Carswell/Plant 4

DRAFT FINAL PERMEABLE REACTIVE BARRIER CONSTRUCTION AND PERFORMANCE MONITORING WORK PLAN

Restoration Advisory Board Executive Summary #34 ● February 7, 2002

INTRODUCTION

The U.S. Air Force is in the process of planning and conducting activities for the installation of a Permeable Reactive Barrier (PRB) at Naval Air Station Fort Worth Joint Reserve Base (NAS Fort Worth JRB), formerly Carswell Air Force Base. A PRB consists of reactive media installed in a trench excavated below the groundwater surface (Figure 1). The reactive media will react with the contaminated groundwater, thereby reducing or eliminating contaminant concentrations. A Work Plan detailing construction of the PRB to be installed at NAS Fort Worth JRB has been prepared and submitted to the regulatory community for review. The PRB is not a regulatory requirement but rather a voluntary action on the part of the Air Force to perform a technology demonstration project at a site suitable for the remediation of groundwater contaminated with chlorinated hydrocarbons. The specific PRB technology to be used at NAS Fort Worth JRB, involves installing a permeable trench with a reactive media consisting of iron filings and sand that passively react with the contaminated groundwater as the water naturally flows through it. The design of the PRB is not intended to provide groundwater remediation to regulatory mandated levels.

The PRB will be located along the eastern edge of NAS Fort Worth JRB and will cross the base boundary and continue onto the Carswell Golf Course. The location of the PRB is illustrated in Figure 2. Installation of the PRB will be such that the PRB is located perpendicular to the direction of groundwater flow.

The PRB technology has several advantages over other technologies. First, PRBs require very little effort to maintain after installation. Second, PRBs do not require an energy source to operate; remediation occurs by groundwater flowing through it naturally. Third, a PRB is contained underground. Once it is installed, the land above it can be utilized for various purposes. As in this case, the land will continue to be utilized as a golf course.

CONSTRUCTION METHODS

The trench in which the iron will be deposited will be excavated by using a backhoe. As the trench is excavated, it will be filled first with a biopolymer slurry that will keep the walls of the trench from collapsing. The reactive media will be added, and then an enzyme agent will be used to degrade the biopolymer slurry. The trench and subsequent PRB will be 2 feet wide and approximately 1,000 feet in length. The reactive media will be installed from the top of the water table to the top of the bedrock surface in order to fully intercept contaminated groundwater. Sand will be used to fill in the trench on top of the reactive media above the water table. Soils saturated with contaminated groundwater (i.e., below the water table) that are removed from the area will be sampled and disposed of in accordance with all regulations.

CONSTRUCTION SCHEDULE

Site preparation work necessary prior to actual PRB construction is already underway. On base, a bypass road was installed to detour traffic from Perimeter Road because of its location near the construction area. Actual construction of the PRB will begin in early March, and will continue for approximately 6 weeks. After the PRB is installed, the surface of the site will be restored. Surface restoration activities will take approximately 2 weeks after installation of the PRB is complete. Groundwater in the vicinity of the PRB, both in the upgradient and downgradient directions, will be sampled on a regular basis to monitor the progress of the remediation. After several sampling rounds have been completed, a report documenting the effectiveness of this remediation technology will be prepared. The Air Force will utilize the information obtained from this study as a tool for other sites that have similar groundwater contamination.

For More Information:

If you would like more information, please see our website at http://www.afcee.brooks.af.mil/er/carswell/nasfw/ or contact Michael Dodyk, HQ AFCEE, at (817) 782-7167 or via e-mail at Mike.Dodyk@carswell.af.mil.

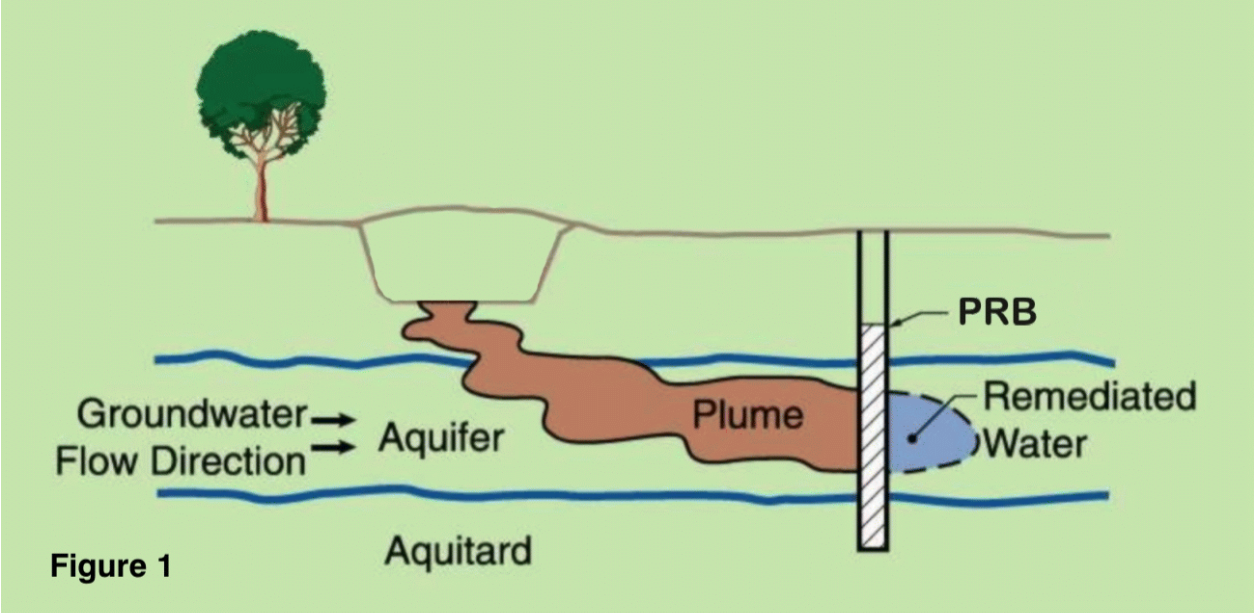

Figure 1

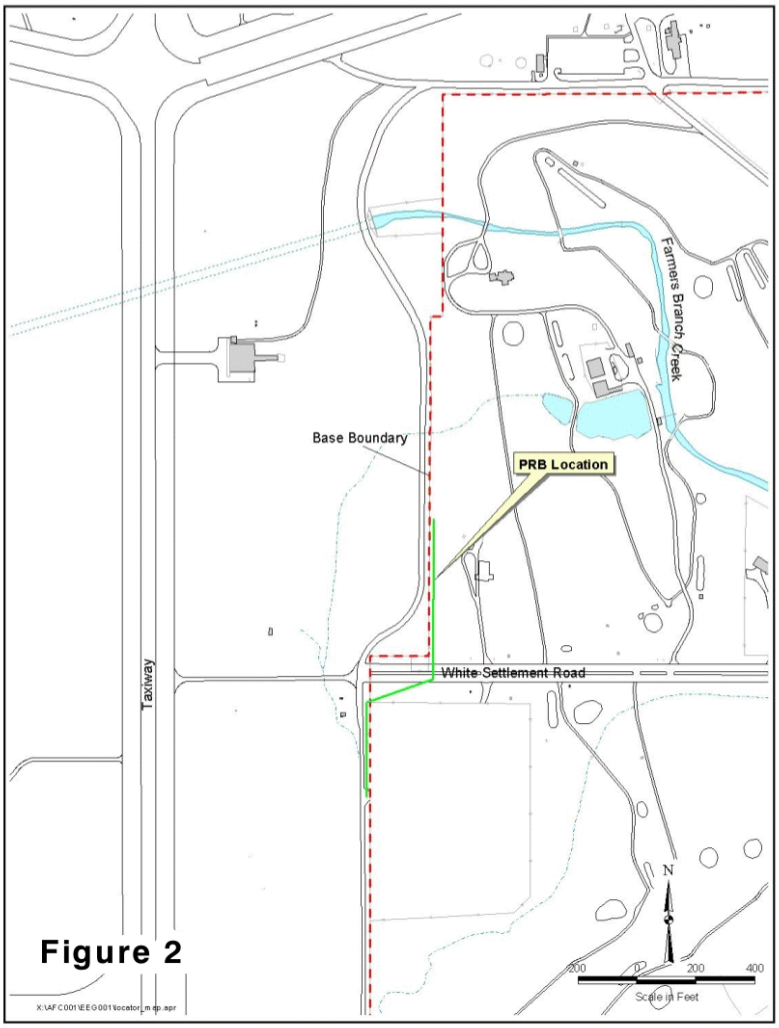

Figure 2