
**INITIAL STUDY/CHECKLIST
AND MITIGATED NEGATIVE DECLARATION**

Prepared for and by

*North Coast Regional
Water Quality Control Board*

**Former Best Cleaners
1007B West College Avenue
Santa Rosa, California
Sonoma County**

**In-Situ Treatment of
Contaminated Soil and Groundwater**

July 23, 2009

**North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403**

INITIAL STUDY/CHECKLIST AND MITIGATED NEGATIVE DECLARATION

This Initial Study/Checklist and Mitigated Negative Declaration have been prepared in accordance with Public Resources Code section 21080, and Title 14, sections 15070 and 15071 of the California Code of Regulations. The Mitigated Negative Declaration is proposed for adoption at a meeting of the California Regional Water Quality Control Board, North Coast Region, on October 1, 2009.

Title: In-Situ Treatment of Contaminated Soil and Groundwater

Project Location/Address: Former Best Dry Cleaners, 1007B West College Avenue, Santa Rosa, Sonoma County, California (hereafter referred to as the "Site").

Lead Agency: California Regional Water Quality Control Board, North Coast Region, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403

Decision Making Body: California Regional Water Quality Control Board, North Coast Region

Project Applicant: West College Center, LLC

Proposed Project: West College Center, LLC is proposing to conduct a remedial action of in-situ reductive de-chlorination to remediate soil and groundwater contaminated with the dry cleaning chemical, tetrachloroethylene (PCE). West College Center, LLC, owns the G&G Shopping Center.

Prior to the selection of the treatment method, the project proponent conducted an evaluation of three alternatives; 1) natural degradation, 2) ozone micro sparging with hydrogen peroxide injection, and 3) reductive de-chlorination. The treatment method selection process is documented in the January 25, 2007 *Feasibility Study/Remedial Action Plan* prepared by Edd Clark & Associates, Inc.

Reductive de-chlorination typically involves the addition of an organic food-grade substrate (reducing agent) to supply the subsurface with hydrogen. There are several reducing agents which can be naturally degraded and fermented in the subsurface that result in the generation of hydrogen. Examples include molasses, cheese whey, and Hydrogen Releasing Compound®. The microorganisms consume the food substances and donate hydrogen electrons in the course of their metabolism. The volatile organic compounds (VOCs), such as PCE, are electron acceptors.

During the reductive de-chlorination process, the chemical PCE, breaks down to trichloroethylene (TCE), cis-1,2-Dichloroethelene (DCE) and vinyl chloride (VC). Although the parent compound breaks down to the more toxic intermediary VC,

this is temporary and the de-chlorination of VC will continue to occur with further breakdown to non-toxic end products (e.g., carbon dioxide, chloride, and water).

More details are provided in the January 25, 2007 *Feasibility Study/Remedial Action Plan*, and the April 4, 2008 *Technical Support for Waste Discharge Requirements for the Injection of Whey Based Remediation to Groundwater* prepared by Edd Clark & Associates. Supplemental documents include the May 20, 2008 *Addendum to the Technical Support for Waste Discharge Requirements*, the January 29, 2008 *Air Quality Monitoring Plan*, and the February 6, 2009 *Additional Waste Discharge Requirements*. These documents are referenced in the Environmental Checklist, are public record and available for review at the Regional Water Board office.

Environmental Finding: The staff of the Regional Water Board has determined, on the basis of the attached Initial Study/Checklist and the documents and sources referenced therein, that the project described above will not have a significant adverse impact on the environment, with implementation of the mitigation measures identified in the Initial Study/Checklist and Negative Declaration. In addition, the project is designed to accelerate cleanup at the Site and eventually restore groundwater quality.

Initial Study/Checklist: The Initial Study/Checklist is attached. For more information call Joan Fleck at (707) 576-2675.

Mitigation Measures: A mitigation measure is included in the attached Initial Study/Checklist and will become an enforceable condition of approval of waste discharge requirements for the project. The mitigation measure is as follows:

Mitigation Measure 3: The discharger shall comply with Monitoring and Reporting Program Order No. R1-2009-0067 that contains requirements for groundwater and air monitoring, and a contingency plan in the event that BAAQMD air quality violations are detected.

Introduction: The Mitigated Negative Declaration and Initial Study/Checklist have been prepared to enable the Regional Water Board to consider adoption of Waste Discharge Requirements for the proposed treatment of contaminated soil and groundwater at the Site as needed to restore groundwater quality. The Regional Water Board is proposing to consider adoption of Waste Discharge Requirements Order No. R1-2009-0066 at a Regional Water Board meeting to be held on October 1, 2009. Order No. R1-2009-0066 will allow West College Center, LLC to implement remedial action at the Site for the purpose of groundwater quality restoration. The remediation action is designed to accelerate the de-chlorination of VOCs in groundwater.

This report is the Mitigated Negative Declaration and Initial Study/Checklist required by the State CEQA Guidelines. It was prepared by Regional Water

Board staff. This study uses project information provided by the professional consultants for West College Center.

Existing Facility: The Site was a former dry cleaning facility utilizing PCE as the fabric cleaning chemical. The dry cleaner was located in one tenant space at the Southeast corner of the G&G Shopping Center. Five different businesses operated at the Site. The timing of the discharge is uncertain, but took place between 1987 and 2006. Dry cleaning at the Site ceased in 2006.

Need for the Project: The proposed project will enable the applicant to proceed with the cleanup of soil and groundwater contaminated with VOCs and accelerate the de-chlorination of VOCs at the Site. Project implementation is intended to address the on-site source area and areas where off-site migration has occurred to the east beneath Clover Drive and south beneath West College Avenue. Successful reductive de-chlorination in the proposed treatment area will prevent further migration of VOCs to the areas outside the treatment area restoring the beneficial uses of groundwater. Active remediation is necessary for the protection of human health and the environment.

Setting: The project address is 1007B West College Avenue, in Santa Rosa, California (Figure 1). The former dry cleaner tenant space is located in the southeast corner of the G&G Shopping Center, adjacent to the West College Avenue and Clover Drive Intersection (Figure 2). Current land uses surrounding the site include mixed commercial and residential.

According to the January 25, 2007 *Feasibility Study/Remedial Action Plan* and the March 7, 2006 *Report: Additional Soil and Groundwater Investigation* prepared by Edd Clark & Associates, the subsurface stratigraphy consists of alluvial deposits of gravels, sands, silts and clays. Three water bearing zones have been identified as the A, B and C water bearing zones with approximate depths of 7 to 24 feet below ground surface (bgs), 25 to 40 feet bgs, and 51 feet bgs with an undetermined base depth. The predominant A-zone groundwater flow direction is to the west; the B-zone flow direction has ranged from northwest to southwest. The groundwater gradients for the A and B zones have ranged from 0.01 to 0.003 ft/ft, and 0.07 to 0.003 ft/ft, respectively. Groundwater impacts from VOCs have been identified in the A and B zones.

Project Description: The proposed project consists of a remedial action designed to de-chlorinate VOCs *in situ* (in place), using reducing agents. The project applicant proposes to inject cheese whey as a reducing agent into shallow groundwater (A zone) and deeper groundwater (B zone) using thirteen nested injection wells. The injection wells were installed in areas revealing elevated levels of PCE. Nine injection wells were installed on site on the west, south and east sides of the Site. Four off-site injection wells were installed adjacent to the sewer line along the east side of Clover Drive. The injection well

locations are shown on Figure 2. The area of proposed remediation is presented on Figure 4.

The whey is a protein/carbohydrate and treated tap water mixture that will be dissolved in batches of approximately 100 gallons. Each injection well will receive between 250 and 350 gallons of mixture. Multiple injections are proposed. The second injection will occur one month after the initial injection and quarterly thereafter for up to approximately three years. The concentration and volume of the whey injections may be adjusted to meet the groundwater conditions and chemical demands. The injections will be conducted using a mobile injection rig and a diaphragm pump injecting at pressures up to 30 pounds per square inch at a maximum flow rate of approximately 20-gallons per minute. Emulsified oils and vitamin B12 may be added to the mixture.

The injection of reducing agents may mobilize metals. However, the metal mobilization, if it occurs, is temporary and over time, will return to pre-injection conditions. Hydrogen sulfide and vinyl chloride vapors may also be created. Dissolved gases, including ethane, ethene and methane will be created in the subsurface, which demonstrate complete de-chlorination. The presence of hydrogen sulfide, vinyl chloride and methane will be monitored as described in Mitigation Measure 3. Compliance with Monitoring and Reporting Program No. R1-2009-0067 must be maintained to verify treatment optimization, treatment effectiveness, the protection of public health and safety, and the return to pre-treatment water quality conditions minus the chlorinated hydrocarbon contaminants.

Reductive de-chlorination can be an effective treatment technology. Case studies within the Regional Water Board system have revealed the effectiveness of reductive de-chlorination.

Permits Required:

The project applicant must comply with any local, state and federal permitting requirements.

A Waste Discharge Requirements Order will be required to proceed with the project. The draft Waste Discharge Requirements Order No. R1-2009-0066 will be considered for adoption at a Regional Water Board meeting to be held on October 1, 2009. In addition, a Monitoring and Reporting Program included as part of the Waste Discharge Requirements will also be required to proceed with the project.

West College Center, LLC has agreed to obtain all necessary permits.

Initial Study/Checklist

The attached checklist is taken from Appendix G of the State CEQA Guidelines. For each item, one of four responses is given:

No Impact: The project will not have the impact described.

Less Than Significant Impact: The project will have the impact described, but the impact will not be significant. Mitigation is not required, although the project applicant may choose to include mitigation measures to reduce the impacts.

Potentially Significant Unless Impacted: The project will have the impact described and the impact will be significant. One or more mitigation measures have been identified that will reduce the impact to a less than significant level.

Potentially Significant Impact: The project may have the impact described, and the impact is significant. The impact cannot be reduced to a less than significant level by incorporating mitigation measures. An environmental impact report must be prepared for this project.

Each question on the checklist was answered by evaluating the project as proposed in the Report of Waste Discharge, that is, without considering the effect of any added mitigation measures. As proposed in the Report of Waste Discharge, and as reflected in the proposed Waste Discharge Requirements, the project includes various constraints and conditions which will reduce all potentially significant impacts to a level that is less than significant. The checklist includes a discussion of the impacts and mitigation measures that have been identified. Sources used are numbered and incorporated into the checklist.