



# Water Boards

STATE WATER RESOURCES CONTROL BOARD  
REGIONAL WATER QUALITY CONTROL BOARDS

Former Flyers Energy, LLC.  
(Service Station #50)  
2501 Notre Dame Blvd., Chico

Consideration for Permit for In-Situ  
Remediation of Groundwater,  
Fuel Oxygenate Cleanup

April 2018

For additional information, contact:

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## FACT SHEET: FORMER FLYERS ENERGY SERVICE STATION #50 SITE INVESTIGATION AND CLEANUP

**PUBLIC NOTICE:** The Central Valley Regional Water Quality Control Board (Central Valley Water Board) is required to involve the public in site cleanup decisions under state law (including Health and Safety Code 25356.1). Pursuant to this law, the Central Valley Water Board is providing this Fact Sheet containing information regarding soil and groundwater investigation and cleanup efforts to potentially interested parties with properties located in proximity to the fuel-oxygenate groundwater contaminant plume emanating from the Mobil-branded station (Formerly Flyers Energy Station #50) located at 2501 Notre Dame Boulevard in Chico, California (Site).

**SUMMARY OF WORK CONDUCTED:** In May 2003, Flyers Energy, LLC. (herein 'Discharger') discovered impacted soil indicative of an unauthorized release of petroleum hydrocarbons during routine underground equipment upgrades. Between February 2004 and April 2007, additional soil and groundwater sampling was conducted, including the installation of on- and off-Site groundwater monitoring wells, to further evaluate and monitor groundwater impacts. The groundwater plume is located under the southwest portion of the Site, extending beneath Notre Dame Boulevard, with a groundwater flow direction to the southwest. The contaminants of concern (COC) detected in groundwater include fuel-oxygenates methyl-tert-butyl ether (MTBE) and tert-butyl alcohol (TBA). During the period of 2008 through 2012, the Discharger installed additional monitoring and remedial wells and conducted periodic short-term cleanup efforts for the pollution. Pilot-scale remedial technologies including soil vapor extraction (SVE) and air-sparging (AS) were tested to expedite the removal of contaminants in soil and groundwater on-site. In addition, limited excavation of impacted soil was performed during underground piping upgrades in July 2016. While these efforts had variable localized success, they had minimal long-term impacts on reducing the contaminant mass in groundwater. The pilot-scale test results for the AS and SVE, and aquifer testing, indicated limited radius of influence for select wells and unsustainably low pumping rates. Subsequently, an *Additional Remedial Feasibility Evaluation* was submitted to the Central Valley Water Board in August 2017 recommending the application of a combined in-situ chemical oxidation (ISCO) and biostimulation (enhancing the activity of microorganisms that naturally breakdown contaminants) with pneumatic enhanced injection (PEI) delivery to mitigate the remaining petroleum hydrocarbon impacts to groundwater beneath the Site.

**SUMMARY OF FUTURE WORK:** The interim remedial action will consist of injecting an oxidizing agent manufactured by PeroxyChem (a proprietary mixture of Klozur® Persulfate and PermeOx® Ultra) to reduce remaining concentrations of hydrocarbons within the groundwater plume. The target depth of

injections into groundwater is anticipated to be 40 to 50 feet below ground surface. The injection event is anticipated in the summer of 2018, followed by one year of post-remedial monitoring. Remedial progress will be reported quarterly, with a final determination after one year to either continue with full-scale remediation using ISCO or evaluate a different approach.

**WHERE TO FIND ADDITIONAL INFORMATION:** Written documentation, maps, technical reports and Central Valley Water Board correspondence to Flyers Energy can be obtained, in hard copy form, from the Central Valley Water Board office address listed on this Fact Sheet. In addition, technical reports are electronically available via the State Water Resources Control Board's GeoTracker website. The public can view these reports at: [http://geotracker.waterboards.ca.gov/profile\\_report?global\\_id=T0600776104](http://geotracker.waterboards.ca.gov/profile_report?global_id=T0600776104). You may also contact the Central Valley Water Board case manager for the project (Mr. Bill Bergmann) at 530-224-4852 or [William.Bergmann@waterboards.ca.gov](mailto:William.Bergmann@waterboards.ca.gov) or Flyers Energy LLC's environmental and engineering consultant (Ms. Amanda Beam) at 530-566-1400 or [abeam@broadbentinc.com](mailto:abeam@broadbentinc.com).