

BP REFINERY

WHITING, IN



DESIGN, BUILD, DONE

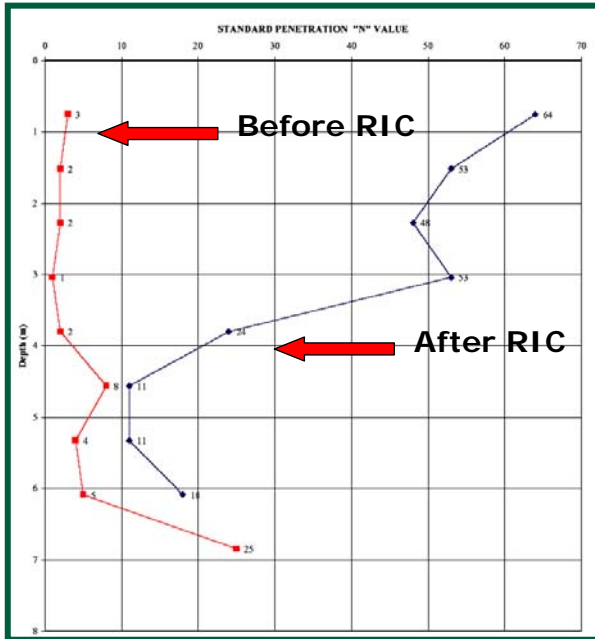
The BP Whiting refinery, originally built in 1889 and upgraded repeatedly over the years, is currently refining approximately 400,000 barrels of oil per day. The goal is to modernize the existing refinery without interrupting current operations in order to increase refining capacity of heavy Canadian crude oil.

CHALLENGE:

In the past 100 years, developments have been built up surrounding the refinery, leaving no room for growth past the property lines. Therefore, new units, piping, rail spurs, and other structures had to be built within the current refinery property boundaries. Because of the operating refinery's sensitivity, construction vibrations had to be carefully controlled to keep from affecting the operating units.

INNOVATION:

To significantly reduce foundation costs and meet the projects vibration limits and safety requirements, approximately 500,000 square feet of existing loose fills and sands were compacted in place using **RAPID IMPACT COMPACTION (RIC)**. The RIC process provides **CONTROLLED IMPACT COMPACTION** of the earth using a 7.5 ton weight which is dropped 4 feet on to a 5 foot diameter tamper capable of imparting 40 to 60 blows per minute. The resulting force can densify soils to depths of up to 20 feet. Controlled impact loading is important since it allows deflection to be monitored on a per blow basis to determine when compaction of the soil is complete.



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June 2008

Owner: BP Products, North America


General Contractor: Fluor Enterprises, Inc., Sugarland, TX

Geotechnical Engineer: Tolunay-Wong Engineers, Inc., Houston, TX

GeoStructures, Inc.
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