THE ROLE OF PETROLEUM IN THE INDUSTRIAL DEVELOPMENT OF THE LOS ANGELES COASTAL PLAIN, CALIFORNIA: 1920 - PRESENT

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In the 1760s, a soldier named Juan Jose Dominguez was part of the Portola Expedition, and a few years later when Franciscan missionaries began their journey to establish the chain of California missions, Dominguez accompanied Father Junipero Serra as part of a small band of military men to help protect the padres. In appreciation, Dominguez received the very first land grant in the history of California, a vast expanse of 75,000 acres of land, which was named Rancho San Pedro. This area stretched from the Los Angeles river west to the Pacific Ocean, encompassing now the cities of Carson, Torrance, Redondo Beach, Lomita, Wilmington and parts of San Pedro. 1910 marked the modern history of the area with the annexation of San Pedro Harbor and acquisition of the "Shoe-string Strip" through Rancho San Pedro.

Following the Los Angeles City Oil Field boom of the 1890s, other fields throughout the Los Angles Basin were subsequently discovered and developed. During the early 1920s, California became the most oil productive state in the country, and by 1923, one of every five barrels of oil was produced from the Los Angeles Basin. Much of this activity occurred along and within close proximity of the Newport-Inglewood Structural Zone. Between 1922 and 1958, thirteen oil fields would be discovered along what is referred to as the Newport-Inglewood Structural Zone.

Descendents of the Dominguez family would generate immense wealth in the 1920s through what is now referred to as the Watson Land Company. The original Watson ranch site, proved less rich in oil reserves relative other areas, but the land proved a prime location for storage tanks or a refinery. With a flurry of activity by oil companies to secure refinery sites, the area was quickly developed to serve the petroleum industry. In 1924, the Watson barn was dismantled, and in 1926, the first of many tank farms and refineries were constructed. The property quickly became more valuable with time to the petroleum industry for the prime location for the refining and processing industry in southern California.

The environmental legacy of this industrial development is most notable in the presence of numerous light non-aqueous phase liquids (LNAPL) hydrocarbon pools and associated dissolved hydrocarbon plumes in groundwater. These pools resulted from leaks and spills over the life of petroleum refineries, tank farms and reservoirs, and pipelines, in the Carson-Lind Beach-Wilmington area, within the West Coast Basin. These pools encompass tens to hundreds of acres. The cumulative estimated volume is on the order of millions of barrels. LNAPL recovery efforts were initiated in the late 1970s and by the mid-1980s most if not all major petroleum handling facilities implemented LNAPL recovery and groundwater quality and behavior monitoring programs. The Carson Regional Groundwater Group (CRGG), a consortium of facility owners in the area, was established in 1990 to coordinate pool and plume delineation, LNAPL recoverability, and overall synchronized monitoring of groundwater levels and quality, and modeling.

Over the past decades, the lateral on-and off-site extent of LNAPL pools and dissolved plumes have been primarily delineated within the upper groundwater-bearing zones, individual LNAPL pools further characterized via forensic fingerprinting, and models developed to evaluate regional groundwater behavior. Cumulatively, over a million barrels of product has been recovered to date, although several regional groundwater quality issues remain. These issues include plume(s) containment, adversely impacted deeper groundwater-bearing zones, hydraulic impacts associated with groundwater withdrawal from deeper zones and barrier projects implemented to minimize encroachment of saltwater, hydraulic communication between various groundwater-bearing zones, potential impact of certain dissolved constituents of relatively higher solubility on deeper groundwater-bearing zones, and source(s) delineation.

OIL IN THEIR BLOOD (THE STORY OF OUR ADDICTION) [EXCERPT FROM THE NOVEL]

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OIL IN THEIR BLOOD (The Story of Our Addiction) is a matriarch's remembrance of two oil industry families over three generations. In Pennsylvania, as the Civil War ends, oil industry pioneers Barrett Lithachik, Theresa Baxter and Johannes Stonagall fight to control the commodity, own the infrastructure and win the wealth. In the 1890s New York City of the Standard Oil barons, Jack Stonagall of the second generation fights corruption and suffers romantic tragedy as he takes the trade global. Caught in the terrible horrors of World War I Europe, Sam Wade of the third generation learns what mature love-and oil-really mean to the emerging modern world. This historical novel, the first in a multivolume saga of oil's history, is a tour of the world's oil regions, and the book drills into its every incident for a better understanding of