FINAL CLEANUP PLAN PROPOSED FOR TIDAL WETLAND PORTION OF 1990 BAY ROAD SITE

May 2005

SUMMARY

The San Francisco Bay Regional Water Quality Control Board (Water Board) announces a Proposed Plan and Tentative Order for cleanup in the wetland portion of the 1990 Bay Road Site, located in the industrial area of the City of East Palo Alto, California. This fact sheet describes the proposed cleanup plan, presents findings from an evaluation of cleanup alternatives, and identifies ways members of the public can comment on the proposed plan.

The Water Board is the lead agency with oversight responsibility for the 1990 Bay Road Site, but other regulatory agencies are also involved in the process of selecting an appropriate cleanup plan for the wetland, including the U. S. Environmental Protection Agency, the U. S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration and the California Department of Fish and Game.

The proposed plan for the wetland portion of the 1990 Bay Road Site is to continue groundwater monitoring at the site, to conduct periodic monitoring of ground surface elevations (to evaluate whether or not erosion would expose contaminated sediments or soils currently found below the surface of the wetland), and to provide an offset (a form of compensation) for the wetland habitat values that have been affected by the site. No removal of contaminated sediments or soils is proposed, because such excavation would destroy high value tidal wetland habitat while removing contaminants that do not pose any substantial risk to plants and animals, including endangered species found in the area.

Tell us what you think…

The Regional Water Quality Control Board will be accepting public comments on the proposed plan. Your input is important to us and to the project's success. The information below tells how you can become involved.

PUBLIC COMMENT PERIOD - June 6 to July 5, 2005

PUBLIC MEETING - Saturday, June 18, 2005, 10:00 a.m. to noon

(see page 6 for details and information about where you can review site documents)

SITE BACKGROUND

The site is located in the City of East Palo Alto, California, along the western shore of San Francisco Bay (see Figure 1). The approximately 26-acre site is defined to include areas with arsenic concentrations in soil greater than 20 milligrams per kilogram (mg/kg). Arsenic is the primary contaminant of concern at the site, although other metals have been found at elevated concentrations. Arsenic is also found in shallow groundwater at the site, but in an area smaller than the affected soil area. The shallow groundwater affected by arsenic is not used for drinking water purposes, as it is saline due to its proximity to the Bay. Arsenic has not been found at elevated concentrations in deeper groundwater aquifers.

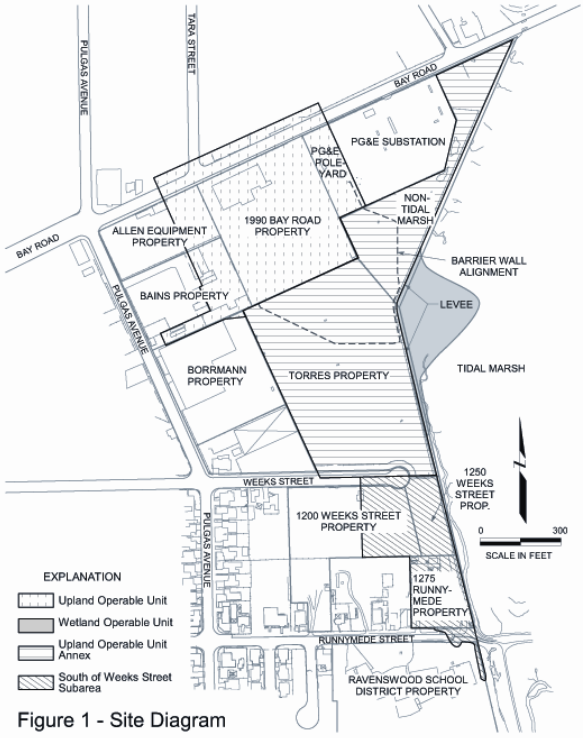

Figure 1 – Site Diagram

The site encompasses the five-acre former manufacturing plant property located at 1990 Bay Road, as well as portions of surrounding properties. These include partly developed commercial and industrial properties to the north, south, east and west; residential and mixed-use properties to the south; and a small portion (about two acres) of the tidal wetland located beyond a levee east of the 1990 Bay Road property (see Figure 1).

The 1990 Bay Road property was used to formulate agricultural chemicals for more than 70 years. From the 1920s until 1964, the property was owned by Chipman Chemical Company and used for manufacturing arsenic-based products, such as weed control compounds. In 1964, Rhodia Inc., acquired Chipman and continued operations at the property until the late 1960s. In 1971, Rhodia sold the property to Zoecon Corporation, which began manufacturing operations in 1972, after expanding site facilities. Zoecon (which later became Sandoz Agro Inc.) manufactured biorational insect controls at the facility. In 1994, Rhône-Poulenc Inc. (Rhodia's successor) repurchased the property, then leased the factory to Catalytica, Inc., which manufactured chemicals and pharmaceutical intermediates there until 2001. The plant and office facilities were demolished in the spring of 2002 to facilitate site cleanup work. The 1990 Bay Road property is now vacant, except for an empty warehouse structure adjacent to Bay Road. In 1999, Rhône-Poulenc became Aventis CropScience, Inc. When Aventis CropScience was sold to Bayer in 2002, the property was transferred to StarLink Logistics, Inc. (SLLI), an indirect, wholly owned subsidiary of Aventis SA.

Site investigation and cleanup activities have been taking place at the site since the early 1980s. The Water Board approved division of the site into several subareas, as shown on Figure 1, so that cleanup of the upland (or non-wetland) portions of the site could proceed while wetland studies continued. Substantial remedial activities have been completed for the non-wetland portions of the site (including the Upland Operable Unit, the Upland Operable Unit Annex, the South of Weeks Street Subarea and Groundwater). Actions taken to address contaminants in these areas have included a combination of soil removal, on-site soil treatment, capping and deed restrictions, construction of an underground barrier wall, and phytoremediation (the planting of trees to control groundwater movement). This fact sheet describes actions being considered to address only the remaining Wetland Operable Unit.

SCOPE OF THE PROPOSED PLAN

Cleanup activities required under Water Board Orders have been completed for all areas of the site, except for the Wetland Operable Unit. This Proposed Plan addresses the final remedial considerations for the 1990 Bay Road Site--that is, what to do about elevated levels of arsenic and other metals found in a limited portion of the Wetland Operable Unit. The arsenic was found near the bend in the levee, in a healthy tidal wetland that provides relatively high value wetland habitat to many species, including the endangered California Clapper Rail and Salt Marsh Harvest Mouse.

SUMMARY OF SITE RISKS

Based on health-based cleanup goals for commercial and industrial properties, the concentrations of arsenic found in the wetland sediment do not represent a public health risk requiring cleanup. Therefore, the primary objective of remediation in the tidal wetlands is to protect ecological resources, especially endangered species such as the Clapper Rail and the Salt Marsh Harvest Mouse.

Analyses have shown that the concentrations of arsenic in surface water in the tidal wetland adjacent to the site are about the same as concentrations found in other wetlands on San Francisco Bay. Concentrations of arsenic found in wetland sediment, however, are above current target levels for endangered species habitat.

The Remedial Investigation Report for the site concluded that the average background arsenic concentration in soil at the site is about 9 mg/kg. Because individual samples may vary significantly from the average, however, soil containing arsenic in excess of 20 mg/kg is considered to be affected by activities at the site.

As required by the US Fish and Wildlife Service, "target low levels" for arsenic and zinc at the site were set based on ambient levels measured in San Francisco Bay and maximum levels found at nearby marshes. These levels are set to be very protective of the endangered species in the Site vicinity. The amount of tidal wetland where surface sediment contains arsenic concentrations above target levels for endangered species is approximately 0.9 acres of the 90-acre wetland adjacent to the site. Other elevated sediment concentrations were found at depths greater than 5 feet below surface, but these sediments are not accessible to ecological receptors, which forage primarily in the top 6 inches of sediment.

The Ecological Assessment completed in 1994, the Ecological Risk Assessment completed in 1998 and the Endangered Species Risk Calculations completed in 2004 for the site concluded that the wetland is healthy and that there is no evidence of significant risks to ecological receptors from the site. Based on investigations, less than one acre of wetland surface is affected by arsenic, and remedial actions that have been completed in the non-wetland portions of the 1990 Bay Road have eliminated or minimized the potential for future site impacts on the tidal wetland.

CLEANUP GOAL

The remedial goal developed for the wetland portion of the 1990 Bay Road Site is to preserve and protect the habitat value of the tidal wetlands. This cleanup goal was used to identify and evaluate remedial alternatives (or best methods to address the contamination).

ALTERNATIVES EVALUATED

Several alternative technological approaches were identified for addressing the affected sediment in the tidal wetland. These were developed into three potential project alternatives. As required by the USEPA, one of these alternatives is the "No Action" alternative (to provide a basis for evaluating the relative costs and protectiveness of other alternatives analyzed) and another was a maximum cleanup alternative that would minimize the need for long-term management of the site. The three alternatives are described below:

Alternative 1 - No Action. No action would take place in the Wetland Operable Unit, except for continued groundwater monitoring of the shallow and deep aquifers that is part of the Upland Operable Unit remedy.

Alternative 2 – Topographic Monitoring and Wetland Offset. In addition to continued groundwater monitoring, monitoring of the wetland ground surface elevations (topographic monitoring) would be conducted in the vicinity of the bend in the levee, where elevated levels of arsenic were found at a depth of 5 feet or more below surface. The purpose of this periodic monitoring would be to evaluate whether erosion occurs that could expose the deeper sediments to the surface. If this does occur, a contingency plan would be developed and implemented. This alternative would also involve enhancing approximately one acre of nearby wetland habitat as compensation for the minor loss of habitat quality caused by the site.

Alternative 3 – Excavation of Surface Soil, Topographic Monitoring and Wetland Offset. This alternative would involve excavation of surface arsenic-affected sediments (upper one foot of marsh or slough surface) in the wetland and sloughs near the bend in the levee and re-filling the excavations with clean soil. Excavation of deeper sediments (between 5 and 11 feet deep) was not considered, because the damage to the wetland caused by such a major excavation is not warranted to remove the inaccessible and immobile arsenic-affected sediments found at depth.

EVALUATION OF ALTERNATIVES

USEPA regulations specify nine criteria to be used for selecting an appropriate cleanup plan. Two of the nine criteria--State acceptance and community acceptance--cannot be assessed until the alternatives have been submitted for agency review and public comment. Therefore, each of the alternatives is evaluated against the remaining seven criteria, which are described below (the first two are *threshold criteria* that must be met, and the other five are *balancing criteria* that are considered by agency decision makers):

1) **Overall protection of the environment**—ability to achieve the remedial goal and reduce both short-term and long-term potential for human or animal exposure to residual toxins;

2) **Compliance with applicable or relevant and appropriate requirements (ARARs)—**ability to comply with any regulatory requirements that may apply to cleanup of the site, given its location and the chemicals of concern.

3) **Ease of implementation**--ability to implement the alternative, based on availability of technology and any materials or services required to implement it, as well as unique site conditions and administrative considerations;

4) **Short-term effectiveness**—ability of the alternative to protect human health and the environment during remediation and until cleanup objectives are reached;

5) **Long-term effectiveness**—ability to protect human health and the environment after remedial goals have been met; reliability of long-term engineering or institutional controls;

6) **Reduction of mobility, toxicity, and volume**—ability to meet the statutory preference for achieving permanent solutions that reduce the need for long-term monitoring or management; and

7) **Cost**—relative cost of the alternative, including consideration of capital costs, as well as the costs of annual operations, maintenance and monitoring.

Table 1 summarizes how each of the three remedial alternatives identified for the 1990 Bay Road Site meets these evaluation criteria. All three alternatives would achieve the remedial goal, to preserve and protect the habitat value of the tidal wetland, in the long term. In the short term, Alternative 3 would not be protective of the wetland, because during implementation a currently high value tidal wetland would be significantly disturbed and would be reduced to zero habitat service (there would be no habitat until the marsh vegetation was restored). Alternative 1 is already being implemented and would not require additional costs. Alternative 2 is easily implemented with relatively low costs. Alternative 3 would be difficult to implement in a wetland environment. In addition, Alternative 3 requires planning and coordination with other federal and state agencies (such as the U. S. Army Corps of Engineers and the Bay Conservation and Development Commission) that could take an additional several years to complete. In summary, Alternative 2 would be more effective than Alternative 1 (No Action) and less disruptive to the healthy, functioning wetland than Alternative 3. For these reasons, the preferred alternative or proposed plan is Alternative 2.

THE PREFERRED ALTERNATIVE

The preferred alternative is to continue groundwater monitoring of the deep and shallow aquifers and to conduct topographic monitoring of the wetland surface near the bend in the levee every five years for thirty years (Alternative 2). If the results indicate that natural erosion is exposing elevated concentrations of arsenic--which are currently buried at depth--a contingency plan would be developed. If, after 30 years of monitoring, the results indicate that erosion is not occurring, topographic monitoring would cease. In addition, an offset of one acre of the Cooley Landing Salt Pond restoration area would be provided in recognition of the minor loss of wetland habitat quality caused by the 1990 Bay Road Site.

Based on information currently available, Water Board and USEPA representatives believe that Alternative 2 meets the threshold criteria and provides the best balance of tradeoffs among alternatives with respect to the evaluation criteria. The lead agency expects this alternative to 1) be protective of human health and the environment, 2) comply with ARARs, 3) be cost-effective, 4) use appropriate technologies, and 5) be easily monitored for effectiveness.

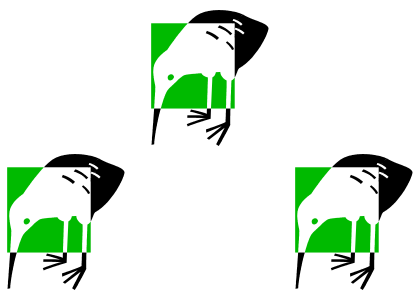

Table 1 – Alternative Evaluations

	EVALUATION CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2 – *PREFERRED ALTERNATIVE*	ALTERNATIVE 3
Threshold Criteria	Overall Protection of the Environment	Protectiveness would be the same as under current conditions.	Protectiveness would be similar to current conditions in the short term and would be more protective in the long term.	Would be less protective than under current conditions in the short term because the habitat service would be reduced to zero; would be more protective in the long term.
	Compliance with ARARs	Would comply with ARARS; would exceed chemical thresholds for the clapper rail and salt marsh harvest mouse in 0.9 acres and would not provide offsets for the loss of habitat service.	Would comply with ARARs; would exceed chemical thresholds for the clapper rail and salt marsh harvest mouse in 0.9 acres and would provide offsets for the loss of habitat value with acreage from the restored Cooley Landing Salt Pond.	Would comply with ARARs. Excavation activities would be coordinated with the Army Corps of Engineers and BCDC. The loss of habitat value would be offset with acreage from the restored Cooley Landing Salt Pond.
Balancing Criteria	Ease of Implementation	Already implemented.	Easily implemented.	Difficult to implement in a wetland environment and may require several years to coordinate with other regulatory agencies.
	Short- and Long-term Effectiveness	The short-term effectiveness would be similar to current conditions, i.e., a moderate loss in habitat value in the 0.9 acres. The habitat value would be restored in about 50 years.	The short-term effectiveness would be similar to current conditions, i.e., a moderate loss in habitat value in the 0.9 acres. The habitat value would be restored in about 50 years. In the unlikely event that topographic monitoring indicates erosion of sediment, a contingency plan would be developed and implemented.	In the short term, excavation of 1,500 cubic yards of soil would destroy the habitat value in the 0.9 acre where sediment would be excavated and in the 0.05 acre that would be needed to access the excavation areas. The wetland would slowly return to current conditions in about 50 years. In the unlikely event that topographic monitoring indicates erosion of sediment, a contingency plan would be developed and implemented.
	Reduction of Mobility, Toxicity, and Volume	No reduction in mobility, toxicity, or volume.	No reduction in mobility, toxicity, or volume.	Small reduction in mobility, toxicity, and volume due to excavation of soil.
	Cost (net present value, 30 years)	$0	$ 116,000	$555,000

GET INVOLVED! - PUBLIC PARTICIPATION OPPORTUNITIES

The public comment period on this Proposed Plan will extend from June 6 through July 5, 2005. Your comments to the Water Board are invited. All written and verbal comments received by the Water Board will be considered prior to the selection of a final cleanup plan.

Written Comments: Written comments postmarked no later than July 5, 2005, should be sent to:

Mark Johnson
RWQCB
1515 Clay Street, Suite 1400
Oakland, CA 94612

E-mail Comments: Comments submitted via e-mail may be sent by e-mail to: mjohnson@waterboards.ca.gov.

Community Meeting: A public meeting will be held on the Proposed Plan on:

Date: Saturday, June 18, 2005
Time: 10:00 a.m. to noon
Location: The Greenhouse
Address: 1992 Bay Road, East Palo Alto, California

Local Information Repository: Documents related to the 1990 Bay Road Site are available for public review in the Reference section of the public library located at 2415 University Avenue in East Palo Alto, California. Call (650) 321-7712 for information on library hours. The full Administrative Record for the 1990 Bay Road Site is located in the File Room of the Regional Water Quality Control Board's office in Oakland.

For Further Information: If you have questions or comments about the 1990 Bay Road Site or the Proposed Plan for the wetland, you may call Mark Johnson at (510) 622-2493. Alternatively, you may call Mara Feeney, community outreach consultant for the 1990 Bay Road Site, at (650) 326-9222.

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INSIDE: Information on the Proposed Plan for the 1990 Bay Road Site