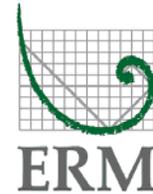


**Environmental
Resources
Management**

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28 January 2008

Ms. Elizabeth Allen
California Regional Water Quality Control Board
San Francisco Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Workplan for Preferential Pathway Investigation
Hookston Station Site Area
Pleasant Hill, California

Dear Ms. Allen:

On behalf of the Hookston Station Responsible Parties (RPs), ERM-West, Inc. (ERM) has prepared this *Workplan for Preferential Pathway Investigation* for the Hookston Station site area in Pleasant Hill, California. The Hookston Station RPs includes Union Pacific Railroad, Daniel C. Helix, Mary Lou Helix, Elizabeth Young, John V. Hook, Steven Pucell, Nancy Ellicock, and the Contra Costa County Redevelopment Agency. The purpose of this workplan is to describe the proposed scope of work and present a schedule for the field investigation and associated reporting.

This workplan is organized as follows:

- Project background;
- Investigation objectives;
- Proposed scope of work; and
- Project schedule and reporting.

PROJECT BACKGROUND

Remedial technologies for the Hookston Station site were selected in the *Feasibility Study* (ERM, 10 July 2006), which was approved by the California Regional Water Quality Control Board (Water Board) on 2 November 2006. The selected technologies include the installation of a zero-valent iron permeable reactive barrier (PRB) to address Hookston

Station impacts in A-Zone ground water and an in situ chemical oxidation (ISCO) program to address Hookston Station impacts in B-Zone ground water. Additionally, institutional and engineering controls are in place to minimize future exposures to chemicals. Within the nearby residential neighborhood, these controls include restrictions on the construction of new irrigation wells and installation of vapor intrusion prevention systems in homes where TCE concentrations exceed indoor air screening levels.

Since the publication of the *Remedial Design and Implementation Plan for A-Zone Permeable Reactive Barrier* (PRB RDIP) (ERM, 29 June 2007), the Hookston Station RPs have continued to evaluate data from ongoing environmental investigations in the area to maximize the effectiveness of the selected remedies. During this ongoing evaluation process, the Hookston Station RPs have observed some recent data that we believe require additional investigation. The ongoing data evaluation focused primarily on:

- The vertical distribution of chemicals in ground water observed in CPT/MIP samples (as reported in the PRB RDIP),
- The lateral distribution of chemicals in ground water observed in Hookston Station monitoring wells (as reported in recent Hookston Station quarterly monitoring reports),
- Recent soil vapor data collected from public rights-of-way and private backyard locations within the Colony Park neighborhood (reported in the 3rd Quarter 2007 Monitoring Report), and
- Recent ground water data collected from Pitcock Petroleum monitoring wells (reported in quarterly monitoring reports for Pitcock Petroleum).

These data suggest that underground utility corridors may be acting as preferential pathways for contaminant migration. The Hookston Station RPs are therefore proposing to conduct a study to investigate alternate contaminant migration pathways.

INVESTIGATION OBJECTIVES

The proposed remedy for shallow (A-Zone) ground water is the installation of a PRB. Currently, the PRB is designed to treat dissolved phased VOCs that will be flowing through it under natural ground water

flow conditions. However, if instead, some chemicals are migrating into the neighborhood through deep (i.e., those that intersect the water table) or shallow (i.e., near ground-surface) utility corridors, the PRB as currently designed may not treat them. The Hookston Station RPs are proposing the following investigation to ensure the effectiveness and maximum efficiency of the proposed PRB.

PROPOSED SCOPE OF WORK

The proposed investigation includes four primary tasks:

- Completion of a passive soil gas survey,
- Delineation of VOC impacts surrounding Pitcock Petroleum's monitoring well MW-13,
- Soil, ground water, and hydrocarbon product sampling and analyses, and
- Installation of additional permanent soil vapor probes.

Each of these investigation tasks is described below.

Passive Soil Vapor Survey

ERM proposes to install approximately 180 passive soil vapor sampling modules (Gore-Sorbers®) at the locations shown on Figure 1. The study encompasses a large area immediately west of Len Hester Park. Within that area, a large-diameter storm sewer pipe and a large-diameter sanitary sewer pipe run approximately north-south parallel to the former railroad right-of-way. The survey also incorporates many of the roadways surrounding the Hookston Station area, as these roads may contain backfilled trenches for former or current underground utilities. The study also includes the area on and immediately adjacent to the Pitcock Petroleum site for the purpose of identifying potential VOC sources and the potential migration of chemicals onto and off this property. A portion of the sampling program will be completed in areas where previous Gore-Sorbers were installed (either on or off the Hookston Station property) for comparison to previously collected data in these areas.

Similar to previous passive soil gas surveys completed for Hookston Station, the sampling modules will be installed at total depths of 3 feet

below ground surface (bgs) and will remain in the subsurface for approximately 10 days. All passive soil vapor sampling activities will be conducted in accordance with the procedures outlined in ERM's *Standard Operating Procedure#1, Soil Vapor Sampling, Pleasant Hill, California* (Soil Vapor SOP) (December 2000). The Soil Vapor SOP was included as Appendix C in the *Phase I Remedial Investigation Field Sampling Plan, Hookston Station Site, Pleasant Hill California* (ERM, December 2000).

The sampling modules will be submitted to W.L. Gore & Associates of Elkton, Maryland for analysis of select VOCs by modified USEPA Method 8260. A report of the findings will be provided to the Water Board following receipt of the laboratory analyses.

Data collected as part of this investigation task may be used to guide future soil or ground water sampling in this area.

Some of the sample locations included in the proposed investigation are on private property. The Hookston Station RPs may request assistance from the Regional Board to obtain access to perform this proposed work.

Delineation of VOC Impacts at Pitcock Petroleum's Well MW-13

As part of their ongoing environmental investigation of petroleum hydrocarbons and MTBE, Pitcock Petroleum installed monitoring well MW-13 (referred to herein as PP-MW-13, to avoid any confusion with Hookston Station's onsite wells MW-13A and MW-13B) in December 2006 on property owned by Contra Costa County immediately west of Len Hester Park (Figure 2). The well is west of the proposed PRB, and was drilled immediately adjacent to a 7-foot diameter sanitary sewer line. The bottom of this utility trench likely intersects shallow ground water during winter months, and therefore could act as a preferential flow path for contaminant migration.

ERM proposes to complete four step-out borings to evaluate ground water quality in the area immediately surrounding PP-MW-13 (Figure 1). The proposed sampling locations are approximately 20 feet north, east, south, and west of PP-MW-13.

Sampling activities will be conducted in accordance with the Standard Operating Procedures provided in the *Phase I Remedial Investigation Sampling and Analysis Plan* (ERM, December 2000). During drilling activities, soil samples will be collected continuously for logging and field-screening

purposes. An ERM geologist will prepare boring logs in the field using the Unified Soil Classification System (USCS) to describe soils. The geologist will record vertical changes in soil lithology, color, moisture content, grain size, and texture, as well as any observations of staining or odors. The soils will also be screened in the field with a photoionization detector (PID) for the presence of volatile organic compounds (VOCs). Once ground water has been reached, a grab ground water sample will be collected. The ground water sample will be submitted for laboratory analysis of VOCs by United States Environmental Protection Agency (USEPA) Method 8260.

Data collected as part of this investigation task may be used to guide future soil or ground water sampling in this area, or to modify the design of the PRB.

Soil, Ground Water, and Hydrocarbon Product Sampling and Analyses

Based on the results of the passive soil vapor survey and the step-out ground water sampling efforts surrounding PP-MW-13, additional soil and ground water samples may be warranted to support this evaluation. The locations cannot be determined until the first phases of investigation are complete. Once proposed sample locations are identified, an addendum to this workplan will be submitted to the Water Board for review.

If free-phase hydrocarbon product remains in Pitcock Petroleum's well MW-5 (hereafter referred to as PP-MW-5 to avoid any confusion with Hookston Station's onsite monitoring well MW-05), a sample will be collected for laboratory analysis to see whether chlorinated solvents have preferentially partitioned into the LNAPLs at that site.

Soil Vapor Probe Installation

ERM proposes to install ten additional permanent soil vapor probes along the axis of the VOC plume. The locations will be adjacent to PRB performance-monitoring wells MW-15A, MW-30A, MW-31A, MW-32A, and MW-33A. Two soil vapor probes will be installed at each location, one at approximately 5 feet bgs (the depth of all the current soil vapor probes), and another at approximately 10 feet bgs (closer to the water table). These will serve three primary purposes:

- 1) To identify whether there are significant differences in soil gas concentrations between probes installed beneath asphalt paving versus those installed in unpaved areas,
- 2) To determine the vertical distribution of soil gas impacts overlying high ground water concentration areas, and
- 3) To provide for pre- and post-PRB construction soil gas data so that we may observe the relationships between ground water cleanup progress and soil gas cleanup progress.

Permanent soil vapor probes will be installed using hand-augered methods or with a GeoProbe sampling rig. The soil vapor probes will be installed and sampled in accordance with the *Soil Vapor Probe Installation and Sampling Workplan* (ERM, 10 February 2005) and the California Environmental Protection Agency Department of Toxic Substances Control *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (7 February 2005).

Soil vapor samples will be collected from the new soil vapor probes no sooner than 2 days following installation. Samples will be collected for laboratory analysis of VOCs by USEPA Method TO-15.

PROJECT SCHEDULE AND REPORTING

ERM will immediately begin working to gain access to private properties to complete the scope of sampling work described herein. We anticipate that the passive soil gas survey, the step-out borings surrounding PP-MW-13, and the installation of the 10 permanent soil vapor probes described above will be completed in February and March 2008. Results from this investigation will be provided in the First Quarter 2008 Monitoring Report, which will be submitted on or before 30 April 2008. If modifications to the PRB design are warranted, these will be addressed in an addendum to the PRB RDIP.

CLOSING

The Hookston Station Responsible Parties thank you for your time to review this workplan and would appreciate your formal approval at

Ms. Elizabeth Allen

28 January 2008

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your earliest convenience. If you have any questions regarding this status workplan, please call me at (925) 946-0455.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian Bjorklund", with a large, stylized flourish at the end.

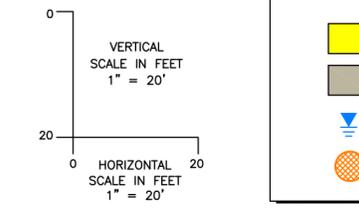
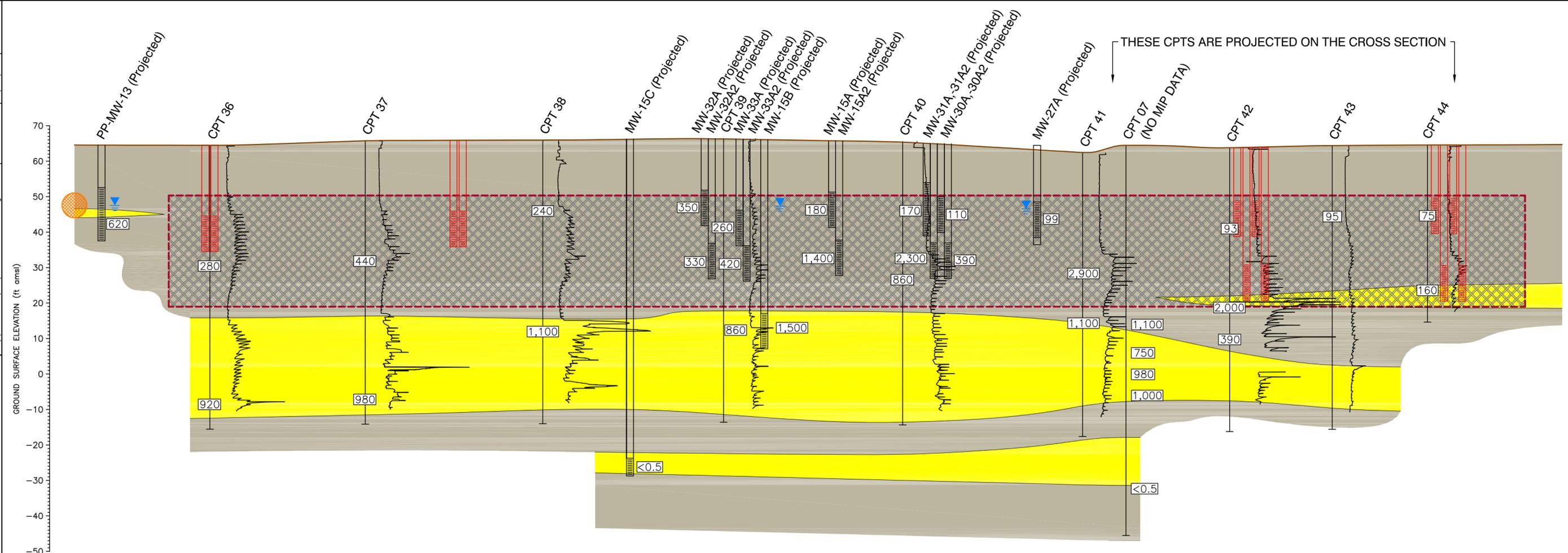
Brian Bjorklund, P.G.

Project Manager

BSB/bsb/0077457.06

cc: Mr. Daniel Helix
 Mr. Michael Grant, UPRR
 Mr. Jim Kennedy, CCCRA

Project No. 0077457.01
 Date: 01/13/08
 Drawn By: R. Olson
 CAD File: G:\0077457\06\007745706-02.dwg



LEGEND

- Silty sand, sand, sandy gravel, or gravelly sand
- Clay, silty clay, clayey silt, silt
- Depth to Ground Water
- Sanitary Sewer
- EXISTING MONITORING WELL
- PROPOSED MONITORING WELL
- CPT WELL
- SCREENED ZONE
- Location of Proposed A-Zone Zero-Valent Iron Permeable Reactive Barrier (Cross Section View)
- TCE Concentration ($\mu\text{g/L}$); 3rd Quarter Data for Monitoring Wells and February 2007 Data for CPT Locations
- ECD Electron Capture Detector



LEGEND

- Proposed Monitoring Well (Post-PRB Construction)
- Existing A-Zone Monitoring Well
- PP-MW-13 Pitcock Petroleum Monitoring Well
- CPT/MIP Location
- Sanitary Sewer Line
- Location of A-Zone Zero-Valent Iron Permeable Reactive Barrier (Plan View)
- A-Zone Ground Water TCE Contour ($\mu\text{g/L}$), Third Quarter 2007
- Hookston Station Parcel Property Boundary

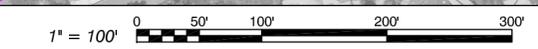


Figure 2
 Proposed PRB Alignment
 Hookston Station
 Pleasant Hill, California
 ERM 01/08