



ISCO Full-Scale Program: TPH

Site

- Military jet maintenance facility.
- TPH in soil ranged from 5,000 to 8,000 ppm.

Contaminants of Concern

- Heavy Total Petroleum Hydrocarbons (TPH).

Geology

- Coarse, sandy soil and native fill underneath an 8-inch concrete slab.

ISCO Full-Scale Program

- Modified Fenton's Reagent (MFR).
- ISOTEC conducted a 3 event full-scale program utilizing 8 injection wells installed to 12 inches to treat the 6-inch layer of soil directly beneath the concrete surface.

Results

- TPH concentrations in soil displayed a greater than 90% reduction.

ISOTEC Case Study No. 19

ISCO Full-Scale Program for Heavy Total Petroleum Hydrocarbons (TPH)

Military Jet Maintenance Facility
Tulsa, Oklahoma

INTRODUCTION

ISOTEC was retained to conduct an in-situ chemical oxidation (ISCO) full-scale program using stabilized 12% hydrogen peroxide and ISOTEC's patented neutral pH catalyst to demonstrate its ability to reduce total heavy petroleum hydrocarbons (TPH). ISOTEC was to treat TPH contamination located in an approximate 6-inch layer of soil directly beneath the concrete surface.

SITE BACKGROUND

A military jet maintenance facility located in Tulsa, Oklahoma was contaminated by jet fuel, which leached through the 8-inch concrete floor inside the hanger into the subsurface. Heavy Total Petroleum Hydrocarbons were the contaminant of concern. Concentrations of TPH in soil ranged from 5,000 ppm to 8,000 ppm.

ISCO FULL-SCALE PROGRAM DESIGN AND IMPLEMENTATION

The full-scale program consisted of three injection events conducted over the course of a four month period. During each injection event, ISOTEC injected into 8 injection wells located in the known TPH contaminant plume. The injection wells were installed to a depth of approximately 12 inches below grade surface (bgs) with 6 inches of screen. The number and spacing of the locations was based upon an anticipated 15-foot reagent distribution radius. Reagents were injected through direct-push injection screens installed using direct-push technology (DPT).

RESULTS

Treatment program results indicated significant reduction in the concentration of TPH throughout the treatment area. Soil samples were collected from the treatment area following each injection event. ISOTEC achieved a greater than 90% reduction of TPH in the treatment area.

