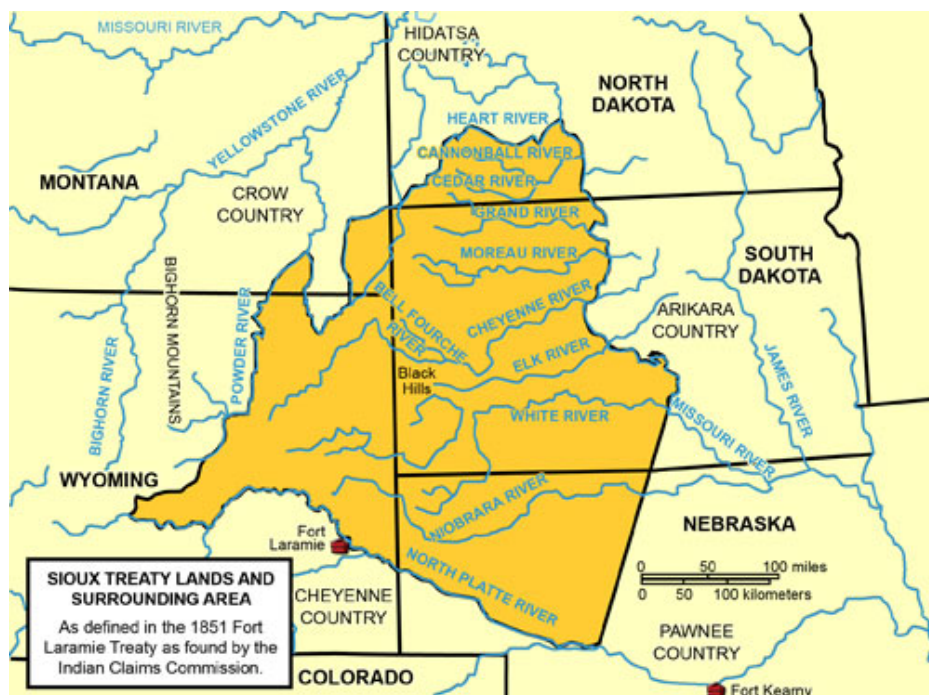


Figure 2 - Map of Fort Laramie Treaty of 1851

He then goes on to explain how the UN in the international arena has taken further steps to protect indigenous people with the Declaration on the Rights of Indigenous Peoples (DRIP) which requires “free, prior, and

informed consent” (FPIC) before further actions are taken. The US has failed to afford the Standing Rock Sioux tribe this higher standard of rights especially because all of this land surrounding Lake Oahe was promised to the Standing Rock Sioux in the Treaty of Fort Laramie in 1851 but was never delivered (Smith & Van Ierland, 2018).

Another controversy that the Standing Rock Sioux disputed was a section of the pipeline construction that was being placed over a sacred burial site (fig. 3). Interestingly enough, the pipeline was “set to cross their primary source of drinking water, even though an alternative path closer to the state's capital of Bismarck was rejected because of its proximity to water supplies for that city”. Looking at the difference in people effected in these two areas, Bismarck has a

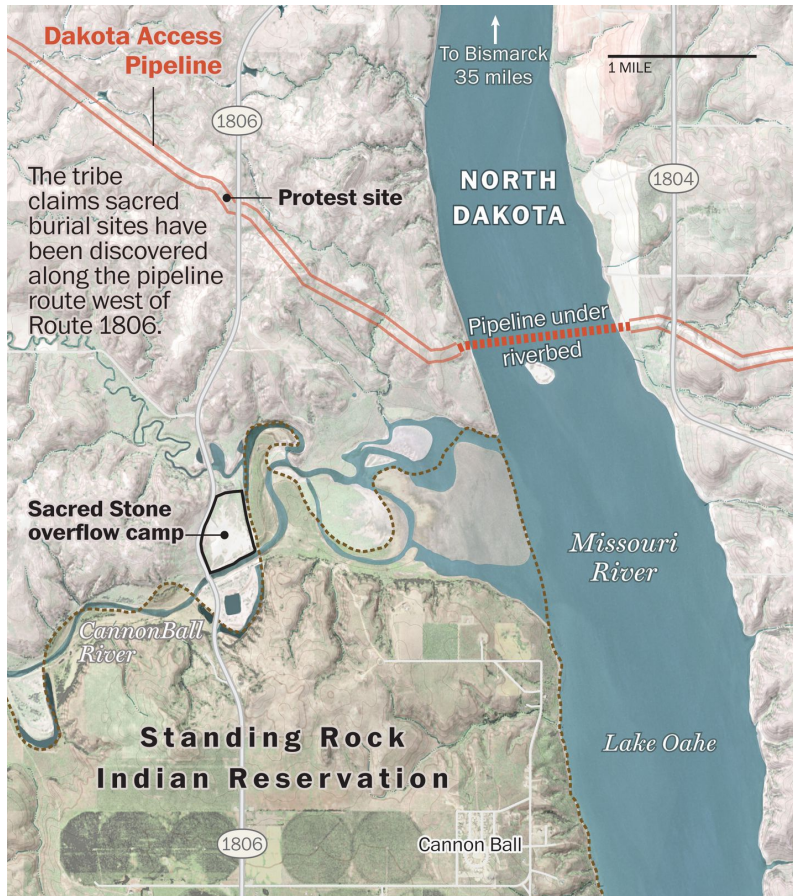


Figure 3 - Map of Intersection of Standing Rock Reservation and DAPL (Source: Army Corps of Engineers)

population of roughly 72,000 people while the Standing Rock reservation has a population of 15,000 (Smith & Van Ierland, 2018). Clearly a utilitarian choice was made by the US government that paid little attention to the needs and wellbeing of the Sioux tribe and was solely focused on the short term benefits the pipeline offers for the country. Sovereignty has been a continuous issue fought for by all First Nations' peoples

for centuries, this is just one example of the lack of voice they receive and their effort to finally get not only a seat at the table but decision-making abilities as well.

## References

- Dakota Access, LLC. (2016). *U.S. Fish and wildlife service environmental assessment grassland and wetland easement crossings*, North Dakota, pp. 1-44.
- Erickson, P., & Lazarus, M. (2014). Impact of the keystone XL pipeline on global oil markets and greenhouse gas emissions. *Nature Climate Change*, 4(0), pp. 778-781.
- Espeland, E. K., & Perkins, L. B. (2017). Weed establishment and persistence after water pipeline installation and reclamation in the mixed grass prairie of Wester North Dakota. *Ecological Restoration*, 35(4), pp. 303-310.
- Hearne, R. R., & Fernando, F. (2016). Strategies for community and industry water management in the oil producing region of North Dakota. *MDPI Journal*, 8(331), pp. 1-12.
- Mengden, W. H., IV. (2017). Indigenous People, Human Rights, and Consultation: The Dakota Access Pipeline. *American Indian Law Review*, 41(2), 441-466.
- Parfomak, P. W. (2017). "Dakota Access Pipeline: Siting Controversy." Congressional Research Service, InsightIN10567.
- Parfomak, P. W., Pirog, R., Luther, L., & Vann, A. (2013). Keystone XL pipeline project: Key issues. *Congressional Research Service*, Retrieved from University of Minnesota Law Library, pp. 1-38.
- Protestors Continue to Fight Dakota Access Pipeline. (2016). *Oil Spill Intelligence Report*, 39(19), 3-4.

Shoemaker, J. A. (2017). Invited essay: Pipelines, protest, and property. *Great Plains Research*, 27(2), 69-81. Retrieved from

<http://login.ezproxy.lib.umn.edu/login?url=https://search-proquest-com.ezp3.lib.umn.edu/docview/1952357281?accountid=14586>

Smith, J., & Van Ierland, T. (2018). Framing Controversy on Social Media: #NoDAPL and the Debate About the Dakota Access Pipeline on Twitter. *IEEE Transactions on Professional Communication*, 61(3), 226-241.

Sweeney, S. (2016). Standing rock solid with the frackers: are the trades putting labor's head in the gas oven? *Sage Journal* 26(1), pp. 94-99.

Water is life: WILPF US stands with water defenders against the pipeline. (2016, Fall Winter). *Peace and Freedom*, 76(2), 14.