**Introduction:**

The purpose of this proposal is to outline where oil wells are present in Pennsylvania and where the best course of action to implement a removal of oil wells at a cost efficient stand point is. The proposal uses data collected from the PASDA website (pasda.psu.edu).

**Data:**

There were two sources of data used and one piece of data derived from the original two, so three pieces of data in total. The first piece of data was the Pennsylvania counties layer. This file consists of county boundaries within Pennsylvania and were determined to be a good method of determining how to assess the issue of oil wells.

The second data source were the oil wells. This file was quite expansive and truly showed the problem we are examining to be quite a real issue. The majority of wells reside in the north western section of Pennsylvania, but do pop up in areas near Philadelphia. It produces a gradient like affect when viewed in Choropleth form, which is established in our presentation.

The third piece of data was a combination of the first two. This data source was created through a spatial join of the Pennsylvania county layer and the oil wells. This allowed us to ditch the original county layer and use this newly created country layer that consisted of more attribution. This new layer had knowledge of how many wells were within each county, which would permit us to develop functions to color code counties depending on how many wells were within each, thus the creation of the choropleth map.

**Methods:**

Our methods consisted of data collection, data manipulation, data conversion, a bit of JavaScript and HTML. These were the ingredients to portray a decisive map that illustrates the topics we want to get across.

Data collection and manipulation were covered in the **Data** section, so we will skip them within this section. The data conversion aspect was quite simple. It was the process of converting Shapefiles into GeoJson files, which we later converted into .js files so we could reference them within our code. The website we used in order to complete this task was mapshaper.org. This site allows for the drag/drop of files, so they may be converted into GeoJson or TopoJson, along with a variety of other data formats.

The JavaScript we used mainly encompassed the GeoJson’s previously mentioned and the Leaflet module. The leaflet module allowed us to display our geojsons, basemaps, while simultaneously giving us the added luxury of customizing how they would look.

The HTML we used was among the most minimalistic part of our presentation. It was merely used to allow us to display our data and JavaScript on a web page.

**Results:**

The end result was a choropleth map that displays the fracking issue within Pennsylvania quite well. The map depicts oil wells running rampant throughout North West Pennsylvania. This may explain why that area of Pennsylvania sees large volumes of opposition to the oil and gas industry.

**Conclusion:**

Our map and data pin point where fracking is occurring, how many wells there are, and what counties are being affected. However, our data does not show if fracking is hazardous to the surrounding area. What our data can provide is that these areas are heavily influenced by oil wells and coincidentally ecosystems in these areas have been heavily altered, water has been polluted, and malicious bacteria has arisen.