

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2009-0106
WASTE DISCHARGE REQUIREMENTS

FOR
ALEXANDER J. MISTAL AND VIRGINIA C. MISTAL,
BEHELLI CLEANERS,
AND BEHELLI CLEANERS, INC.
GROUNDWATER REMEDIATION
REDDING, SHASTA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. Alexander J. Mistal and Virginia C. Mistal (hereafter Dischargers) are current fee title owners of Shasta County Assessor's Parcel Number (APN) 107-080-050, less than one acre. There, the Dischargers owned and operated a dry-cleaning business at 2572 Bechelli Lane. See the vicinity map as Attachment A, a part of this Order.
2. From 1960 until 1976, Sig Kriegsman, Jr. and Porter Jacobs (hereafter Kriegsman and Porter) each owned an undivided one-half interest in the subject parcel, and there operated Kleensville, a dry-cleaning business. From 1976 to 1981, Michael W. Banahan, and Charmain Ann Banahan, his wife (hereafter Banahan) operated Kleensville as joint tenants to Kriegsman and Porter. While prior title records on file at the Regional Water Board are currently incomplete; in 1981 Banahan granted the parcel to Virginia C. Yee, an unmarried woman. Also in 1981, Banahan transferred fixtures, equipment, and cleaning supplies to Yee, who in turn changed the business name to Bechelli Cleaners. In 1988, Alexander J. Mistal and Virginia C. Mistal, who acquired title as Yee, granted the parcel to the Dischargers (themselves) as joint tenants. In 1990, the Dischargers filed California Corporation No. C1674572, Bechelli Cleaners, Inc. In 2004, the Dischargers ceased on-site dry-cleaning, and began a clothing pick-up and drop-off operation. In 2008, Sunset Cleaners, Inc. (California Corporation No. C2717874) DBA Bechelli Cleaners began business on the subject parcel, and continues clothing pick-up and drop-off.
3. Chlorinated ethenes are the primary constituents of concern. Based on current mapping, Perchloroethene (PCE) has dispersed southwest off-site. Some PCE has dechlorinated reductively, largely to Trichloroethene (TCE), and cis-1,2-Dichloroethene (c-DCE). Limited 1,1-Dichloroethene (1,1-DCE) occurs near-source. Ethenes have dispersed in groundwater, within moderately permeable alluvial silty gravels and gravelly silts. PCE slightly above its Public Health Goal of 0.06 microgram/Liter ($\mu\text{g/L}$) has impacted a private domestic well at 2721 Lowden Lane, about 800 feet southwest. Therefore, on 20 January 2009, under State Health and Safety Code §25180.7 the Assistant Executive Officer issued a Proposition 65 Disclosure to the Shasta County Board of Supervisors. Also, preliminary human health screening suggests that ethenes could potentially cause excess lifetime cancer

risk $>10^{-6}$ due to indoor air intrusion in single family homes within about 400 feet southwest of the subject parcel.

4. While Kriegsmann (believed residing in San Mateo County), Porter (deceased), and Banahan (wife deceased, husband whereabouts unknown) are also potentially responsible, the Dischargers have to date solely addressed pollution. Beginning in 2007, the Dischargers have operated an on-site soil vapor extraction (SVE) system to mitigate threats to on-site indoor air quality and lower maximum identified pollutant concentrations. To date, SVE has removed over 200 pounds of volatile organic compounds, predominantly chlorinated ethenes.
5. On 18 July 2008 the Dischargers submitted a Remedial Action Plan (RAP). The RAP in part proposes to inject emulsified soybean oil substrate into groundwater to treat off-site ethenes. On 20 August 2008, staff concurred with the RAP. On 9 December 2008, the Dischargers applied for Waste Discharge Requirements (WDRs) under General Order No. R5-2008-0149. On 21 January 2009, staff declared the application complete pending enrollment under the General Order. However, due to threats to sensitive receptors staff finds site-specific WDRs more appropriate.
6. The intent of injection is bio-stimulation, to locally increase serial, first order, reductive, microbe-mediated decay rates of dechlorinating ethenes. Therefore, within the treatment zone staff expects, and concurs with, local temporary increases of TCE, c-1,2-DCE, 1,1-DCE, and vinyl chloride (VC). However, these de-chlorinated daughters of PCE can become increasingly mobile in groundwater. Also, daughters could increase threats to off-site indoor air quality; see the following table. Relatively high Henry's Law Coefficient (K_H) and low molecular weight of ethene/molecular weight of nitrogen gas (MW/MW_{N_2} , ~ weight of ethene/weight of air) indicates relatively high threats to indoor air. Therefore, relatively greatest potential threat to indoor air is from most de-chlorinated PCE daughters. Also note the relatively low organic carbon partition coefficient (K_{oc}) of most PCE daughters; low K_{oc} generally indicates increased mobility in groundwater.

Table 1: Key Physical Parameters of Identified Chlorinated Ethenes

	PCE	TCE	c-1,2-DCE	1,1-DCE	VC
K_H (dimensionless)	0.754	0.422	0.167	1.07	1.11
MW/MW_{N_2} (dimensionless)	5.92	4.70	3.46	3.46	2.23
K_{oc} (Liters/Kilogram)	155	166	35.5	58.9	18.6

Source for K_H and K_{oc} : Weiner, Eugene, R. (2000). *Applications of Environmental Chemistry, A Practical Guide for Environmental Professionals*. ISBN 1-56670-354-9, 276 pages. Information on Table 4.6.

This warrants appropriate groundwater, soil gas, and indoor air monitoring, and contingencies for confirmed threats to sensitive receptors. Within the treatment zone, staff also expects, and concurs with, local short-term increases of total dissolved solids (TDS), chemical oxygen demand (COD), biological oxygen demand (BOD),

sulfides, fatty acids, and dissolved metals such as manganese and arsenic. Likewise, staff expects, and concurs with, short-term variations in pH and Eh, and exceedances of Water Quality Objectives for taste and odor. Due to the limited treatment zone volume, within highly ethene-polluted groundwater, staff does not expect persistent, long-term collateral impacts to water quality due to the proposed treatment. However, these potential issues likewise warrant monitoring and appropriate contingencies.

Phase I Injection Event

7. Typical factors that can affect successful anaerobic bio-stimulation include, but are not limited to; substrate delivery, ambient geochemistry (e.g., dissolved oxygen, nitrate, sulfate, bio-available iron, pH, and naturally occurring organic carbon), and microbial sufficiency; see http://costperformance.org/remediation/pdf/principles_and_practices_bioremediation.pdf. Therefore, the Discharger ran a carbon substrate demand model to design a Phase I injection event based on adequate ethene pollutant, hydrogeological, and baseline geochemical data from the near-source and mid-plume. The RAP includes this model. Given typical factors, largely infeasible to replicate in the laboratory, staff finds the demand model sufficient in lieu of bench testing. See the demand model as Attachment B, a part of this Order.
8. Ambient background general groundwater geochemistry data are available from the Discharger's farthest up-gradient monitoring well TW-10; where measurements are available. The following tables summarize typical ranges of selected analytes. Table 2 gives electron acceptor and related data from TW-10. Table 3 gives California Code of Regulations (CCR) Title 22, priority pollutant metals.

Table 2: Background General Groundwater Geochemistry; Electron Acceptors and Related Parameters

pH**	ORP (mV)**	DO (mg/L)**	Fe ²⁺ (mg/L)*	SO ₄ ²⁻ (mg/L)*	NO ₃ ⁻ (mg/L)*	CH ₄ (µg/L)*	Alkalinity as CaCO ₃ * (mg/L)	TDS (mg/L)	Temp. °C**
7.4	15.1	5.3	<100	15.4	1.07	0.75	112	133	21.0

Notes:

°C, degrees Centigrade

mV, millivolts

mg/L, milligrams/Liter

*, average of three samples from TW-10, February through August, 2008.

** , average of four samples from TW-10, February through October, 2008.

ORP, oxidation-reduction potential in millivolts, mV.

DO, dissolved oxygen

Fe²⁺, soluble iron, in milligrams/Liter, mg/L.

SO₄²⁻, sulfate, in mg/L.

NO₃⁻, nitrate as nitrogen, in mg/L.

CH₄, Methane, in micrograms/Liter, µg/L. Two of three results, averaged, are J-flagged, below Method Reporting Limits.

Alkalinity as calcium carbonate, CaCO₃, in mg/L

TDS, total dissolved solids, in mg/L.

Temperature, in degrees Centigrade, °C.

**Table 3: Background General Groundwater Geochemistry;
 Dissolved CCR-17 Priority Pollutant Metals; all data in mg/L**

Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Ag	Th	V	Zn
<4.0	<4.0	22	<1.0	<1.0	2.0	<1.0	<1.0	<3.0	<0.07	1.0	1.0	<4.0	1.0	<5.0	16	6.0

Notes: Sb, Antimony, As, Arsenic, Ba, Barium, Be, Beryllium, Cd, Cadmium, Co, Cobalt, Cr, Chromium (total), Cu, Copper, Pb, Lead, Hg, Mercury, Mo, Molybdenum, Ni, Nickel, Se, Selenium, Ag, Silver, Th, Thallium, V, Vanadium, Zn, Zinc

Staff will require appropriate statistical analyses and updates of ambient background general geochemistry prior to, during, and following injections. Staff will also require periodic comparisons of up-gradient and treatment zone geochemistry and accompanying predictions of time until aquifer restoration to background. Staff will further require appropriate periodic analysis of metal mobilities in terms of pH and oxidation reduction potential (ORP), for example as Pourbaix Diagrams.

9. During Phase I, the Dischargers will inject about 500 pounds of soybean oil emulsified into about 600 gallons of water into the treatment zone. The Discharger will distribute the injection between nine and eleven injection wells on a nominal 15-foot lateral spacing, each to about 25 feet below grade surface, to form a near-source permeable reactive barrier. Monitoring wells TW-1 and TW-2 are within the treatment zone, well TW-3, slightly up-gradient, wells TW-14 and TW-15, slightly down-gradient. The Discharger proposes wells TW-14 and TW-15 as compliance wells, however staff will require appropriate monitoring for general geochemistry and VOCs in compliance wells farther down-gradient, at minimum including TW-7. Additional compliance wells (TW-6, TW-8, and TW-9) will be included in the monitoring and sampling program, if results of compliance samples collected from TW-7 indicate elevated levels of general geochemistry and VOCs. Staff will also require similar appropriate monitoring in up-gradient well TW-10. See the injection plan as Attachment C, a part of this Order.

10. On 27 February 2009, the Dischargers submitted a site investigation and human health screening report. This includes a work plan for further site investigation. On 9 March 2009, staff conditionally approved the enclosed plan, and requested appropriate further site investigation, and contingency plans in the event of confirmed threats to sensitive receptors. While staff has approved the RAP to allow the Dischargers to prepare for the Phase I injection event, staff also considers the Dischargers' response to our 9 March 2009 request important to the adoption of these WDRs. Specifically, appropriate soil gas, indoor air, and down-gradient monitoring are essential to protect human health and the environment. Therefore, staff will concur with an expanded monitoring network, and contingencies as warranted based on threats to receptors, as a condition to these WDRs. Further, discharge shall comply with Discharge Prohibitions, Specifications, and Groundwater Limitations in these WDRs and the attached Monitoring and Reporting Program (MRP R5-2009-0106) which is part of this Order.

Additional Injection Events

11. Pending results from Phase I, the Dischargers may add further substrate as necessary to remediate VOC impacted groundwater. Staff concurs with this general approach provided additional injection events comply with Discharge Prohibitions, Specifications, and Groundwater Limitations in these WDRs; and MRP R5-2009-0106. However, if results from Phase I indicate the need for other in-situ treatments, for example anti-biofouling agents, or oxidants to treat persistent VC, staff will require a work plan and appropriate technical justification to continue operating under these WDRs.

Basin Plan, Beneficial Uses, and Regulatory Considerations

12. *The Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code (CWC), waste discharge requirements must implement the Basin Plan.
13. The Basin Plan designates the beneficial uses of the groundwater underlying the former Kleensville and Bechelli Cleaners dry-cleaning facility as municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
14. The Basin Plan establishes numerical and narrative WQOs for surface and groundwater within the basin, and recognizes that WQOs are achieved primarily through the Regional Water Board's adoption of waste discharge requirements and enforcement orders. Where numerical WQOs are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative WQOs is required, the Regional Water Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.
15. The Basin Plan identifies numerical WQOs for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

16. The Basin Plan contains narrative WQOs for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants or animals. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain tastes or odors producing substances in concentrations that cause nuisance or adversely affect beneficial uses.22. State Board Resolution No. 92-49 (hereafter Resolution No. 92-49) requires the Regional Water Board to require actions for cleanup and abatement of discharges that cause or threaten to cause pollution or nuisance to conform to the provisions of State Board Resolution No. 68-16 (hereafter Resolution No. 68-16) and the Basin Plan. Pursuant to Resolution No. 92-49, the Regional Water Board shall ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or if background levels of water quality cannot be restored, the best water quality which is reasonable and which complies with the Basin Plan including applicable WQOs.
17. Section 13241 of the Water Code requires the Regional Water Board to consider various factors, including economic considerations, when adopting WQOs into its Basin Plan. Water Code Section 13263 requires the Regional Water Board to address the factors in Section 13241 in adopting waste discharge requirements. The State Board, however, has held that a Regional Water Board need not specifically address the Section 13241 factors when implementing existing WQOs in waste discharge requirements because the factors were already considered in adopting WQOs. These waste discharge requirements implement adopted WQOs. Therefore, no additional analysis of Section 13241 factors is required.
18. Resolution No. 68-16 requires the Regional Water Board in regulating discharges to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and potential beneficial uses, and will not result in water quality less than that described in plans and policies (e.g., quality that exceeds WQOs). Temporal degradation of groundwater may occur at this site within the defined treatment zone due to the injection of the amendments and resulting reactions. The temporary degradation allowed by this Order is consistent with Resolution No. 68-16 since (1) the purpose is to accelerate and enhance remediation of groundwater pollution and such remediation will benefit the people of the State; (2) the discharge facilitates a project to evaluate the effectiveness of cleanup technology in accord with Resolution No. 92-49; (3) the degradation is limited in scope and duration; (4) best practicable treatment and control, including adequate monitoring and hydraulic control to assure protection of water quality, are required; and (5) the discharge will not cause WQOs to be exceeded beyond the treatment zone. A slight residual increase in TDS may occur, but will be limited to concentrations defined in the Groundwater Limitations of this Order.

19. These waste discharge requirements deal with water quality as it relates to the chemicals being injected, as well as the byproducts and breakdown products produced by the reactions of the amendments, chemicals being treated and geological materials. As discussed above, chemicals are injected to stimulate reduction in concentrations of the target pollutants. The target pollutant may undergo a series of transformations to other pollutants as it degrades. The injected chemical itself may leave residuals of its components or cause changes in groundwater chemistry that liberate metals found in the formation materials. Background/baseline concentrations of metals and total dissolved solids have been established or will be established pursuant to the attached MRP No. R5-2009-0106. The applicable WQOs are the narrative toxicity objective, Primary and Secondary Maximum Contaminant Levels, and the taste and odor objective as found in the Basin Plan. Numerical limits in this Order implement those Objectives. The following are the numerical WQOs for potential pollutants of concern that may be byproducts of the groundwater treatment:

Constituent	WQO (µg/L)	Reference
TCE	0.8	California Public Health Goal, Human Toxicity Objective
c-1,2-DCE	6	California Department of Health Services Primary Maximum Contaminant Level, Chemical Constituents Objective
1,1-DCE	6	California Department of Health Services Primary Maximum Contaminant Level, Chemical Constituents Objective
VC	0.05	California Public Health Goal, Human Toxicity Objective
CCR-17 metals	<150% Background Concentration	Background Concentrations are outlined in Table 3 of this Order.

20. Section 13267(b) of California Water Code provides that: “In conducting an investigation specified in subdivision (a), the Regional Water Board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.” The technical reports required by this Order and the attached MRP No. R5-2009-0106 is necessary to assure compliance with these waste discharge requirements.
21. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards:*

State of California Bulletin 94-81 (December 1981). These standards, and any more stringent standards adopted by the Dischargers or county pursuant to CWC Section 13801, apply to all extraction and monitoring wells.

22. Issuance of this Order is an action to assure the restoration of the environment and is, therefore, exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.), in accordance with Section 15308 and 15330, Title 14, California Code of Regulations (CCR).
23. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (hereafter Title 27). The exemption pursuant to Section 20090(b), is based on the following:
 - a. The Regional Water Board is issuing waste discharge requirements,
 - b. The requirements implement the Basin Plan, and
 - c. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, and Chapter 11, as a hazardous waste.

Section 20090(d) allows exemption for a project to cleanup a condition of pollution that resulted from an unauthorized release of waste based on the following:

- d. The discharge of amendments to groundwater is at the direction of the Regional Water Board to cleanup and abate conditions of pollution or nuisance resulting from the unauthorized release of pollutants.
 - e. Wastes removed from the immediate place of release will be discharged according to the Title 27 regulations; and
 - f. The remedial actions intended to contain wastes at the place of release shall implement the Title 27 regulations to the extent feasible.
24. Section 3020(b)(2) of the Resource Conservation and Recovery Act (RCRA) states that prior to injection into or above an underground source of drinking water, contaminated groundwater shall be "...treated to substantially reduce hazardous constituents prior to such injection." In a letter dated 10 December 1999, the United States Environmental Protection Agency, Office of Solid Waste and Emergency Response (OSWER) states, "if extracted groundwater is amended at the surface (i.e., "treated") before re-injection, and the subsequent in situ bioremediation achieves a substantial reduction of hazardous constituents the remedy would satisfy Section 3020(b)(2). "Therefore, the injection of groundwater within the treatment zone, with or without the treatment for VOCs, complies with Section 3020(2)(b) of RCRA.31.
 25. The injection of soybean oil into the groundwater is a discharge of waste as defined by the California Water Code.

26. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

27. The Regional Water Board considered all the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, in establishing the following conditions of discharge.
28. The Regional Water Board will notify the Dischargers and interested persons of its intent to prescribe waste discharge requirements for this discharge, and will provide them with an opportunity to submit their written views and comments.
29. The Regional Water Board, in a public meeting, will hear and consider all comments pertaining to the discharge.

IT IS HEREBY ORDERED, that the Dischargers, their agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted there under, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991, incorporated herein.]

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of California Water Code is prohibited.
3. The discharge of waste at any location or in a manner different from that described in Findings No. 9 and 11 is prohibited.
4. The discharge of materials into groundwater is prohibited, except for the following: emulsified soybean oil; Regional Water Board-approved chemicals to control bio-fouling or to act as tracers for chemical amendments; and water.
5. Creation of a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC), is prohibited.

B. Discharge Specifications

1. The Dischargers shall not cause the permeability of the aquifer, either inside or outside of the in situ treatment area, to be affected to such a degree that the Discharger is unable to effectively operate extraction wells for the purpose of containing the amendment(s) or its byproducts.
2. The Dischargers will limit the injection of amendments to the extent practicable.
3. The discharge shall not cause the high quality groundwater unaffected by the current plume under going cleanup to be degraded by the treatment amendments listed in Discharge Prohibition A.4.

C. Groundwater Limitations:

1. The Dischargers shall not cause the groundwater to contain taste and odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
2. The discharge shall not cause the groundwater at the compliance wells listed in Finding 9 to contain concentrations of chemical constituents (i.e., the amendments and by-products of the in situ treatment process, including CCR-17 metals, and total dissolved solids greater than 10% above background, BOD and COD greater than 5 mg/L above background, and ORP and pH within 10% of background.
3. Within two years of the conclusion of the in situ treatment, the Dischargers shall demonstrate based on serial first order rate constants of remaining PCE and all daughters, that the site will meet numerical Water Quality Objectives for ethenes within fifteen further years. The Discharger shall also demonstrate no remaining exceedances of taste and odor objectives, or statistically significant differences with respect to background of pH, ORP, TDS, CCR-17 metals, BOD, and COD within five further years.

D. Provisions:

1. The Dischargers shall notify the Regional Water Board a minimum of two weeks prior to the start of any injection of chemical amendments.
2. The Dischargers shall comply with the attached MRP No. R5-2009-0106, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
3. The Dischargers shall obtain Regional Water Board approval prior to implementing additional injection events of the in situ groundwater treatment remedy (see Finding 11 for a description of the implementation process). This

- is to ensure that the treatment remedy is not causing adverse water quality impacts. If such impacts occur, the treatment remedy will be postponed until the impacts are remediated.
4. The Dischargers shall operate the existing SVE system to control the chlorinated ethene plume until system shutdown is approved by the Executive Officer.
 5. The Dischargers shall provide an alternate water supply source for any municipal, domestic or other water use, if affected by the Discharger's wastes.
 6. The Dischargers shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991, which are by reference, a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
 7. The Dischargers shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Water Board or court order requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
 8. Should the evaluation of the implementation data for the full-scale groundwater treatment reveal adverse effects on groundwater quality at the points of compliance due to chemical amendment injection, the Dischargers shall notify the Regional Water Board within 24 hours, followed by a written summary within two weeks. Within 60 days following notification, the Dischargers shall submit a corrective action plan, including a time schedule for implementation, for Executive Officer approval. The corrective action plan shall detail how the Dischargers will clean up and abate these effects, including extraction of any byproducts.
 9. Prior to any modifications at the site that would result in material change in the quality or quantity of the chemical amendments, or any material change in the character, location, or volume of the discharge, the Dischargers shall report all pertinent information in a Report of Waste Discharge to the Regional Water Board for review. This Order may be revised prior to implementation of any modifications.
 10. The Dischargers shall maintain records of all monitoring information including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, or report. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Executive Officer.

11. While this Order is in effect, and prior to any change in ownership of the Site or management of this operation, the Dischargers shall transmit a copy of this Order to the succeeding Owner/Operator, and forward a copy of the transmittal letter and proof of transmittal to the Regional Water Board.
12. The Dischargers shall allow the Regional Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the premises regulated by the Regional Water Board, or the place where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor, at reasonable times, for the purpose of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at this Site.
13. A copy of this Order shall be kept at the discharger facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
14. The Regional Water Board may review this Order periodically and may revise requirements when necessary.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 8 October 2009.

Original Signed By

PAMELA C. CREEDON, Executive Officer

ATTACHMENT A

VICINITY MAP

ATTACHMENT B

CARBON SUBSTRATE DEMAND MODEL

ATTACHMENT C

INJECTION PLAN



APPENDIX B
Carbon Substrate Demand Model
Bechelli Cleaners, Redding, California

Note: Shaded boxes are user input

Table 1 Treatment Zone Physical Dimensions

	Values	Range	Units
Length (Perpendicular to predominant groundwater flow direction)	120	1 - 10,000	feet
Width (Parallel to predominant groundwater flow)	100	1 - 1,000	feet
Saturated Thickness	12	1 - 100	feet
Treatment Zone Cross Sectional Area	1,440	--	feet ²
Treatment Zone Volume	144,000	--	ft ³
Treatment Zone Total Pore Volume (total volume x total porosity)	107,726	--	gallons
Treatment Zone Effective Groundwater Volume (total volume x effective porosity)	107,726	--	gallons
Design Period of Performance	1	0.5 to 5	year

Table 2 Treatment Zone Hydrogeologic Properties

	Values	Range	Units
Total Porosity	0.1	0.05 - .50	
Effective Porosity	0.1	0.05 - .50	
Average Aquifer Hydraulic Conductivity	1.78	0.01 - 1,000	ft/day
Average Hydraulic Gradient	0.03	0.1 - 0.0001	ft/ft
Average Groundwater Seepage Velocity through the Treatment Zone	0.534	--	ft/day
Average Groundwater Seepage Velocity through the Treatment Zone	194.91	--	ft/yr
Average Groundwater Flux through the Treatment Zone	20,997	--	gallons/year
Soil Bulk Density	1.7	1.4 - 2.0	gm/cm ³
Soil Fraction Organic Carbon (foc)	0.001	0.0001 - 0.1	--

Table 3 Initial Treatment Cell Electron-Acceptor Demand (one total pore volume)

A. Aqueous-Phase Native Electron Acceptors	Concentration (mg/L)	Mass (lb)	Stoichiometric demand (wt/wt H ₂)	Hydrogen Demand (lb)	Electron Equivalents per Mole
Oxygen	3	2.70	7.9	0.34	4
Nitrate	6	5.39	10.2	0.53	5
Sulfate	50	44.95	10.6	4.24	8
Carbon Dioxide (estimated as the amount of Methane produced)	7	6.29	5.5	1.14	8
Soluble Competing Electron Acceptor Demand (lb.)				6.26	

B. Solid-Phase Native Electron Acceptors

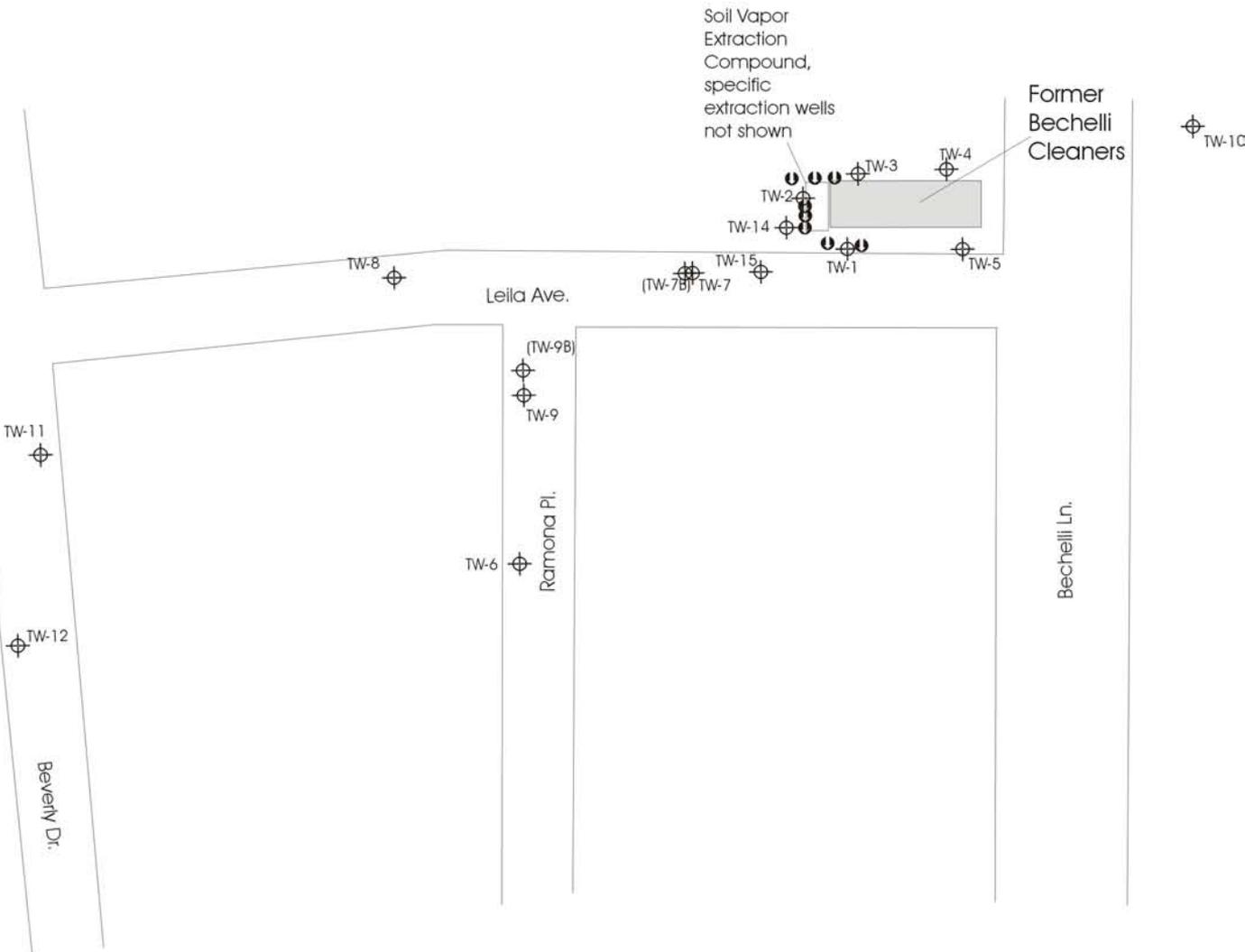
	Concentration (mg/L)	Mass (lb)	Stoichiometric demand (wt/wt H ₂)	Hydrogen Demand (lb)	Electron Equivalents per Mole
Mangasee (IV) (estimated as the amount of Mn (II))	2.5	2.25	27.5	0.08	1
Iron (III) (estimated as the amount of Fe(II) produced)	5	4.50	55.9	0.08	1
Solid-Phase Competing Electron Acceptor Demand (lb.)				0.16	

C. Soluble Contaminant Electron Acceptors

	Concentration (mg/L)	Mass (lb)	Stoichiometric demand (wt/wt H ₂)	Hydrogen Demand (lb)	Electron Equivalents per Mole
Tetrachloroethene	4.1	3.69	20.6	0.18	8
Trichloroethene	0.5	0.45	21.7	0.02	6
cis -1,2-Dichloroethene	0.5	0.45	24.0	0.02	4
Vinyl Chloride	0.5	0.45	31.0	0.01	2
Carbon Tetrachloride	0	0.00	25.4	0.00	8
Chloroform	0	0.00	12.3	0.00	6
1,1,1-Trichloroethane	0	0.00	22.0	0.00	6
1,1-Dichloroethane	0	0.00	25.0	0.00	4
1,1-Dichloroethene	0	0.00	24.0	0.00	4
Total Soluble Contaminant Electron Acceptor Demand (lb.):				0.23	

D. Sorbed Contaminant Electron Acceptors

	Koc (mL/gm)	Soil Conc. (mg/kg)	Mass (lb)	Stoichiometric Demand (wt/wt H ₂)	Hydrogen Demand (lb)	Electron Equivalents per Mole
(Soil Concentration = Koc x foc x C _{gw})						
Tetrachloroethene	263	1.0783	16.45	20.6	0.80	8
Trichloroethene	107	0.0535	0.82	21.7	0.04	6
cis -1,2-Dichloroethene	45	0.0225	0.34	24.0	0.01	4
Vinyl Chloride	3	0.0015	0.02	31.0	0.00	2
Carbon Tetrachloride	224	0	0.00	25.4	0.00	8
Chloroform	63	0	0.00	12.3	0.00	6
1,1,1-Trichloroethane	105	0	0.00	22.0	0.00	6
1,1-Dichloroethane	30	0	0.00	25.0	0.00	4
1,1-Dichloroethene	65	0	0.00	24.0	0.00	4
Total Sorbed Contaminant Electron Acceptor Demand (lb.)					0.85	



Explanation

- Phase One Soybean Oil Injection Well Location
- ⊕ Groundwater Monitoring Well Location. Note, wells with B notation are deeper completions, shown however not part of this permit.

1" ~ 120'



Information Sources:
Source Group, Inc.,
report dated 6/26/09

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2009-0106

FOR
ALEXANDER J. MISTAL AND VIRGINIA C. MISTAL,
BEHELLI CLEANERS,
AND BEHELLI CLEANERS, INC.
REDDING,
SHASTA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring associated with in situ injection of soybean oil as a voluntary effort by the Dischargers to remediate impacted groundwater. This MRP is issued pursuant to Water Code Section 13267. The Dischargers shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. As appropriate, Regional Board staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

GROUNDWATER MONITORING

As shown on Attachment C of the Waste Discharge Requirements, there are four monitoring wells and nine to eleven injection wells associated with this injection site. Further monitoring wells are down-gradient, subject only to monitoring for volatile organic compounds. The groundwater monitoring program for these wells and any treatment system wells installed subsequent to the issuance of this MRP, shall follow the schedule below. Sample collection and analysis shall follow standard EPA protocol. The Dischargers shall propose changes to the groundwater monitoring plan as needed to reasonably evaluate the effectiveness of in situ treatment. Routine private well and soil gas sampling activities are detailed in the Dischargers' Contingency Plan dated April 28, 2009.

The monitoring wells, and injection wells shall be sampled according to the schedule in Table 1 and the samples analyzed by the methods in Table 2, as follows:

Table 1: Sampling Frequency and Constituent Suite

Well Number¹	Frequency²	Constituent Suite(s)³	Monitoring Objective
TW-7 ⁴	Quarterly	A, C, and D	Compliance ⁵
IW-3 and IW-6	Month 1, Month 2, and Quarterly	A, C, and D	Treatment Zone ⁶
TW-14, TW-15	Month 1, Month 2, and Quarterly	A, B, C, and D	Transition Zone ⁷
TW-10	Annual	A, C, and D	Background ⁸
Soil Gas Location (Intersection of Leila and Ramona)	Semi-Annual	A	Compliance

- 1 Well numbers as shown on Attachment C of the Waste Discharge Requirements.
- 2 i.e., weekly, monthly, quarterly, annually, other.
- 3 Constituent suite components listed in Table 2. Constituents not detected above the laboratory method detection limit in samples collected from a monitoring well for three consecutive quarterly/semi-annual/annual sampling events will be removed from the constituent suite.
- 4 Additional compliance wells (TW-6, TW-8, and TW-9) will be included in the monitoring and sampling program, if results of compliance samples collected from TW-7 indicate elevated levels of general geochemistry and VOCs.
- 5 Wells used to determine compliance with water groundwater limitations.
- 6 Wells sampled to evaluate in-situ bioremediation progress inside the treatment zone.
- 7 Wells sampled to evaluate migration of pollutants within the transition zone.
- 8 Wells used to develop background concentrations.

Table 2: Analytical Methods

Constituent	Method ¹	Maximum Practical Quantitation Limit (µg/L) ²
Suite A		
Volatile Organic Compounds	EPA 8260B	0.5
Suite B		
CCR –17 Priority Pollutant Metals		
Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Molybdenum, Silver	EPA 6010 B	5
Antimony	EPA 6010B	20
Arsenic, Nickel, Vanadium, Zinc	EPA 6010B	10
Lead, Selenium	EPA 6010 B	15
Mercury	EPA 7470 A	0.20
Thallium	EPA 6010 B	25
Suite C		
Dissolved Methane	RSK 175	1.5
Iron II	EPA 6010B	100
Sulfate	EPA 300.0	400
Nitrate	EPA 353.2	50
Alkalinity as CaCO ₃	SM2320B	5000
Suite D		
Carbon Dioxide	EPA SM 4500-CO2 C	1,000
TOC	SM 55310C	1,000
Total Dissolved Solids	SM 2540 C	6,000

- 1 Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.
- 2 All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value.
- 3 Metals include barium cadmium, calcium, total chromium, copper, lead, magnesium, manganese, mercury, molybdenum, nickel and silica.

Constituent	Method	Maximum Practical Quantitation Limit (µg/L-gas)
Volatile Organic Compounds	TO-15	0.05

FIELD SAMPLING

In addition to the above sampling and analysis, field sampling and analysis shall be conducted each time a monitor well or extraction well is sampled. The sampling and analysis of field parameters shall be as specified in Table 3.

Table 3: Field Sampling Requirements

Parameters	Units	Type of Sample
Groundwater Elevation	Feet, Mean Sea Level	Measurement
Oxidation-Reduction Potential	Millivolts	Field Test
Electrical Conductivity	uhmos/cm	Field Test
Dissolved Oxygen	mg/L	Field Test
pH	pH Units (to 0.1 units)	Field Test

Field test instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in item (b) of the "Reporting" section of this MRP.

DISCHARGE MONITORING

The Dischargers shall monitor daily the discharge of water and amendments that are injected into the groundwater according to the requirements specified in Table 4. Each amendment addition shall be recorded individually, along with information regarding the time period over which the amendment was injected into the aquifer.

Table 4: Discharge Monitoring Requirements

Parameters	Units	Type of Sample
Injected Volume	gallons per day	Meter
Amendment(s) Added	kilograms per day	Measured
Biocide Added (if used)	kilograms per day	Measured

ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES

The Dischargers shall develop background values for concentrations of dissolved iron, dissolved manganese, 17 priority pollutant metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, vanadium, zinc, total dissolved solids and electrical conductivity in groundwater following the procedures found in CCR Section 20415(e)(10). Background concentrations are outlined in *Order R5-2009-0106 Groundwater Remediation Waste Discharge Requirements*. Staff will

require appropriate statistical analyses and updates of ambient background general geochemistry prior to, during, and following injections. Staff will also require periodic comparisons of up-gradient and treatment zone geochemistry and accompanying predictions of time until aquifer restoration to background.

REPORTING

When reporting the data, the Dischargers shall arrange the information in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner as to illustrate clearly the compliance with this Order. In addition, the Dischargers shall notify the Regional Board within 48 hours of any unscheduled shutdown of any soil vapor and/or groundwater extraction system. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall also be reported to the Regional Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all reports shall be prepared by a registered professional or their subordinate and signed by the registered professional.

The Dischargers shall submit quarterly electronic data reports, which conform to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter 30. The quarterly reports shall be submitted electronically over the internet to the Geotracker database system by the 1st day of the second month following the end of each calendar quarter by **1 February, 1 May, 1 August, and 1 November** until such time as the Executive Officer determines that the reports are no longer necessary.

Hard copies of quarterly reports shall be submitted to the Regional Board by the **1st day of the second month following the end of each calendar quarter (i.e., by 1 February, 1 May, 1 August, and 1 November)**. Each quarterly report shall include the following minimum information:

- (a) a description and discussion of the groundwater sampling event and results, including trends in the concentrations of pollutants and groundwater elevations in the wells, how and when samples were collected, and whether the pollutant plume(s) is delineated;
- (b) field logs that contain, at a minimum, water quality parameters measured before, during, and after purging, method of purging, depth of water, volume of water purged, etc.;
- (c) groundwater contour maps for all groundwater zones, if applicable;
- (d) pollutant concentration maps for all groundwater zones, if applicable;
- (e) a table showing well construction details such as well number, groundwater zone being monitored, coordinates (longitude and latitude), ground surface elevation, reference elevation, elevation of screen, elevation of bentonite, elevation of filter pack, and elevation of well bottom;

- (f) a table showing historical lateral and vertical (if applicable) flow directions and gradients;
- (g) cumulative data tables containing the water quality analytical results and depth to groundwater;
- (h) a copy of the laboratory analytical data report, which may be submitted in an electronic format;
- (i) the status of any ongoing remediation, including an estimate of the cumulative mass of pollutant removed from the subsurface, system operating time, the effectiveness of the remediation system, and any field notes pertaining to the operation and maintenance of the system; and
- (j) if applicable, the reasons for and duration of all interruptions in the operation of any remediation system, and actions planned or taken to correct and prevent interruptions.

An Annual Report shall be submitted to the Regional Board by **1 February (1 November for semi-annual monitoring)** of each year. This report shall contain an evaluation of the effectiveness and progress of the investigation and remediation, and may be substituted for the fourth quarter (**or second semi-annual**) monitoring report. The Annual Report shall contain the following minimum information:

- (a) both tabular and graphical summaries of all data obtained during the year;
- (b) groundwater contour maps and pollutant concentration maps containing all data obtained during the previous year;
- (c) a discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells;
- (d) an analysis of whether the pollutant plume is being effectively treated;
- (e) a description of all remedial activities conducted during the year, an analysis of their effectiveness in removing the pollutants, and plans to improve remediation system effectiveness;
- (f) an identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program; and
- (g) if desired, a proposal and rationale for any revisions to the groundwater sampling plan frequency and/or list of analytes.

A letter transmitting the monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Dischargers have previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory.

The transmittal letter shall contain the penalty of perjury statement by the Dischargers, or the Dischargers' authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Dischargers shall implement the above monitoring program on the first day of the month following adoption of this Order.

Original Signed By
Ordered by: _____
PAMELA C. CREEDON Executive Officer
October 8, 2009

(Date)

EJR: sae

INFORMATION SHEET

ORDER NO. R5-2009-0106
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

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

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

EJR: sae

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California Regional Water Quality Control Board Central Valley Region

Karl E. Longley, ScD, P.E., Chair



Linda S. Adams
Secretary for
Environmental
Protection

415 Knollcrest Drive, Suite 100, Redding, California 96002
(530) 224-4845 • Fax (530) 224-4857
<http://www.waterboards.ca.gov/centralvalley>

Arnold
Schwarzenegger
Governor

28 October 2009

CERTIFIED MAIL
7007 0710 0003 1144 9095

Ginne Mistal
2573 Rosebud Lane
Redding, CA 96002

NOTICE OF ADOPTION OF WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2009-0106, ALEXANDER J. MISTAL AND VIRGINIA C. MISTAL, BECHELLI CLEANERS, AND BECHELLI CLEANERS, INC., SHASTA COUNTY

On 8 October 2009, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted Waste Discharge Requirements Order No. R5-2009-0106 (Order) for Alexander J. Mistal and Virginia C. Mistal, Bechelli Cleaners, and Bechelli Cleaners, Inc., for groundwater remediation. In order to conserve paper and postage, a paper copy is only being provided to the Discharger. Electronic copies of the Order are available on the Central Valley Water Board's internet site at http://www.waterboards.ca.gov/centralvalley/adopted_orders. Those without internet access can request a paper copy by contacting Central Valley Water Board staff.

If you have any questions regarding the adopted Order, please contact Eric J. Rapport of my staff at (530) 224-4998 or the letterhead address.

Original Signed By

JAMES C. PEDRI, P.E.
Assistant Executive Officer

SAE

Enclosures: Adopted Order (Discharger Only)

cc w/o enclosures: Mark Cramer, Shasta County Division of Environmental Health, Redding
Marcia Ames, City of Redding Department of Public Works, Redding
Greg McIver, Source Group, Inc., Grass Valley
Andrew Nelson, Walsworth, Franklin, Bevins, and McCall, San Francisco
Susan Hipley, SBC, Auburn
Brad Berggren, RSV Engineering, Wilsonville, OR

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