

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF MAY 11-12, 2006

Prepared on April 19, 2006

ITEM NUMBER: 10

**SUBJECT: Status Report, Scotts Valley Dry Cleaners, 272-A Mount Herman Road,
Scotts Valley, Santa Cruz County**

KEY INFORMATION

Type of Discharge: Unauthorized Release of Tetrachloroethene (PCE)
Existing Orders: Cleanup or Abatement Order (CAO) No. R3-2005-0081
Waste Discharge Requirements Order No. 01-134 National Pollutant
Discharge Elimination System (NPDES) Permit No. CAG993002 General
Permit for Discharges of Highly Treated Groundwater to Surface Waters
Monitoring and Reporting Program (MRP) No. R3-2005-0086
MRP No. R3-2005-0082
This Action: Status Report Only

DISCUSSION

New information is shown in italics. For additional background information, please refer to the Water Board's May 13, 2005 staff report and supplemental sheet and September 9, 2005 staff report.

Water Board staff provides regulatory oversight of the Scotts Valley Dry Cleaners (Dry Cleaners) in Santa Cruz County, one of many high priority Spills, Leaks, Investigation, and Cleanup cases in the region.

Background

The Dry Cleaners started site remediation of dry cleaning solvent discharges in 1996. The Dry Cleaners initially performed excavation (trenching) and vapor extraction in the source area. In March 1998, Water Board staff required the Dry Cleaners to submit a corrective action plan. Since 1998, the Dry Cleaners conducted several remediation pilot tests/interim remedial actions, including air sparging, aquifer pump testing, and injection of hydrogen releasing compounds and cheese whey. The Dry Cleaners revised the corrective action plan several times based on pilot test results.

The Dry Cleaners implemented high vacuum, dual-phase extraction in March 2004 for plume containment, while they continued to evaluate other remedial alternatives for plume control. In July 2004, the Dry Cleaners submitted a revised Interim Remedial Action Plan proposing installation of three monitoring and groundwater extraction wells downgradient of MW-9, and a permanent groundwater extraction and treatment system.

The Water Board permitted the treated groundwater discharge from the proposed system under the General National Pollutant Discharge Elimination System (NPDES) Permit for Discharge of Highly Treated Groundwater to Surface Waters on May 5, 2005. The pump and treat system was fully operational by August 10, 2005.

On May 25, 2005 the Water Board issued Cleanup or Abatement Order No. R3-2005-0081 (CAO) and Monitoring and Reporting Program No. R3-2005-0082 to the responsible parties. The Dry Cleaners have met the date-specific requirements of CAO No. R3-2005-0081.

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The Dry Cleaners submitted a work plan to install two shallow wells rather than deep-zone monitoring wells on July 31, 2005. Water Board staff responded requiring a workplan for installation of deep-zone monitoring wells in addition to or instead of the two proposed shallow monitoring wells unless the responsible parties could demonstrate that they are financially unable to do so.

Water Board staff received a work plan from the Dry Cleaner's consultant, SECOR International (Secor), for deep-well installations on November 30, 2005. The Scotts Valley Water District submitted a technical memorandum commenting on Secor's work plan from their consultant ETIC Engineering on December 29, 2005. Water Board staff reviewed both the work plan and technical memorandum. Water Board staff discussed the proposed work with the Santa Cruz County Environmental Health Agency geologist and Water Resources hydrologist on January 12, 2006, Secor on January 13, 2006, and the Scotts Valley Water District with Secor on January 18, 2006.

Recent Progress

Groundwater samples taken in February 2006 showed a decrease in concentrations in most monitoring wells. In February 2006, MW-18 exhibited an increase in PCE concentration compared to the last sample taken and MW-13 exhibited a decrease in concentration to 0.53 ppb PCE, just above the detection limit. In addition, two monitoring wells (MW-7 and MW-15) did not contain any groundwater this quarter. Please refer to Attachment 1: February 2006 PCE Concentration Site Map. The onsite remediation system seems to be effectively extracting and "draining" portions of the perched zone groundwater on-site. The pump and treat system has extracted and treated about 180,000 gallons of impacted groundwater since interim remediation began in January 2005. The consultant estimates the system has removed over 1.3 pounds of PCE from the groundwater.

The Scotts Valley Water District continues to sample its Municipal Well No. 10 (Well 10) on a weekly basis. A sample taken on January

31, 2006, contained Freon 113 (trichlorotrifluoroethane) at 0.6 ppb. Groundwater analyses of Well 10 have not observed Freon 113 or any other contaminants above the reporting limit except for the sample taken on January 31, 2006. Freon 113 has a primary maximum contaminant level (MCL) for drinking water of 1,200 ppb. The Dry Cleaners monitoring well MW-13A contained Freon 113 in low concentrations in November 2005, December 2005, and January 2006 (1.7 ppb, 1.3 ppb, and 0.71 ppb respectively). No monitoring wells on the Dry Cleaner site have observed Freon 113. The Dry Cleaners are required to continue analyzing groundwater samples for Freon 113. It is not known at this time if the Freon 113 observed in groundwater in MW-13A and Well 10 is a trace contaminant from the Dry Cleaners, from a potential off-site source, or a laboratory error.

Following the February 10, 2006 Board meeting, Water Board staff met with Secor on February 21, 2006, to discuss the appropriate next steps in investigation. As a result of stakeholder discussions, Water Board staff emailed a draft letter to stakeholders outlining our requirements for source area investigation, deep well and sentry well installation, and corrective action plan submittal. Water Board staff met via teleconference with all stakeholders on March 23, 2006, to discuss the draft letter. Those participating in the teleconference included Water Board staff, the Scotts Valley Water District, Scotts Valley Water District's consultants ETIC Engineering, Discharger's consultants Secor Engineering, and Santa Cruz County Environmental Health Agency. Santa Cruz County Water Resources hydrologist Mike Cloud was unable to participate in the teleconference due to a conflict in schedule. Water Board staff issued a final letter (Attachment 2) to responsible parties on March 28, 2006, which requires a work plan to further investigate the source area and off-site area due by May 1, 2006, a corrective action plan due by August 1, 2006, an update on missing/damaged wells in their next monitoring report, and adjustments to the monitoring requirements. Please refer to

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Attachment 3 for Secor's proposed timeline for assessment tasks.

Board concerns

At the February 10, 2006 Board Meeting in Salinas, the Board expressed concern regarding the potential presence of dense non-aqueous phase liquid (DNAPL) PCE in the subsurface. More specifically, the concern was that DNAPL contamination is continuing to move vertically into deeper aquifers (i.e. through the Santa Margarita and into the northeast sloped Lompico aquifer). DNAPL is defined as an organic liquid that is heavier than water and only slightly soluble in water. The understanding of DNAPL and its transport in the subsurface is complicated and is dependant on many factors. Only recently (last 20 years), has the technical community become aware of DNAPLs and their characteristics in the subsurface.

When DNAPL enters the subsurface, it can vaporize into the air, attach (sorb) onto soil particles (above and below the groundwater table), dissolve into the groundwater, and even volatilize from the groundwater into air. If enough DNAPL is released, the DNAPL will travel down with gravity and may pool on top of low permeable zones (i.e., bottom of an aquifer). The dissolved portion of contamination in groundwater forms a dissolved phase plume that will not sink like DNAPL but rather will follow the flow of groundwater.

Another important consideration is that "once the release of DNAPL into the subsurface ceases, subsurface movement of DNAPL also ceases soon thereafter, perhaps within weeks or months at solvent sites. The resulting immobile DNAPL then exists in the DNAPL source zone as 'residual' non-aqueous liquid and also possible as 'free-product' accumulations ponded on lower permeability layers within aquifers, or on the tops of aquitards."¹ "Residual" DNAPL is the portion sorbed onto soil particles and

considered immobile. "Free product" pools are areas of DNAPL immobilized by semi-impermeable layers in the subsurface.

Given this understanding of DNAPL, Water Board staff believes that DNAPL movement is no longer occurring in the subsurface since the Dry Cleaners reportedly took actions to abate the discharge of PCE in 1993 (when they discovered the contamination). Furthermore, the Dry Cleaners purchased a new machine and discontinued using PCE as a solvent in 2001.

Regarding residual contamination, Water Board staff believes that most of it is present below the groundwater table since a soil vapor extraction system was operated in the source area (above the groundwater table) in 1996 (see Background section).

Based on the available data, Water Board staff does not believe large pools of free-product are present at this site. The solubility of PCE into water is about 200,000 micrograms/liter ($\mu\text{g/L}$ or ppb). The highest concentration of PCE in groundwater observed at the site is 44,000 ppb (November 1993 grab sample from boring B-1). Currently the PCE concentration observed in MW-2 (near B-1's location) is at about 400 ppb. A low permeable layer is located under the site starting at about 50 feet below ground surface. Pooled DNAPL would most likely be present on top of this layer; however, the 15 monitoring wells located above this layer have never exhibited concentrations anywhere near 200,000 ppb. Based on this data, Water Board staff has no technical reason to believe a large amount of free product or DNAPL is present at this site.

Water Board staff is concerned about the low detections of dissolved contaminants observed in MW-13B. The highest concentration of PCE observed in MW-13B was in 12 ppb in May 2005. As discussed in the Recent Progress section, the PCE concentration currently observed (0.53 ppb) is only slightly above the detection limit. Based on the discussion above and from the available data, it appears only low dissolved phase contamination exists in that area. We do not know how much dissolved phase

¹ Pankow, James F. and Cherry, John A. Dense Chlorinated Solvents and other DNAPLs in Groundwater. Portland: Waterloo Press. 1996.

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contamination is present in the deeper groundwater or the exact pathway it took to get there.

Thus, we are requiring further investigation in the source area and in deeper aquifers in order to develop a better site conceptual model. The required investigation will help to confirm or refute our current understanding and site conceptual model for this site and fill in some missing data gaps. In order to evaluate the "worst-case-scenario" situation where we believe the release occurred, we are requiring soil and groundwater investigation vertically in the source area (Attachment 2). Soil and groundwater samples taken will help evaluate the extent of residual DNAPL present. In turn, this information will help to form a site conceptual model to better understand why MW-13B has contained dissolved phase contamination.

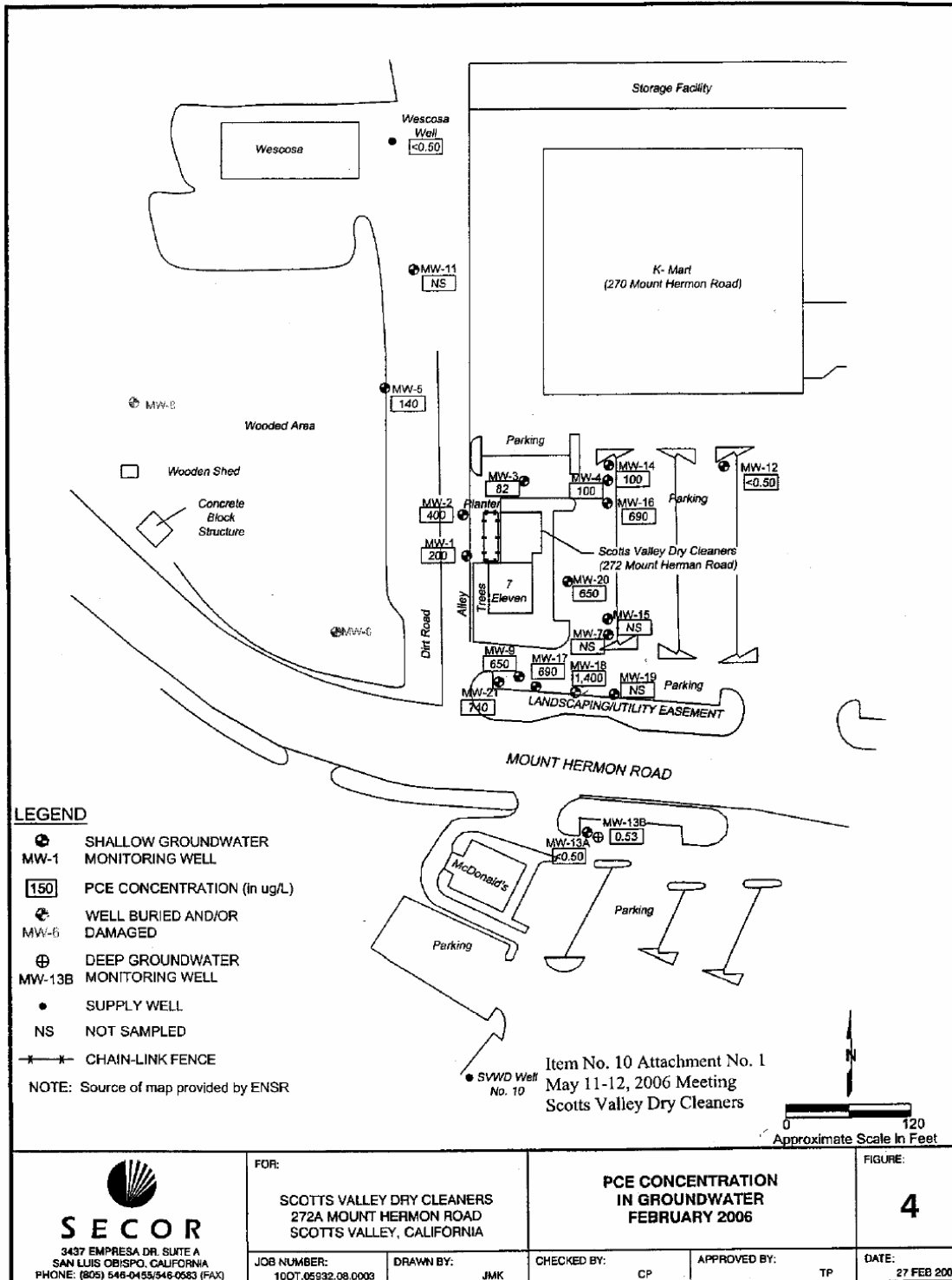
Also at the February 2006 Board Meeting, a possible corrective action recommended to the Board was to pump ahead of the dissolved phase contaminants discovered in MW-13B and before the municipal well to "cut-off" contamination. It is not standard practice to pump ahead of low dissolved phase contamination because this might pull the plume closer to the municipal well rather than

pull it away. Instead, experts recommend containing the source (highest concentration) area's groundwater to prevent further contamination to deeper and down-gradient groundwater. In particular, for the Dry Cleaner site, a typical extraction well designed for cleanup placed between MW-13B and Well 10 would most likely not "compete" with Well 10's high pumping rate and thus would have little effectiveness. Water Board staff believes an onsite pump and treat system is best to contain the contamination and prevent further spread of the dissolved phase plume. The additional investigation that will take place will aid in designing a cleanup method to target any residual DNAPL in the source area and the dissolved phase plume.

ATTACHMENTS

1. February 2006 PCE Concentration Site Map
2. Central Coast Water Board's March 28, 2006 Letter
3. Approximate Timeline of Assessment Tasks

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Mount Hermon - Scotts Villy Dry Clnr\Board Meetings\May
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California Regional Water Quality Control Board

Central Coast Region



Alan C. Lloyd, Ph.D.
Agency Secretary

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Arnold Schwarzenegger
Governor

March 28, 2006

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Dear Responsible Parties:

SLIC: SCOTTS VALLEY DRY CLEANERS, 272-A MOUNT HERMON ROAD, SCOTTS VALLEY, SANTA CRUZ COUNTY- SITE INVESTIGATION AND REMEDIATION REQUIREMENTS

Source Area and Off-Site Assessment

Central Coast Regional Water Board (Water Board) staff has received your consultant's, SECOR International (Secor), November 30, 2005 *Work Plan for Deep-Zone Monitoring Well Installation* (Work Plan). Secor proposed to install two new monitoring wells (MW-22 and MW-23) south of Mount Hermon Road between the Scotts Valley Dry Cleaner site and the Scotts Valley Water District's Municipal Well No. 10 (Well 10). Secor proposed to drill the well borings using a mud-rotary method to a maximum depth of 190 feet below ground surface (bgs) and screen the wells from 170 to 190 feet bgs. Staff has also reviewed Work Plan comments from the Scotts Valley Water District's consultant, ETIC Engineering. ETIC suggested you drill at least one of the proposed deep-zone monitoring wells to 300 feet bgs. They believe a deep-zoned monitoring well to 300 feet bgs will act more like a true sentry well to Well 10 because Well 10's first screening level starts at 280 feet bgs.

Upon careful review of the Work Plan, ETIC's comments, and historical data for this site, we believe more investigation needs to take place before deep-zone monitoring wells are installed. Water Board staff has discussed this site extensively with the Water District, Santa Cruz County, and Secor since receipt of the Work Plan and ETIC's comments. After the February 2006 Water Board meeting, we met again with Secor to identify the next appropriate actions needed to investigate and remediate this site. On March 23, 2006, we met with Secor, Scotts Valley Water District, Santa Cruz County Environmental Health Agency, and ETIC to discuss the Water Board's requirements. Based on review and discussions noted above, we request that you do not implement the Work Plan as proposed; rather you are required to submit a new work plan by

California Environmental Protection Agency



Item No. 10 Attachment No. 2
May 11-12, 2006 Meeting
Scotts Valley Dry Cleaners

May 1, 2006. This work plan shall include source-zone and off-site assessment as detailed below.

Source-zone assessment requirements:

1. Proposed soil boring(s) and monitoring well(s) to further investigate vertical contamination in the source area. The proposal must include the following minimum requirements:
 - a. Use of conductor casing or another method in conjunction with drilling, to ensure cross-contamination does not occur between different water-bearing zones.
 - b. One of the soil borings must be at least 200 feet deep.
 - c. Take soil cores continuously and examine for geology in the proposed soil boring(s) and monitoring well(s).
 - d. Collect soil samples every 5 feet or when lithology changes during drilling of the borings.
 - e. Use downhole and/or surface geophysical logs (i.e., spontaneous potential and resistivity logs) to further understand lithology and evaluate water-bearing zones.
 - f. Collect grab groundwater samples in all boreholes when groundwater is first encountered and discrete groundwater samples every 10 feet or when lithology changes. If you use an in-field groundwater analysis or submit samples under a quick turn-around-time, you may cease taking grab groundwater samples when you reach a non-detect reading.
 - g. At least one groundwater monitoring well designed to monitor the most contaminated groundwater discovered during investigations below 30 feet. Multiple groundwater monitoring wells in the source area already extend to 30 feet bgs. Also, include a proposal to include the well(s) in your quarterly sampling schedule. If groundwater monitoring data indicate more or less frequent sampling is warranted, you can propose to adjust the monitoring requirements accordingly. We suggest you consider a sieve analysis to properly design the monitoring well(s).
 - h. An investigation and reporting schedule for the proposed work.

Lastly, we suggest that you use either an air rotary drilling method or sonic drilling method rather than a mud-rotary drilling method to minimize aquifer disruption and waste material generated. We also suggest you consider general groundwater chemistry analysis for general minerals in order to distinguish between different aquifers (i.e., Santa Margarita vs. Lompico).

Off-site assessment requirements:

1. Proposed monitoring well locations to characterize the plume potentially present in the deep zone. You shall design at least one of the proposed monitoring wells as a sentry monitoring well between the contamination source and Well 10. We suggest that monitoring wells be designed to monitor groundwater at various vertical depths within the deep zone (i.e., a multi-level monitoring well or a cluster well).

2. Description of how you will better characterize site geology prior to monitoring well installation. We believe the geology needs to be better understood to properly design deep-zone monitoring wells and prevent potential cross contamination between different water-bearing zones. Currently, it is not clear to us whether the Monterey Shale is present between the Santa Margarita and Lompico aquifers. We suggest that you propose exploratory boring location(s) near the proposed monitoring well locations. You may also propose well installation in one/several of the exploratory borings.
3. Take downhole and/or surface geophysical logs to further understand lithology and water-bearing zones.
4. Proposed well depths and screen lengths for monitoring wells. We suggest you base the completed well depth(s) and screened interval(s) on lithology (from the exploratory borings suggested above). We suggest you perform a sieve analysis to properly design the monitoring well.
5. Continuously core ahead of drilling (borings and monitoring well[s]) in order to inspect and understand the geology. We suggest that you use an air rotary drilling method or sonic drilling method in order to create the least disruption of the aquifer and a better functioning monitoring well.
6. Proposed intervals to collect soil samples for analysis from the cores during the drilling process.
7. Proposed methodology to prevent cross-contamination between different water-bearing zones (e.g., conductor casing) during drilling (monitoring wells and borings).
8. A proposed investigation and reporting schedule for the proposed work.

Consider groundwater chemistry analysis for general minerals to distinguish between different aquifers.

Corrective Action Plan

As required by Cleanup or Abatement Order R3-2005-0081, you shall submit a Corrective Action Plan (CAP) by August 1, 2006. The CAP shall include a complete site conceptual model. The CAP shall propose remedial actions to clean up soil and groundwater contamination found at and migrating from this site. The CAP shall include a comparison of technologies investigated for site remediation and a proposed time schedule for implementation.

Missing or Damaged Wells

We have received Secor's December 14, 2005, *Results of Well Location Activities*. Secor performed surface excavation to locate missing wells MW-8 and MW-6. Secor located MW-8 and found it damaged. MW-6 was not located. You are required to repair MW-8 and begin quarterly sampling. You shall locate MW-6, repair or replace it, and begin quarterly sampling. MW-6 and MW-8 are important because they monitor and define the volatile organic compound (VOC) plume at and extending from this site and as sentry wells to the Bean Creek tributary, another potential receptor. Attached is *Revised Monitoring and Reporting Program (MRP) No. R3-2005-0082* that includes the requirement for quarterly sampling of MW-8 and MW-6. You are required to follow all requirements of the Santa Cruz County Environmental Health Agency

Responsible Parties

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March 28, 2006

outlined in their December 23, 2005 letter. Include a status update in your *First Quarter 2006 Groundwater Monitoring Report* due on April 20, 2006.

Monitoring and Reporting Program Changes

We have reviewed Secor's request to reduce monthly monitoring of MW-9, MW-13A, MW-13B to quarterly monitoring. We concur with reducing the sampling frequency of MW-9 because there is an active containment system in place and concentrations appear stable in MW-9. However, we require you sample MW-13A and MW-13B monthly because they are currently acting as sentry wells for Well 10. Secor also proposed to informally report (data tables, lab reports, and field sheets) MW-13A and MW-13B results to interested parties monthly and formally discuss results in quarterly monitoring reports. We have incorporated these changes into MRP No. R3-2005-0082 (Attachment 1). After installation of the additional sentry well (as required in point 1 of the off-site assessment requirements section of this document), you may propose to reduce the sampling frequency of MW-13A and MW-13B.

We suggest that you and the Water District collaborate on a cost-sharing agreement for sampling Well 10.

In addition, attached is the revised General National Pollutant Discharge Elimination System (NPDES) Permit MRP No. R3-2005-0086 (Attachment 2). We updated the second paragraph, section title *Treatment System Monitoring and Frequency & Sampling Protocols*, to include monthly sampling between granular activated carbon units.

Proposed Monitoring Method Change

Lastly, we have received your consultant's February 28, 2006 *Work Plan for Passive Diffusion Bag Sampler Demonstration Study*. Secor proposed to install three passive diffusion bags (PDBs) in MW-13B at depths of 185 feet, 190 feet, and 195 feet bgs. During the next sampling event, Secor will sample the three bags in addition to traditional purging sampling methods. For the following two months, Secor will sample groundwater using one PDB, placed at the area of highest concentration, and traditional purging sampling methods. After three months, Secor will evaluate the two sampling methods and propose a monitoring method. We concur with the Work Plan as outlined above. You must submit all sampling data and obtain Water Board approval for the chosen monitoring method.

The Water Board's requirement that you submit site investigation work plans and groundwater monitoring reports is made pursuant to Section 13267 of the California Water Code. Pursuant to Section 13268 of the Water Code, a violation of a Water Code Section 13267 requirement may subject the discharger to civil liability of up to \$1,000 per day for each day in which the violation occurs.

The Water Board needs the required information to evaluate the extent of VOCs in groundwater beneath and potentially migrating from the site. The discharger is required to submit this information because soil and groundwater contamination has been detected at this facility, and based on the available data you are responsible for the discharge. More detailed information is available in the Central Coast Water Board's public file on this matter.

California Environmental Protection Agency



Responsible Parties

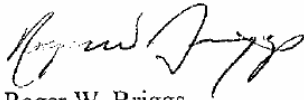
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March 28, 2006

Any person affected by this action of the Water Board may petition the State Water Resources Control Board to review the action in accordance with Section 13320 of the California Water Code and Title 23, California Code of Regulations, Section 2050. The petition must be received by the State Board, Office of Chief Counsel, P.O. Box 100, Sacramento, CA 95812 within 30 days of the date of this order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

Please direct questions regarding this letter to Karyn Steckling at (805) 542-4642 or Sheila Soderberg at (805) 549-3592.

Sincerely,



Roger W. Briggs
Executive Officer

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Attachments: 1. Revised MRP No. R3 2005-0082
2. Revised MRP No. R3-2005-0086

cc:

Mr. Chris Prevost, SECOR International Incorporated
Mr. Scott Carson, Santa Cruz County Environmental Health Services
Mr. Charles McNiesh, Scotts Valley Water District
Mr. Jim Mueller, San Lorenzo Water District
Ms. Sandy Woodruff, Valley Gardens Golf Course
Ramsey Taufek H. Trust

California Environmental Protection Agency



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

**MONITORING AND REPORTING PROGRAM NO. R3-2005-0082
(Revised March 28, 2006)**

CONCERNING

**SCOTTS VALLEY DRY CLEANERS
272 MOUNT HERMON ROAD
SCOTTS VALLEY
SANTA CRUZ COUNTY**

GROUNDWATER MONITORING

Groundwater samples shall be collected from wells with sufficient groundwater according to the following schedule:

<u>Minimum Frequency of Analysis</u>	<u>Wells</u>
Monthly	MW-13A, MW 13-B, and any additional sentry monitoring wells installed
Quarterly	MW-1, MW-2, MW-4, MW-6, MW-7, MW-8, MW-9, MW-14, MW-15, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and any additional wells installed
Semiannually	MW-3, MW-5, MW-11, MW-12, MW-19, and Wescosa Well

Depth to groundwater (to 0.01 feet accuracy) shall be measured in each monitoring well before it is purged and sampled. (Depth to groundwater will not be obtained in extraction wells on monthly, quarterly, and semiannual basis unless the groundwater extraction system is turned off for a significant duration of time.) Before sampling, each well shall be properly purged until measurements of the following parameters have stabilized; temperature, pH, specific conductance, turbidity, and dissolved oxygen. You may use another sampling method approved by the Executive Officer instead of traditional purge sampling. After purging, groundwater samples shall be collected and analyzed for all halogenated volatile organic compounds (HVOCs) listed in EPA Test Method 8260B/8021B including the following analytes:

- tetrachloroethene (PCE)
- trichloroethene (TCE)
- cis-1,2-dichloroethene (cis-1,2 DCE)
- trans-1,2-dichloroethene (trans-1,2 DCE)
- 1,1,1-trichloroethane (TCA)
- vinyl chloride
- trichlorotrifluoroethene

The detection limit for individual HVOCs shall not exceed 0.5 micrograms per liter (µg/L).

M&RP No. R3-2005-0082

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March 28, 2006

All analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services or at laboratories approved by the Executive Officer. Unless otherwise noted, all sampling, sample preservation, and analyses shall be performed in accordance with the latest edition of *Test Methods for Evaluating Solid Waste*, SW-846, United States Environmental Protection Agency, and analyzed as specified herein by the above analytical methods and detection limits indicated.

REPORTING

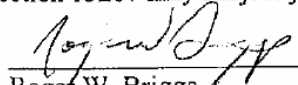
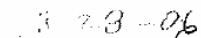
Monthly data will be presented formally in quarterly reports and informally (data tables, lab reports, and field sheets) via facsimile or email on a monthly basis. Quarterly reports are due on the 20th day of the month following the end of the quarter (in January, April, July, and October). Semiannual reports are due on the 20th day of the month following the end of the 1st and 3rd quarters (April and October). Monitoring reports shall include the following:

1. Tables showing all current and previous monitoring information required herein, including analytical results, and groundwater elevations.
2. Scaled maps showing locations of all monitoring wells, groundwater contours and direction of groundwater flow.
3. An evaluation and interpretation of all available data; including plume contours for HVOCs.
4. A table showing well-completion information, including total depth and screened intervals.
5. Copies of certified laboratory analytical reports, chain of custody records, and applicable field logs for the current monitoring data.
6. A signature and stamp of a registered professional attesting, under penalty of perjury, that the report is true and accurate.

The Executive Officer may revise or rescind this MRP as additional information becomes available.

These requests are made pursuant to the provisions of Section 13267 of the California Water Code. Pursuant to Section 13268 of the Water Code, a violation of a request made pursuant to Water Code Section 13267 may subject you to civil liability of up to \$1,000 per day.

Ordered By:


Roger W. Briggs
Executive Officer

Date

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

**MONITORING AND REPORTING PROGRAM NO. R3-2005-086
GENERAL NPDES PERMIT NO. CAG993002**

For

**DISCHARGES OF HIGHLY TREATED GROUNDWATER TO SURFACE WATERS
(Revised March 28, 2006)**

Discharges regulated under General NPDES Permit No. CAG993002 shall be subject to the following requirements unless such requirements are modified or waived by the Executive Officer. **Additional requirements may be added by the Executive Officer, if needed to adequately assure compliance with the permit. This Monitoring and Reporting Program may be revised as necessary by the Executive Officer.**

TREATMENT SYSTEM MONITORING

TREATMENT SYSTEM DEFINED

The ground water extraction and treatment system consists of ground water extraction from designated extraction wells and treatment by a grit filter and three 1,000 lb granular activated carbon (GAC) canisters in series. The highly treated groundwater is then discharged into the City of Scotts Valley storm drain system.

TREATMENT SYSTEM MONITORING FREQUENCY & SAMPLING PROTOCOLS

The volume and flow rate of water extracted from the wells and discharged to the storm drain system or surface water shall be measured continuously during treatment system operation. A treatment system operational log shall be maintained documenting periods of system operation, shutdown, and maintenance.

The treatment system shall be sampled weekly during the first month of operation and monthly thereafter. Representative samples shall be collected from the extraction wells or a designated sampling port prior to the three 1,000 lb GAC canisters in series, between each carbon vessel, and downstream of the final carbon vessel to evaluate treatment system efficiency and monitor for contaminant breakthrough. Representative samples collected from between and after the carbon vessels shall be submitted under a two-week turn around time to evaluate for potential treatment system breakthrough, or for replacement of carbon media and rotation of carbon vessels. Sampling frequency may be modified based on actual system performance and the written concurrence of the Executive Officer.

All groundwater extraction, treatment and discharge system samples shall be analyzed for all applicable groundwater pollutants specific to the discharge. All samples shall be collected, preserved, and analyzed in accordance with the most recent edition of *Test Methods for Evaluating Solid Wastes* (SW-846, United States Environmental Protection Agency). Samples shall be submitted under chain of custody and analyzed by a California Department of Health Services certified laboratory.

At a minimum, sampling and analysis of the groundwater extraction, treatment and discharge system for the cleanup of volatile organic compound related spills shall be conducted in accordance with the following analytical methods:

MRP No. R3-2005-086

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March 28, 2006

Compound	Units	Sample Type	EPA Method	Practical Quantification Limit (µg/L)
tetrachloroethene	micrograms/liter (µg/L)	Grab	8260/8021*	0.5
trichloroethene	µg/L	Grab	8260/8021*	0.5
1,2-dichloroethane	µg/L	Grab	8260/8021*	0.5
vinyl chloride	µg/L	Grab	8260/8021*	0.5
1,1 dichloroethene	µg/L	Grab	8260/8021*	0.5
cis 1,2-dichloroethene	µg/L	Grab	8260/8021*	0.5
trans 1,2 dichloroethene	µg/L	Grab	8260/8021*	0.5
1,1,1 trichloroethane	µg/L	Grab	8260/8021*	0.5

* EPA Method 624 is an acceptable alternative method

The minimum reporting concentration of the above-listed analytes shall not exceed respective Maximum Contaminant Levels (MCLs) or applicable EPA or other regulatory standards. Requests for changes in monitoring frequency and analyte analysis shall be submitted in writing for Water Board staff review and Executive Officer approval.

DISCHARGE MONITORING

Representative samples of the discharge shall be collected and analyzed as follows:

Constituents	Units	Type of Sample	Sampling frequency
pH	pH Units	Grab	Annually in September
Total Suspended solids	mg/L	Grab	Annually in September
Total Dissolved Solids	mg/L	Grab	Annually in September
Temperature	°F	Grab	Annually in September
Turbidity	NTU	Grab	Annually in September
Dissolved Oxygen	mg/L	Grab	Annually in September
Acute Toxicity	TUa	Grab	Annually in September

DISCHARGE PROHIBITIONS

The discharge must be in compliance with the provisions of the General Permit. Item B of the discharge prohibitions stated in the General Permit requires "The discharge shall not contain concentrations of pollutants in excess of applicable water quality objectives." Applicable water quality objectives are as follows:

Volatile Organic Compounds	Concentration	Units
tetrachloroethene	5.0 ¹	Micrograms/liter (µg/L)
trichloroethene	5.0 ¹	µg/L
1,2-dichloroethane	0.5 ¹	µg/L
vinyl chloride	0.5 ¹	µg/L
1,1 dichloroethene	6.0 ¹	µg/L
cis 1,2-dichloroethene	6.0 ¹	µg/L
trans 1,2 dichloroethene	10.0 ¹	µg/L
1,1,1 trichloroethane	200.0 ¹	µg/L

¹ California Primary Maximum Contaminant Level (MCL)

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RECEIVING WATER MONITORING

In addition to the monitoring requirements stated above, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations RW-1 (100 feet upstream of the discharge point) and RW-2 (100 feet downstream of the discharge point). At a minimum of quarterly, the discharger shall record the visual observations made of the receiving water for the presence or absence of:

- | | |
|--|--------------------------------------|
| a. Floating or suspended matter in the water | b. Discoloration of the water |
| c. Bottom deposits | d. Visible films, sheens or coatings |
| e. Fungi, slimes, or objectionable growths | f. Potential nuisance conditions |

REPORTING

Quarterly reports shall be submitted on the **30th day of the month** following each calendar quarter, i.e. **January, April, July, and October**. The quarterly report shall contain at a minimum results from the monitoring specified above and the treatment system operational log. A letter signed in accordance with Standard Provision 13, certifying compliance with this General Permit shall be submitted with the quarterly report. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, constituents, and concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements.

In addition to the above, the following reporting elements are required:

- A treatment system operational summary discussing extraction and discharge water volumes and flow rates, quarterly and cumulative contaminant removal estimates, system operation and shut-down periods, maintenance, and any non-routine operational changes made to the groundwater extraction, treatment and discharge system during the reporting period;
- A detailed discussion of treatment system performance, including recommended modifications;
- A site map showing extraction wells, monitoring wells, and the storm drain, or surface water, discharge location; and
- A treatment system diagram/schematic showing system configuration and associated piping, flow path, and sampling locations.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Monitoring and Reporting Program, the results of such monitoring shall be included in the monitoring reports.

These reports are required pursuant to Section 13267 of the California Water Code. Pursuant to Section 13268 of the Water Code, a violation of a request made pursuant to Section 13267 may subject you to civil liability assessment of up to \$1,000 per day.

Ordered By

Executive Officer

Date