



An environmental subsurface investigation and remediation company

Pilot Injection-Nanoscale Zero Valent Iron

Former Manufacturing Facility-North Charleston, South Carolina

Introduction: Geo Lab was contracted by a local environmental consulting firm to conduct an in-situ injection pilot event utilizing nano scale zero valent iron (nZVI) to treat ground water at a former manufacturing facility in North Charleston, SC. The objective of this project was to evaluate the overall effectiveness of nZVI as a treatment alternative for this site.

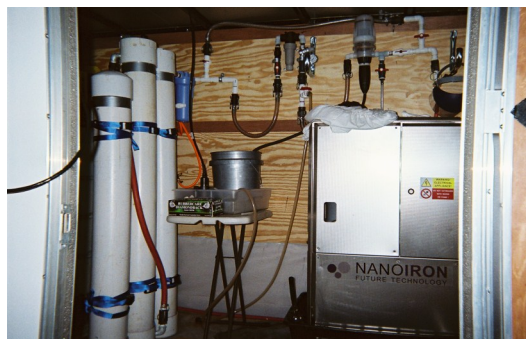
Contaminants: Chlorinated Solvents

Remediation Treatment: Nano Scale Zero Valent Iron (nZVI)

Application: In-situ injection

Design and Implementation: Before mobilizing to the site, Geo Lab was responsible for the construction of an in-line iron turnings filter that removes dissolved oxygen from the water. The iron turnings filter along with a metering device for the nZVI slurry was installed in Geo Lab's fully en-

closed injection trailer. The injection point locations were pre-located by the consultant around two existing wells. Over the course of ten days, approximately 4000 gallons of nZVI solution was injected among 8 direct push injection points. A Geoprobe 7720 track unit was utilized to drive 1.5 inch rods with an expendable injection tip to a target depth of 28 feet below ground surface. Each DPT injection point received approximately 500 gallons of nZVI slurry distributed into 3 different intervals. The slurry was injected at minimum pressures to prevent "day lighting" and the creation of preferential pathways in the subsurface. Following the completion of the nZVI injection, core samples were collected from four borings within and down gradient of the injection area to evaluate the nZVI radius of influence.



Summary

Geo Lab successfully completed the nZVI injection project over the course of 10 days. 4000 gallons of nZVI solution was injected among 8 DPT injection points utilizing a 7720 Geoprobe track rig and Geo Lab's injection system. During the project there was no "day-lighting" and the project was completed on time and within budget. Geo Lab's injection crew also received a perfect safety score from the consultant for the 10 day injection event

Project Summary

nZVI Injection Event

Site

Former Manufacturing Facility
North Charleston, South
Carolina

Contaminants of Concern

- Chlorinated Solvents

Remediation Approach

- In-Situ injection of nano scale zero valent iron

Summary

- 4000 gallons of nZVI solution was successfully injected into 8 direct push injection points

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