



## Wellbore Architecture and Semi-Automatic Quality Control of Injection and Hydraulic Fracturing Information

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### ABSTRACT

Time-space investigations of induced seismicity in Texas oil fields requires having geospatial wellbore datasets, particularly for saltwater disposal wells and hydraulic fracturing operations.

To achieve our goal and get the most current and complete dataset possible, we use a mix of ArcGIS server and mapping software, custom tools, and Python programming. The data are collected from three sources (B3 Insight, IHS, and FracFocus) and exist at various levels of completeness. Where data elements are missing, we substitute next best answers and make note of the issue.

Volumes injected into salt water disposal wells are reported to the Texas Railroad Commission on a monthly basis and are considered complete up to 15 months back. B3 Insight collects these data and provides access to the database through a REST API. The Python code currently making data requests to the API filters the injection database based on area of interest and time.

FracFocus is the source for hydraulic fracturing information. These data come as a flat file and the dataset is considered complete up to 5 months back. The operator self-reports the hydraulic fracturing data to the FracFocus system. This dataset goes through a quality control (QC) before it can be used.

The well bore dataset is constructed from IHS data. Spatial data provided by IHS is processed within ArcPro using customized tools and models. Wellbores missing from the IHS spatial data package are identified and generated from the IHS Well Workbook Survey Point table.

Using the API number as the primary key, both saltwater disposal and fracture records are joined to the geospatial wellbore. The wellbore is reduced to three representational points. The XYZ of these three points (surface/heel, midpoint, and end/toe) are listed in the final table based on the end user's preferred coordinate system and units.

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## NOTES

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