



H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS

November 13, 2001

Ms. Jane Anderson
Zeneca Inc.
1391 South 49th Street
Richmond, CA 94804-4610

RE: Evaluation of the Zeneca Richmond Facility as Salt Marsh Harvest Mouse Habitat.

Dear Ms. Anderson

I visited the Zeneca Richmond site on November 2, 2001 in the company of William Carson, Senior Project Engineer and Katherine Kobrin, Staff Scientist, both of LFR. For ease of description in the following report I describe east and west as being parallel to the Bay Trail at the south edge of the site and north as being perpendicular to it even though all these "compass" directions are approximately 20 degrees off of the true ones.

1. The vegetation of the site

- A. The Cinder Land Fill is covered with upland ruderal vegetation while the Surge Pond Area is either barren or covered with asphalt or plastic-lined ponds. Neither of these areas supports salt marsh harvest mouse (*Reithrodontomys raviventris*) habitat.
- B. West Stege Marsh extends from the western edge of the Cinder Land Fill to the vicinity of Meeker Creek. The western portion of the marsh is composed of a mixture of pickleweed (*Salicornia virginica*) and cordgrass (*Spartina foliosa*) whereas the eastern portion of the marsh is covered with a monoculture of saltgrass (*Distichlis spicata*). The pickleweed/cordgrass area covers the western two-thirds of the south side and about one half of the north side of the site. Escape cover of the mouse is better on the western, southwestern and northwestern portions of the marsh where it is a combination of grasses, gumplant (*Grindelia* ssp.) and Pampas grass (*Cortaderia* sp.) (which is of little use to salt marsh harvest mice). The escape

Jane Anderson
Zeneca Richmond Facility SMHM
November 13, 2001, Page 2

cover of the eastern end of the marsh contains more Pampas grass and open annual grasses than that surrounding the rest of the marsh. There is a pond surrounded by iron-stained mud in the northeastern corner.

- C. East Stege Marsh extends from the eastern edge of the Cinder Land Fill to slightly beyond the entrance of Carlson Creek. Here the vegetation pattern is the general mirror image of that found in West Stege Marsh. The western third of the marsh is either pure salt grass or pond surrounded by iron-stained mud. The middle third of the marsh is a combination of saltgrass, scattered cord grass, areas of bulrush (*Scirpus* sp.) and small amounts of pickleweed. The eastern and lowest end of the marsh is covered with pickleweed and cordgrass. The escape cover is best in the east end (where it is a combination of gumplant, grasses and Pampas grass) and poorest in the west end around the saltgrass (where it is primarily Pampas grass, open annual grasses and barren ground).

2. Potential for the presence of salt marsh harvest mice on the site

The Richmond Inner Harbor area did not have many historic tidal marshes. Those present in the late 1800's were further to the west and most of those areas of marsh were converted into harbors and industrial areas decades ago. At present there is little tidal marsh west of West Stege Marsh where a house development is placed close to the edge of the Bay. The West and East Stege Marshes and the Hoffman Marsh to the east and south of East Stege were created near the middle to last third of the last century when a rail line was constructed where the Bay Trail is now and the mudflats behind the rail bed sedimented in enough to support marsh vegetation. Carlson Creek, which serves East Stege Marsh, continues east and south to a point where it parallels part of the Hoffman Marsh and is separated from it by a broad vegetated strip of upland perhaps 50 feet wide.

I know of only two trapping projects in the general area of the Richmond Inner Harbor. One project involved 80 trap nights and was carried out in the Hoffman Marsh in 1976 by unknown trappers. No salt marsh harvest mice were captured. The other project was carried out by WESCO in 1990 in upland areas between and in the Hoffman and Carlson Creek Marshes (WESCO, 1990). An estimated 267 of the 1,013 trap nights were done in pickleweed marshes and mostly in the Carlson Creek Marsh adjacent to East Stege. Another 312 trap nights were done in what WESCO called "marsh transition" comprised of gumplant, saltgrass, scattered pickleweed and a variety of grasses. The remaining 434 trap nights were done in upland ruderal vegetation. No salt marsh harvest mice were captured in any of these areas. The negative results of these trapping projects suggest that it is possible that salt marsh harvest mice are not present in the marshes of the Inner Richmond Harbor. But if we assume that they might be present, are they likely to be in the Zeneca Marshes? There is a potential filter route between the Hoffman Marsh and East Stege Marsh so they could infrequently gain access to the marshes of Carlson Creek from the Hoffman Marsh. But even if they are present in both of these marshes I doubt they utilize the areas of the Stege Marshes identified for remediation. These areas, i.e. the

Jane Anderson
Zeneca Richmond Facility SMHM
November 13, 2001, Page 3

western end of East Stege and the eastern end of West Stege, are covered with either pure saltgrass or open water and iron-rich mud. My experience from directing numerous trapping projects in the San Pablo and Suisun Bays in the 1960's through the 1980's for H. T. Harvey (and for BioSystems Analysis, Inc. in the Collinsville area in the 70's) is that while salt marsh harvest mice are found in deep and thick mixtures of pickleweed, alkali heath (*Frankenia salina*) and saltgrass they seldom if ever are found in monocultures of saltgrass. I have found the same thing to be true in the marshes of the South San Francisco Bay. Hence it is my opinion that even if salt marsh harvest mice were present in the Stege marshes, and it seems unlikely that they are, they would not likely be found in the saltgrass-dominated areas.

We visited the marsh on a high tide of approximately 6.5 feet and I was told by William Carson that the highest tides of each year overtop the marsh plain with a foot of water. During such high tides the areas of escape cover adjacent to the saltgrass areas of the marsh would provide little effective cover since they are relatively steep and open and not very wide.

3. Conclusions

While it is not known if salt marsh harvest mice are present in the Stege Marshes, there are a number of facts that suggest that it is unlikely. I do not think that even if they are present in the Stege marshes that salt marsh harvest mice would frequent the areas noted in the Joint Aquatic Resource Permit Application for the Zeneca Richmond Facility as areas of "Potential Excavation or Remediation" (Levine-Fricke, 2001). These areas include the eastern third of the West Stege Marsh ending at or near the diagonal line west of the E 1,471,000 line on the Topographic Survey map dated 12/10/97 with drawings superimposed by LFR, and the western portion of East Stege Marsh, west of a line drawn southward from South 49th Street. It is my opinion that the removal of soil and vegetation from these areas is unlikely, for the reasons given earlier in this report, to result in "take" of salt marsh harvest mice and that if there was accidental "take" that it would be very small.

Sincerely,



Howard Stelhammer, Ph.D.
Senior Associate

cc: Bill Carson - LFR
Richard Nichols - LFR
Katherine Kobrin - LFR
Ron Duke - H.T. Harvey & Associates
Julie Klingmann - H.T. Harvey & Associates

H. T. HARVEY & ASSOCIATES

Jane Anderson
Zeneca Richmond Facility SMHM
November 13, 2001, Page 4

Literature Cited

Levine-Fr. cke. 2001. Joint Aquatic Resource Permit Application, Zeneca Richmond Facility, Richmond, California. September 11, 2001. 7545.00-064.

Western Ecological Services Company, Inc. 1990. Liquid Gold Site/Hoffman Marsh Biological Investigation Final Report. December 7, 1990. KJC 8802. 78 pages plus extensive attachments.

H. T. HARVEY & ASSOCIATES