

# DRAFT

## INFORMATION SHEET

ORDER NO. R5-2009-\_\_\_\_\_  
ALEXANDER J. MISTAL AND VIRGINIA C. MISTAL  
BEHELLI CLEANERS, AND BEHELLI CLEANERS, INC.,  
REDDING, SHASTA COUNTY

### Background

Alexander J. Mistal and Virginia C. Mistal (Dischargers) formerly owned and operated Bechelli Cleaners, and Bechelli Cleaners, Inc., a dry-cleaning facility at 2752 Bechelli Lane, Redding, Shasta County. In 2004, during a Phase II property transfer assessment the Dischargers discovered chlorinated ethenes in on-site soil and shallow groundwater. Also, free seepage in a nearby off-site underground utility had trace Perchloroethene (PCE). Therefore, on 24 August 2004 Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff issued the Dischargers a Notice of Responsibility for investigation and cleanup of the waste discharge.

Subsequent site investigation shows most chlorinated ethenes have migrated off-site. Based on about 20 groundwater monitoring wells, Perchloroethene (PCE) and daughters have migrated over 1,300 feet southwest off-site in shallow and deeper groundwater. Based on preliminary first order decay modeling (BIOCHLOR v. 2.2, 2002) staff estimates that most waste discharge occurred several decades ago, likely as waste dry-cleaning solvent spills behind Bechelli Cleaners, and pollutants have dispersed into a stable plume; see Attachment A.

In response, the Discharger has voluntarily operated an on-site soil vapor extraction system, sampled soil gas near private residences and drinking water of local private domestic wells, performed appropriate preliminary human health risk calculations, prepared a contingency plan for potential impacts to indoor air and private well water, and notified interested parties. The Discharger now proposes to inject soybean oil into shallow groundwater as an in situ treatment.

### Proposed In Situ Treatment

On 9 December 2008, the Discharger applied for Waste Discharge Requirements under General Order No R5-2008-1419 to further promote near-source anaerobic reductive de-chlorination. Because, reductive de-chlorination of PCE into lighter molecular weight daughters can increase pollutant mobility in groundwater and volatility in soil gas, shallow polluted groundwater is beneath private residences, and a down-gradient private domestic well has chronic trace PCE, staff elected to issue a site specific permit in lieu of the General Order.

### Basin Plan, Beneficial Uses, and Regulatory Considerations

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The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition (Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), and contains implementation plans and policies for all groundwater of the Basin. Beneficial uses often determine the WQOs that apply to a water body, in this case the local affected aquifer volume. The aquifer, with several private domestic wells, is a designated municipal and domestic supply, and therefore must at minimum meet applicable, economically based, California maximum contaminant levels for drinking water.

### Anti-degradation

The anti-degradation directives of State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California" or "Anti-degradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Based on monitoring well TW-10, northeast of the site (see Attachment C) local up-gradient groundwater has no chlorinated ethenes; all such detections down-gradient indicate non-compliance with the Anti-degradation Policy. The proposed in situ treatment is an effort to ultimately comply with the policy.

The Sacramento River is also nearby, however predicted impacts to surface water are limited. The down-gradient pollution extent in groundwater is undefined, and the Sacramento River is about 1,200 feet farther southwest of identified pollution. However, identified pollutants migrate at low seepage velocities in the relatively low permeability Red Bluff Formation. Farther down-gradient, toward the river, pollutants likely encounter highly permeable saturated sandy gravels; this further dilutes pollutants with increased dispersion. Although further groundwater monitoring may warrant expanded site investigation, the potential effect of the proposed near-source treatment on water quality in the river relative to background appears limited.

### Treatment Technology and Control

The Discharger has estimated injectant mass based on a carbon substrate demand model, mitigating the potential for under- or over-dose; see Attachment B. Injection may mobilize dissolved metals, affect pH and oxidation reduction potential (ORP), and locally increase chemical and biological oxygen demands (COD and BOD), total dissolved solids (TDS), and other parameters. However, the monitoring well network includes several shallow wells within 350 feet down-gradient of the proposed injection, mitigating the potential for uncontrolled discharge; see Attachment C.

### Discharge Prohibitions and Specifications

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The proposed permit prohibits impacts to surface water, discharge of hazardous waste, and discharge in any manner other than through injection wells within the highly polluted near-source aquifer volume. The proposed permit limits reduction of aquifer permeability, and injectant mass to the extent practicable. Short term limitations beyond the treatment volume are, priority pollutant metals, pH, ORP and TDS within 10% of up-gradient background, and COD and BOD within 5 milligrams/Liter over background. Limitations further specify that the Discharger shall meet WQOs for chlorinated ethenes within fifteen years of treatment, and background of all other parameters within five years.

### Monitoring Requirements

Section 13267, California Water Code (CWC), authorizes the Central Valley Water Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the State. Section 13268 CWC authorizes assessment of administrative civil liability where appropriate, for example due to inaccurate or late reports.

The proposed permit includes a monitoring and reporting program (MRP) based on the Dischargers' voluntary work plans and permit application. The MRP generally includes monthly, quarterly, semi-annual, and annual monitoring for volatile organic compounds, priority pollutant metals, electron acceptors, pH, ORP, groundwater elevation, injectant volume, amendments, and biocides.

### Reference:

BIOCHLOR (2002). Natural Attenuation Decision Support System Version 2.2. Excel, Carol E. Aziz Ph.D., and Charles J. Newell Ph.D., P.E., Groundwater Services, Inc., Houston, TX, and James R. Gonzales, Air Force Center for Environmental Excellence, Brooks AFB, San Antonio, TX