



Consulting Group, Inc.

## ISCO CASE STUDY: POTASSIUM PERMANGANATE TREATMENT OF SOIL AND GROUNDWATER AT DRY CLEANERS SITE, TARZANA, CA

### INTRODUCTION

In August 2011, JAG Consulting Group, Inc. completed a successful potassium permanganate ISCO treatment of the soil and groundwater at a dry cleaners in Tarzana, CA. Former operations of the dry cleaners resulted in contamination of the underlying soil and groundwater by PCE and TCE. JAG Consulting worked closely with the Los Angeles Regional Water Quality Control Board in designing an ISCO approach on this project.



### DESIGN OF INJECTION PARAMETERS

In order to treat the vadose zone soils, a shallow infiltration gallery (1.5 ft depth) was designed and constructed in the floor of the dry cleaners unit. The infiltration gallery was used to slowly percolate the permanganate into the shallow soil to create saturated soil conditions to depths of 15 to 20 feet. Due to the prevailing low permeability silts and clays, a Sidewinder Tool was used to create pressure pulses and enhance the permeability of the soil and allow for adequate dispersion of the permanganate into the soil.

Based on the bench test results, JAG Consulting designed a single groundwater injection well which allowed for treatment of the entire groundwater plume underlying the dry cleaners building. The injection well had an estimated radius of influence of 15 feet. Groundwater was located at a depth of 20 feet below ground surface (bgs).

### FIELD RESULTS

Approximately 5,500 gallons of potassium permanganate (1,600 pounds) were injected into the infiltration gallery and the injection well during three separate injection events over a 6 month period.

Laboratory results indicated that PCE levels in the groundwater were reduced in monitoring well MW-10 from a Baseline level of 170  $\mu\text{g/L}$ , to 36  $\mu\text{g/L}$  after 3 months, and to less than 1  $\mu\text{g/L}$  after 9 months.



Soil confirmation borings were drilled inside the dry cleaners and sampled in order to determine the effectiveness of the permanganate treatment on the soils. The confirmation samples verified that PCE levels in the soil were below the EPA Screening Level for PCE (less than 550  $\mu\text{g/L}$ ).

JAG Consulting Group will be arranging a meeting with the Los Angeles RWQCB to discuss obtaining a "No Further Action" status for the site.

### CONTACT INFORMATION

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