Gas Station - Surface Release, Emergency Response and Remediation
Big Daddy's Convenience Store, East Tawakoni, Texas

Project Description: In 2020, Wright Environmental Services (Wright) responded to gasoline surfacing at the Big Daddy's Convenience Store located just east of Lake Tawakoni in East Tawakoni, Texas. Surfacing was caused by heavy rains which elevated the groundwater table at the Site, forcing gasoline free product which had leaked out of the petroleum underground storage tank (UST) system to the surface through manways and cracks in the pavement. Wright coordinated with local and state agencies and conducted emergency abatement, product recovery, subsurface investigation/delineation, and remediation activities in response to the release.

Emergency Response/Product Recovery:
Initial emergency abatement activities to address the surfaced product were conducted by the East Tawakoni Fire Department and a TCEQ response contractor to prevent gasoline from reaching Lake Tawakoni, an adjacent, downgradient surface water body which provides drinking water to the City of Dallas. As part of the response, Fire Department personnel constructed an earthen berm across a drainage ditch adjacent to the facility to prevent any fluid from reaching Lake Tawakoni. Wright personnel installed a series of absorbent booms along the edges of the pavement to prevent gasoline from leaving the pavement and entering the ditch. The TCEQ assigned Leaking Petroleum Storage Tank (LPST) ID No. 120899 to the Site.

On February 25, 2020, a maximum phase-separated hydrocarbon (PSH) thickness of 4.69 feet of was measured in the tank pit monitoring wells. To abate PSH, Wright conducted mobile dual-phase extraction (MDPE) of free product and subsequently installed a continuous total fluids recovery system which allowed simultaneous recovery of PSH and depression of the tank pit water and groundwater level. Depressing the tank pit water level reduced the potential for gasoline and/or impacted groundwater to resurface and increased the efficiency of product recovery by artificially increasing the thickness of the PSH layer in the subsurface. Wright successfully recovered over 1,400 gallons of gasoline from the subsurface at the Site using MDPE and the continuous total fluids recovery system.

Subsurface Investigation/Delineation:
In May 2020, after the emergency response and initiation of product recovery efforts, Wright directed the installation of four groundwater monitoring wells to investigate potential soil and groundwater impacts. A review of groundwater analytical results indicated the presence of petroleum hydrocarbon impacts to groundwater and that delineation had not been achieved. In September 2020, three additional groundwater monitoring wells were installed downgradient of the previously confirmed impacts to delineate the downgradient edge of the contaminant plume toward Lake Tawakoni.

In-Situ Remediation (Surfactant-Enhanced Product Recovery):
Due to a small amount of residual PSH in the tank pit and surrounding soils, in August 2020, Wright partnered with a specialty contractor to conduct surfactant enhanced product recovery to liberate and recover residual PSH within the tank pit and surrounding soils. Remediation activities were completed over a 2-day period. On August 14, 2020, the tank hold was filled with an Ivey-Sol® 103 surfactant solution

introduced via a series of hand driven injection points to release sequestered PSH adsorbed to the tank pit backfill material. In total, 3,000 gallons of surfactant solution was injected into surrounding soils using 14 direct push injection points installed to a maximum depth of 12 feet below ground surface. Real-time monitoring of water quality parameters and PSH thickness in the field allowed for adjustments to be made to the remediation process as needed.

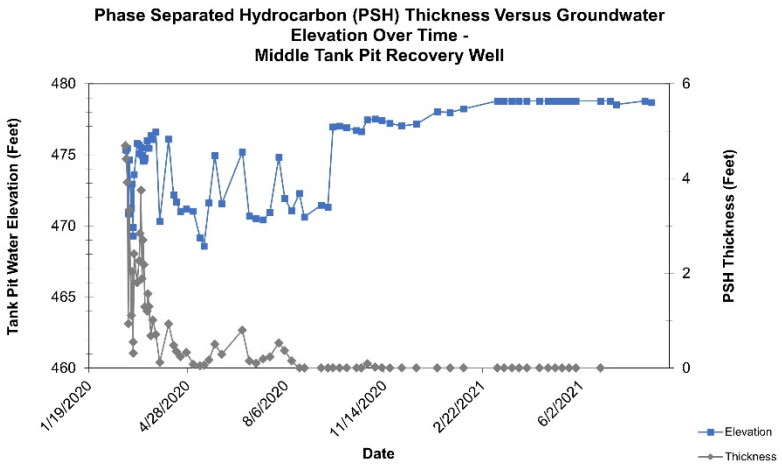
After the surfactant treatment, approximately 3000 gallons of fluids, including petroleum-impacted tank pit water, groundwater, and minimal residual PSH, were recovered from the tank pit and surrounding subsurface using the continuous total fluids recovery system. On September 23, 2020, the recovery system was turned off for a short period to determine the effectiveness of remediation based on recharge of PSH into the tank pit wells.

A series of post-remediation monitoring events were conducted at the Site in which the network of monitoring wells and tank pit monitoring wells were gauged using an interface probe to investigate for the presence of PSH in any of the wells. A *de minimus* amount of PSH was present at the Site during the post remediation monitoring events, confirming the source area was successfully remediated.

DISPOSITION OF RECOVERED FLUIDS:
A total of approximately 12,500 gallons of fluids recovered during product recovery were stored in a frac tank and poly tank staged onsite pending disposition. PSH was transported offsite for disposal at a permitted facility. Impacted water was filtered for sediment, treated using activated carbon, and discharged to the surface drainage at the Site by Wright personnel as authorized under a Texas Pollutant Discharge Elimination System (TPDES) General Permit Wright obtained for the facility.

REGULATORY CLOSURE:
In just over 1.5 years since the surface release which triggered the LPST case, Wright requested the TCEQ evaluate the Site for LPST case closure based on the following risk-based criteria which Wright considered protective of the nearby City of Dallas drinking water source (Lake Tawakoni):

- The 4.69-foot thick PSH layer had been recovered to the maximum extent practicable from the tank hold, as no measurable PSH has been present in any wells at the Site since June 22, 2021.



- No sensitive receptors other than surface water were identified during the investigation.
- Soil and groundwater impacts were delineated laterally and vertically and were limited to onsite, indicating no impact to nearby surface water
- A review of groundwater analytical results indicated that dissolved-phase groundwater concentrations, though above PST Program Action Levels, decreased with distance from the source area.

The TCEQ concurred with Wright's recommendation for closure and issued a letter dated October 15, 2021, granting no further action status for the LPST incident for the Site.