



California Regional Water Quality Control Board

San Diego Region



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October 20, 2010

In reply refer to:
SL209094184:rpierce

Mr. Ed Modiano
De Maximus/Chatham Site PRP Group
1322 Scott Street, Suite 104
San Diego, California 92106

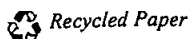
Dear Mr. Modiano:

SUBJECT: CHATHAM BROTHERS BARREL YARD SITE, 2257 BERNARDO AVENUE, ESCONDIDO, SAN DIEGO COUNTY, CALIFORNIA 92025 (Site ID #2090900)

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) received and reviewed the 5 Year Remedy Review Report (Report) dated June 29, 2010 and prepared for the subject Site on behalf of the Chatham Site PRP Group (Group) by Hargis + Associates, Inc. The Report evaluates the remedy performance on contaminated groundwater at the Site during the previous 5-year period. The San Diego Water Board has the following comments:

1. **Unauthorized Discharge:** The Report provides evidence that the plume is migrating and discharging to surface water in Felicita Creek at concentrations above water quality objectives. The Group, therefore, is in violation of each of these discharge prohibitions in the *Water Quality Control Plan for the San Diego Basin (9) (Basin Plan)*:
 - a. discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance;
 - b. discharge of pollutants to waters of the US except as authorized by an NPDES permit;
 - c. discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives (dilution allowances may be made at the discretion of the San Diego Water Board);
 - d. discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger, unless authorized by the San Diego Water Board; and
 - e. dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, unless authorized by the San Diego Water Board.
2. **Surface Water:** The first remedial action objective (RAO) for groundwater is to "prevent ingestion of groundwater that contains contaminants at concentrations

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exceeding the MCLs." The groundwater is surfacing into Felicita Creek at concentrations exceeding MCLs, at which point the first RAO may not be reliably met. It is more difficult to control exposure to surface water than groundwater without limiting the public use of Felicita County Park. The discharge of waste constituents from groundwater into Felicita Creek is causing the direct exposure of human and ecological receptors to waste constituents that originate from the Site. There is no specific surface water RAO, though site conditions indicate one is needed.

3. **Groundwater Natural Attenuation:** The Report summarizes that one RAO is to "monitor groundwater chemistry outside the Yard to demonstrate that, over time, on-Yard remediation and natural attenuation processes are improving water quality in the off-Yard groundwater plume." The actual RAO is to "remediate groundwater within the Property to HBCLs and the groundwater outside of the Property to MCLs." It is unacceptable to summarize while leaving out the reference to MCLs.

The mechanisms for natural attenuation include biodegradation, dispersion, dilution, sorption, and/or volatilization of contaminants, however the preferred mechanism is degradation, not cross-media transfer of contaminants such as unauthorized discharges to Felicita Creek. Changing concentrations indicate that while attenuation may be occurring, it is not effectively preventing migration of contaminants. Concentrations increased at the leading edge of the plume and in Felicita Creek between June 2004 and March 2010:

- a. 5 ug/L trichloroethylene isoconcentration contour is approximately 600 feet further downgradient,
- b. 5 ug/L tetrachloroethylene isoconcentration contour is approximately 1,200 feet further downgradient,
- c. presence of up to 15 ug/L 1,4-dioxane in multiple wells that did not have detectable concentrations at 1 ug/L, and
- d. temporal increase in contaminant concentrations in downgradient monitoring wells MW-54, Fleet 1, MW-57/67, Schnoebelen 1, Grubbs 1, and Felicita Creek location FC-4.

Further, the report states that any increase down-gradient is offset by reduced concentrations along the plume axis indicating the plume is attenuating, not simply migrating. The intent of this statement is unclear because these are not mutually exclusive conditions. Contamination is not "offset" between locations, and the reduction along the plume does not necessitate an increase down-gradient. While the evidence strongly supports attenuation in portions of the plume, the plume is migrating as concentrations increase down-gradient, which suggests that attenuation is not effectively remediating groundwater to MCLs and the RAO is not being met. The rate of natural attenuation is not presented or discussed in the Report. Since quarterly groundwater monitoring activities have been conducted at the Site over the past 17 years, there should be sufficient groundwater data to

calculate the rate of natural attenuation. This is a critical factor for evaluating and supporting conclusions regarding long-term protectiveness of the remedial action and needs to be calculated.

4. **Report Deficiencies:** It is important that field equipment be calibrated and maintained to ensure accurate measurements are acquired during future field activities. Field parameters are indirect lines of evidence that can be used to screen, identify, and monitor natural attenuation processes. During a preliminary review of groundwater sampling logs contained within the "Annual Monitoring Submittal, March 2010, Chatham Site" prepared by Hargis and Associates, Inc., dated May 28, 2010, some of the field parameter measurements do not correlate with expected values and raise concerns regarding the validity of the measurements. As an example, a sample with a dissolved oxygen (DO) concentration of 12.80 had a temperature of 21.68. The maximum DO concentration that can be achieved in waters of this temperature is 8.53 to 8.68 (Drever, 1982).¹ Additionally, DO and oxidation reduction potential (ORP) measurements were not correlated.
5. **Groundwater Remediation System (GRS) Optimization:** The San Diego Water Board concurs with the recommendation to continue operating the GRS with adjustments to optimize performance.
6. **Soil Vapor Extraction (SVE) System:** The San Diego Water Board concurs with the recommendation to shutdown the SVE system.
7. **Scope of Groundwater Monitoring:** The San Diego Water Board does not concur with the recommendation to revise the scope of groundwater monitoring. The stated basis for the revision is the "stable record of water levels and water quality" despite increasing concentrations at the leading edge of the plume. The discharge of contaminated groundwater to surface water varies seasonally, sometimes significantly, due to precipitation, infiltration, and exfiltration. Recently installed sentry wells down-gradient of the plume do not have a historical monitoring record for comparison. Typically, the extent of chlorinated solvent plumes within fractured bedrock are defined with a series of wells oriented perpendicular to the estimated direction of groundwater flow to provide a higher level of confidence in plume delineation. The geologic setting is a fractured bedrock aquifer through which groundwater moves preferentially through discrete pathways. There is a high level of uncertainty in the hydrogeology and extent of contamination at the Site.
8. **Monitoring and Sampling Plans:** The San Diego Water Board recommends that the Monitoring and Contingency Plan, Sampling and Analysis Plan, and Quality Assurance Project Plan updates be combined into a single plan due to the similar content of the plans. The single plan should eliminate redundancy while

¹ Drever, J. I., 1982, *The Geochemistry of Natural Waters*, Prentice-Hall, Inc.

documenting the scope, timing, rationale, and contingencies for monitoring progress toward the RAOs.

9. **Protectiveness Statements:** The Report indicates that the lack of consumptive use of groundwater and administrative restrictions on new wells contributes to the groundwater remedy. These tools should be considered a last resort to protect public health because they restrict the free use of property (i.e. the contamination causes a nuisance to property owners), are difficult to monitor and difficult to enforce.

CONCLUSION

The San Diego Water Board has not authorized the use of Felicita Creek to dispose of waste associated with the Site. This discharge is a violation of several prohibitions in the Basin Plan. The active remedial alternatives at the Yard have made significant progress to reduce and contain contamination within the Yard property. The Yard property is controlled by the Group to reduce exposure risk. The natural attenuation alternative down-gradient, however, has not effectively limited the migration of contamination outside the Yard. The contamination extends to lands that are not under control of the Group, where it is allowed to discharge to surface water for the purpose of disposal. The RAOs established through the Group consent decree are not being met.

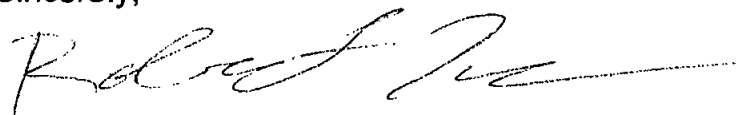
Remediation at the Yard may reduce the impact to down-gradient receptors over the long term, but current trends indicate that the short-term impact will worsen. Further action is required to prevent unauthorized discharge of waste and to remediate groundwater to MCLs.

Pilot studies demonstrate the effectiveness of several remedial alternatives. The Group should evaluate focused remedial efforts to remove or treat contamination. Active remediation may provide long-term cost savings over monitoring and reporting for an indefinite period of time, and would provide greater effectiveness and expedience than extended monitored natural attenuation.

If you have any questions, or require additional assistance, please contact me at (858) 627-3935 or by e-mail at rpierce@waterboards.ca.gov.

**IN ALL FUTURE CORRESPONDENCE, PLEASE REFER TO
SL209094184:RPIERCE**

Sincerely,



Robert Pierce, P.E.
Water Resources Control Engineer
Cleanup and Land Discharge Branch

REP:cl:rep

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