

# PAYING THE PIPE(LINE)R

## Equity Assessment of Hazardous Liquid Accidents and Indigenous American Land

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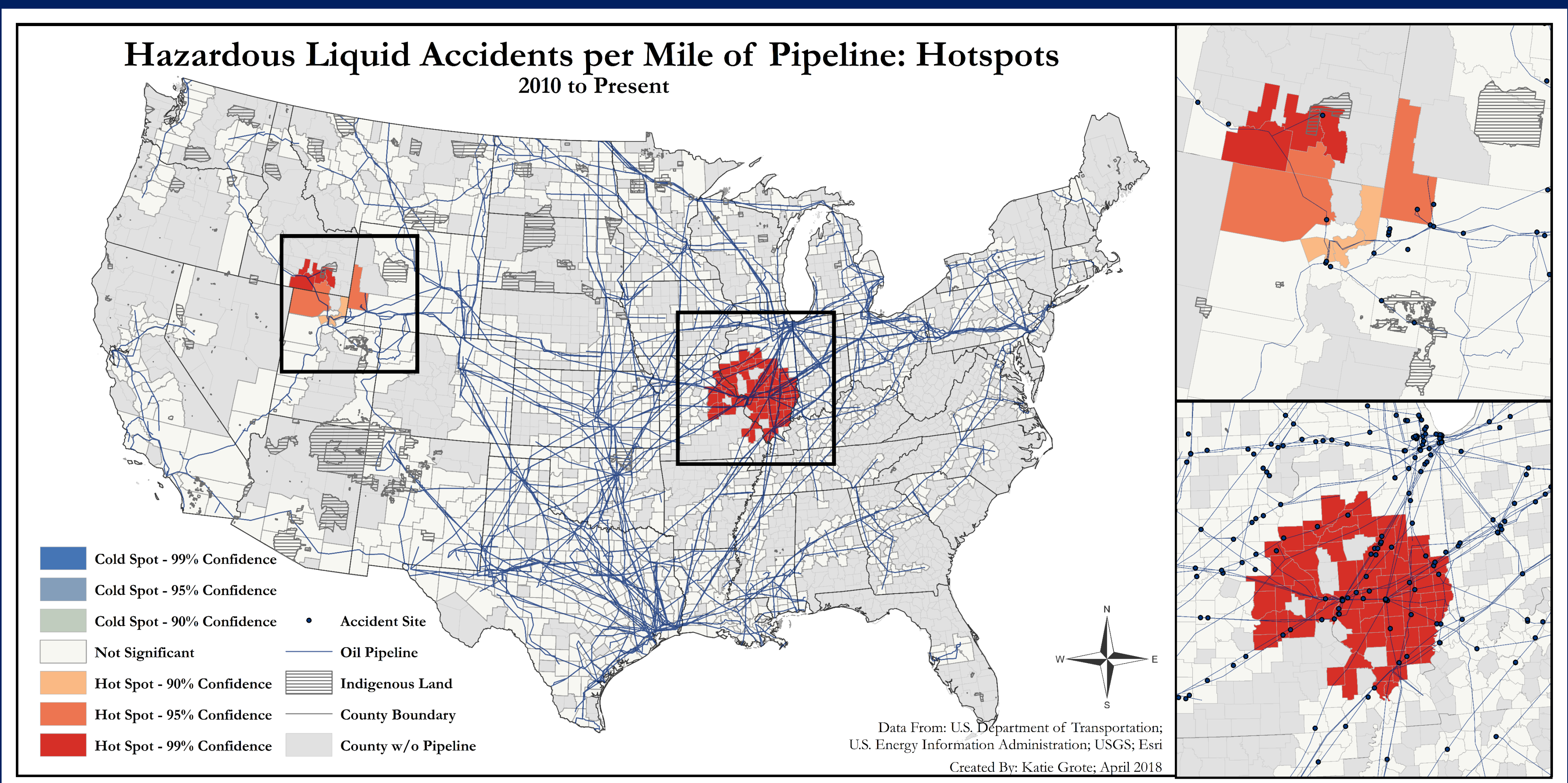
### Introduction

Indigenous communities in the United States are just one of many racial minorities who may experience unsuitable and hazardous environmental conditions (Pulido 2000; Pinderhughes 1996). Indigenous Americans make up 1.7 percent of the United States' population and many live on federal and state designated tribal land or reservations (Norris et al. 2012). While many reservations suffer from high poverty rates, immobilization stretches beyond financial restrictions. Many Indigenous Americans have deep cultural, religious, and personal connections to their land. Like other minorities in the United States, Indigenous Americans often experience environmental threats to their land (Warner 2017; Johansen 2016). To examine the inequities of environmental threats due to oil extraction and transportation, a hotspot analysis is employed. The objective of this study is to complete an environmental equity analysis by comparing the number of hazardous accidents caused by oil extraction and pipeline transportation on or near (10-mile buffer) federally recognized Indigenous reservations to those accidents not on tribal land in the continental United States (CONUS).

### Methodology

The analysis of this study employed the Optimized Hotspot Analysis tool (ArcMap 10.5.1) which uses the Getis-Ord  $G_i^*$  statistic. From this tool, statistically noteworthy clusters of high values (hotspots) and low values (cold spots) are identified (Esri 2017). Using the pipeline incident point data and CONUS county boundaries, the point data was converted into polygons and the value of incidents per mile of pipeline per county was analyzed.

### Results



### Conclusion

The results of the study show that there is not a significantly disproportionate amount of hazardous liquid accidents occurring on or near tribal lands. The analysis displays two primary hotspots and no cold spots. The hotspots shown are not simply occurring in counties with the highest value of pipeline distance (and therefore the highest value of incidents). This analysis may show where pipelines are not being well maintained, and therefore are resulting in a standardized high amount of spill incidents, such as on the Fort Hall Reservation in Idaho. Although this study did not find a significantly disproportionate amount of accidents on or near Native American reservations, other causes of environmentally hazardous conditions were not considered. Additionally, this research only addresses accidents since 2010 and does not include data of more recently constructed pipelines – such as Keystone XL and the Dakota Access Pipeline, both of which are routed just outside of reservation borders in the Dakotas and have caused widespread protest movements by Indigenous peoples and their allies.

**References:** Johansen, Bruce E. 2016. *Resource exploitation in Native North America: a plague upon the peoples, Native America: yesterday and today*. Santa Barbara, California: Praeger. ; Norris, Tina, Paula L. Vines, and Elizabeth M. Hoefel. 2012. "The American Indian and Alaska Native Population: 2010." *United States Census Bureau*. ; Pinderhughes, Raquel. 1996. "The Impact of Race on Environmental Quality: An Empirical and Theoretical Discussion." *Sociological Perspectives* 39 (2):231-248. ; Pulido, Laura. 2000. "Rethinking Environmental Racism: White Privilege and Urban Development in Southern California." *Annals of Association of American Geographers* 90 (1):12-40. ; Warner, Elizabeth Ann Kronk. 2017. "Environmental Justice: A Necessary Lens to Effectively View Environmental Threats to Indigenous Survival." *Transnational Law & Contemporary Problems* 26 (343):343-369.

Data From: Esri ; U.S. Energy Information Association ; U.S. Department of Transportation – Pipeline and Hazardous Materials Safety Administration ; U.S. Geological Survey (USGS) ; U.S. Census Bureau – 2016 Census