CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 90 - 054

CITIES OF SAN JOSE AND SANTA CLARA
SAN JOSE/SANTA CLARA WATER POLLUTION CONTROL PLANT
SAN JOSE, SANTA CLARA COUNTY

AMENDING ORDER NO. 89-013, REQUIRING THE CITIES OF SAN JOSE AND SANTA CLARA TO CEASE AND DESIST DISCHARGING WASTE CONTRARY TO DISCHARGE PROHIBITIONS IN ORDER NO. 89-012 (NPDES PERMIT)

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board), finds that:

1. On January 18, 1989, the Board adopted Order No. 89-012, reissuing waste discharge requirements for the Cities of San Jose and Santa Clara (hereinafter the discharger), for the San Jose/Santa Clara Water Pollution Control Plant. This NPDES permit prohibits discharges south of the Dumbarton Bridge, discharges to dead-end sloughs, and discharges receiving less than 10:1 minimum initial dilution (Prohibitions A.1, A.2, and A.3).

2. On January 18, 1989, the Board adopted Cease and Desist Order No. 89-013 (CDO), requiring the discharger to cease and desist discharging waste contrary to Order No. 89- 012 (Prohibitions A.1, A.2, A.3). Discharge from the facility has resulted in loss and degradation of endangered species habitat. The CDO found the discharger responsible for 220 acres of salt marsh conversion, and required 240 acres of mitigation to offset this loss. Mitigation is necessary in order for the Board to find a net environmental benefit as a result of the discharge and, thereby, an exception to the three prohibitions. The CDO sets a time schedule for achieving full compliance with Order No. 89-012. The CDO required the discharger to submit, by December 1, 1989, a proposal for either (i) mitigation for loss of endangered species habitat, or (ii), compliance with the three prohibitions. Mitigation is necessary in order for the Board to approve an exception to the three prohibitions.

3. The discharger and the U.S. Fish and Wildlife Service both submitted additional information on salt marsh conversion and the causes of conversion to the Board by July 15, 1989, as allowed by the CDO. The discharger estimated 162 acres of salt marsh conversion, while the Service estimated 296 acres of conversion. Both parties submitted estimates for the entire study area.

4. Both the discharger and U.S. Fish and Wildlife have appealed the CDO. On December 13, 1989, the Board amended the CDO, extending the December 1, 1989, mitigation proposal deadline to 30 days after the State Board's final action on the appeals.

5. The Board in its CDO found that 125 acres of saltmarsh conversion occurred at and west of Drawbridge since 1970, and did not provide for any reconsideration of this

finding. Notwithstanding this directive, both the discharger and the U.S. Fish and Wildlife Service submitted new information on that area. The discharger estimated 18.8 acres of salt marsh conversion and the Service estimated 114 acres of conversion. The discharger's low estimate is a result of its method of interpreting the aerial-photos. There has been a net increase in marsh acreage along Coyote Creek due to natural sedimentation. This has resulted in creation of new saltmarsh. The discharger included this new marsh in its calculation of total marsh conversion. This method resulted in the newly created saltmarsh offsetting the loss of saltmarsh within the original 1970 marsh areas. It is inappropriate for the discharger to take credit for a natural process unrelated to its discharge. In January, 1990, the U.S. Fish and Wildlife Service and the discharger met to measure conversion within 1970 marsh boundaries, yielding an approximate estimate of 100 acres. The best available estimate of conversion west of Drawbridge is 100 acres.

6. Both the discharger and the U.S. Fish and Wildlife Service presented new information on conversion east of Drawbridge and in Albrae Slough, as allowed by the CDO. The discharger estimated 127.5 acres of saltmarsh conversion and the Service estimated 161 acres of conversion in this area. In January, the U.S. Fish and Wildlife Service and the discharger met to measure conversion within 1970 marsh boundaries, yielding an approximate conversion estimate east of Drawbridge of 150 acres. The best estimate of conversion east of Drawbridge is 150 acres.

7. Both parties submitted new information on the cause of conversion in Albrae Slough. The Board in its CDO found that conversion here could not be linked to the San Jose/Santa Clara treatment plant discharge. There is still no clear association between saltmarsh conversion at Albrae Slough and the treatment plant despite the new information. Therefore, no acreage mitigation is required for conversion at Albrae Slough.

8. The discharger submitted information concerning the causes of saltmarsh conversion east of Drawbridge. This consists of a preliminary modeling effort that attributes 33% of the salt marsh conversion to natural causes, including sedimentation and streamflow. The discharger argues that sedimentation, by narrowing the Coyote Creek channel, hindered tidal exchange in this area and hastened marsh conversion. While this hypothesis appears plausible, the discharger's model is technically flawed, depending as it does on insufficient salinity and streamflow data for the 1970 to 1985 period.

   In addition, it would be inequitable to reduce the discharger's responsibility for saltmarsh conversion east of Drawbridge. The CDO uses saltmarsh conversion as an indicator of endangered species habitat loss. It does not require mitigation for unquantifiable habitat degradation outside the conversion areas. The U.S. Fish and Wildlife Service alleges that freshwater effluent has altered salinities and been the source of toxic contaminants in several non-converted areas. Conversely, the discharger bears a heavy burden to show that saltmarsh conversion in the vicinity of the plant is caused by something other than its effluent. That burden has not been met, and the discharger is responsible for all conversion east of Drawbridge.

9. The discharger is responsible for 250 acres of saltmarsh conversion since 1970, including 100 acres west of Drawbridge and 150 acres east of Drawbridge. The number

of converted acres attributable to the discharge, when multiplied by a minimum adjustment factor of 1.1, results in a mitigation requirement of 275 acres. Adjustment factors take into account the relative habitat values of the original saltmarsh, the converted marsh, and a mitigation site. They also account for the fact that habitat value will take many years to develop at a mitigation site. The 1.1 adjustment factor is considered minimum because it assumes an optimal mitigation site and quick habitat development. If a less than optimal mitigation site is proposed additional mitigation may be required.

10. This action is an order to enforce waste discharge requirements previously adopted by the Board. It is therefore categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15321 of the Resources Agency CEQA Guidelines.

11. The discharger and interested persons have been notified of the Board's intent to take this enforcement action, and have been provided with an opportunity to submit written comments and appear at the public meeting.

12. At a public hearing on April 18, 1990, the Board heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED THAT:

A. Order No. 89-013, a Cease and Desist Order issued to the Cities of San Jose and Santa Clara, shall be amended as shown below.

B. The following sections shall be amended to indicate 150 acres of marsh conversion east of Drawbridge (was 95 acres), 250 acres of marsh conversion total (was 220), and a minimum of 275 acres of mitigation (was 240):

1. Finding 7
2. Provision D, note following items 1 and 2
3. Attachment 1, page 1, paragraph 3
4. Attachment 1, page 2, item (2)
5. Attachment 1, page 3, item (5)
6. Attachment 1, page 3, item (7)
7. Attachment 1, page 4, paragraph 1

C. Finding 6 shall be amended to read as follows:

6. The Five-Year Study and exception request package does not support a finding of net environmental benefit and the discharger's exception request must be denied because the existing discharge adversely affects rare/endangered species habitat, a designated beneficial use in the South Bay. San Jose/Santa Clara's increased freshwater discharge has resulted in the loss of 250 acres of rare/endangered species habitat between 1970 and 1988, due to conversion of saltmarsh to fresh or brackish marsh. Fresh and brackish marsh is unsuitable to the California clapper rail and the saltmarsh harvest mouse, two endangered species found in the South Bay. The 250 acre total includes 150 acres east of Drawbridge, 100 acres west of Drawbridge, and

zero acres at Albrae Slough.

D. Attachment 1 shall be additionally amended as shown in Attachment A.

I, Steven R. Ritchie, 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, San Francisco Bay Region, on April 18, 1990.

STEVEN R. RITCHIE,
Executive Officer

Attachment

[Originator: CAN
Reviewers: TCW, SAH]

ATTACHMENT A

Revisions - Attachment 1, pages 2-3, Order No. 90 - 054

Marsh Area	Acres Converted
Upstream of Drawbridge (1)	150
Downstream Areas (1)	100
Total Acreage (both areas)	250

Notes: (1) Acreage based on meeting held in Sacramento on January 9 and 10, 1990, attended by U.S. Fish and Wildlife, the discharger, State Board staff, and Regional Board staff.

Several factors should be considered in order to calculate the habitat loss for endangered species in the converted marshlands: the habitat value of the original saltmarsh, the subsequent brackish marsh, and the mitigation site, as well as the time required for habitat value to develop at the mitigation site. Habitat value refers to the marsh's suitability for the two endangered species - California clapper rail and saltmarsh harvest mouse.

The USFWS habitat evaluation procedure (HEP) was developed for terrestrial and inland aquatic habitats used by a full range of species. However, it can reasonably be applied to the South Bay, and estuarine habitat, and a very small number of species. The HEP is based on a habitat suitability index, which ranges from 0.0 for unsuitable habitat to 1.0 for optimal conditions. The following steps make up the HEP, as modified for this South Bay application:

(1) Assign habitat suitability indices (HSI) for the two endangered species and the four habitat types: saltmarsh prior to conversion, brackish marsh, and final saltmarsh at an optimal mitigation site, and final saltmarsh at a poor mitigation site. The values were developed at a January 30, 1990, meeting attended by the discharger, U.S. Fish and Wildlife Service, interested parties, State Board and Regional Board staff, and experts on both saltmarsh harvest mice and California clapper rails. Different HSI's were generated for each marsh area. The following values are the range of values generated:

Species	1970 Saltmarsh	Brackish	Optimal Mitigation	Poor Mitigation
California clapper rail	0.25-0.72	0.09	0.86	0.79
Saltmarsh harvest mouse	0.65-0.8	0.05	0.89	0.77

(2) Calculate the change in habitat units from 1970 to 1988, based on the 250 acres of marsh conversion and the index values (habitat units = (HSI at marsh a) X (acres of habitat at marsh a) + (HSI at marsh b) X (acres of habitat at marsh b) + ... + (HSI at marsh z) X (acres of habitat at marsh z):

Species	Habitat units: 1970	1988
California clapper rail	122.5	22.5
Saltmarsh harvest mouse	185.5	12.5

Notes: (1) The lower value of 12.5 habitat units should be used for 1988 to reflect the more sensitive species.
(2) Specific acreage and HSI values are included in Table 1.

Table 1. Acres of converted saltmarsh in specified marsh groupings and HSI values for each marsh grouping. Marsh groupings were chosen to reflect marshes with similar characteristics (e.g. width, continuity). HSI's are for saltmarsh in 1970. (HSI = Habitat Suitability Index, SMHM = saltmarsh harvest mouse, CCR = California clapper rail.)

Marsh	Acres Converted	SMHM HSI	CCR HSI
Triangle/Grey Goose	80	0.8	0.72
Mud Slough/Albrae Slough/ N. Coyote Creek	10	0.73	0.51
E. & W. Drawbridge	20	0.69	0.25
Irvington/Warm Springs/ Newby Island	85	0.76	0.41
Coyote Creek	55	0.65	0.36

---

(3) Define the study period. A 38-year study period, from 1970 to 2008, is appropriate to allow for habitat development and full repopulation of the site. This value comes from the USFWS December 22, 1988 analysis.

(4) Calculate habitat units lost due to marsh conversion. Habitat units declined steadily during the 1970-1988 period, stabilizing at 12.5. The area above the curve represents habitat units lost due to marsh conversion, and for this analysis straight line recovery is assumed. Only habitat loss after 1988 is included, since the discharger only recently became aware of the need for mitigation. It would be inequitable to assess a time-lag penalty under these circumstances. The time needed to establish saltmarsh at an optimal mitigation site is 10.7 years, and at a poor mitigation site is 27 years (January 30, 1990 meeting). A total of 3460 habitat units will be lost during the 1988-2008 period (Figure 2, optimal mitigation scenario), and a total of 6401 habitat units will be lost during the 1988-2025 period (Figure 3, poor mitigation scenario).

Both scenarios incorporate an approximate 10-year extension at the end of the vegetation recovery period to establish the resulting habitat suitability index at the mitigation site. This assumption is based on comments from the Department of Fish and Game.

(5) Calculate habitat units gained due to mitigation. Mitigation refers to the creation or enhancement of saltmarsh to offset the conversion of 250 acres of saltmarsh. For the optimal mitigation scenario (Figure 2), habitat units increase from zero in 1988 to 185.5 in 1998.7, and then level off until 2008, and result in a total gain of 3259.7 habitat units. For the poor mitigation site scenario (Figure 3), habitat units increase from zero in 1988 to 192.5 in 2015, and then level off until 2025, resulting in a total gain of 4523.8 habitat units.

(6) Compute the adjustment factor as the following ratio:

$$\text{Adjustment} = \frac{\text{Habitat units lost}}{\text{Habitat units gained}}$$

Optimal mitigation scenario: $\text{Adjustment factor} = \frac{3460}{3259.7} = 1.1$

Poor mitigation scenario: $\text{Adjustment factor} = \frac{6401}{4524} = 1.4$

(7) Calculate the total mitigation acreage for the two mitigation scenarios by including the adjustment factors. This total now takes time lags and relative habitat values into account:

Total mitigation = Acres converted X Adjustment factor

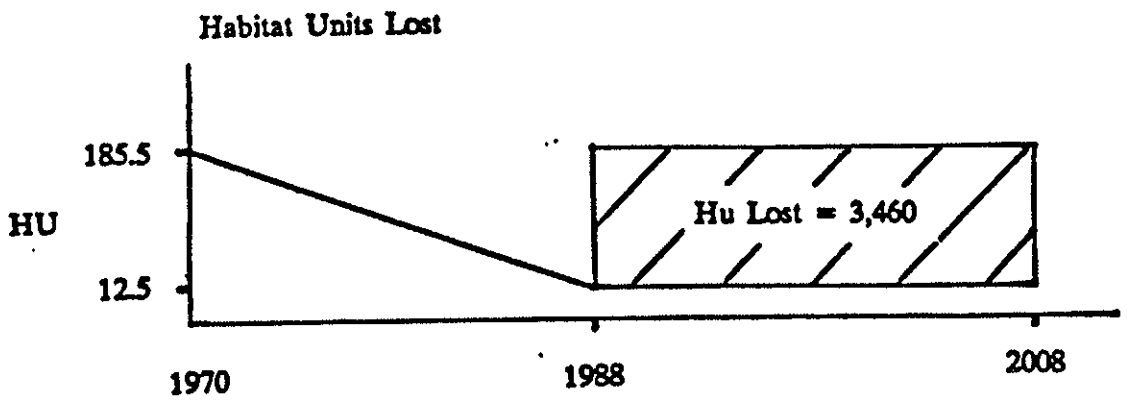
Optimal mitigation site:

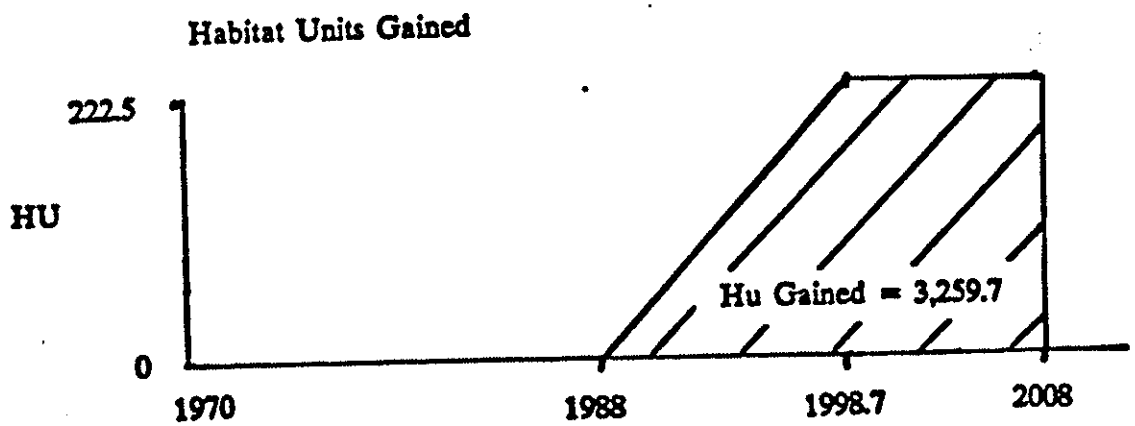
250 X 1.1 = 275 acres

Poor mitigation site:

250 X 1.4 = 350 acres

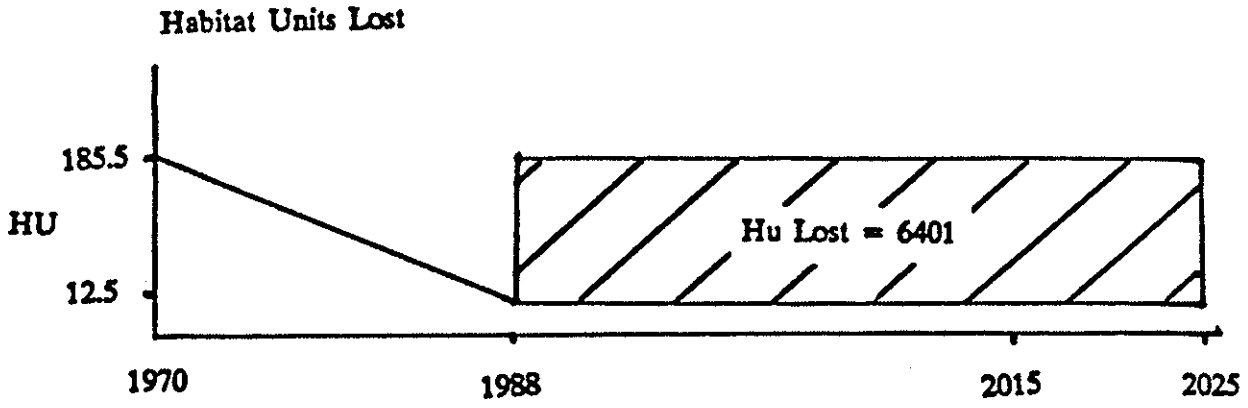
Figure 2. Habitat units lost and gained using an optimal mitigation site. Figures not to scale.

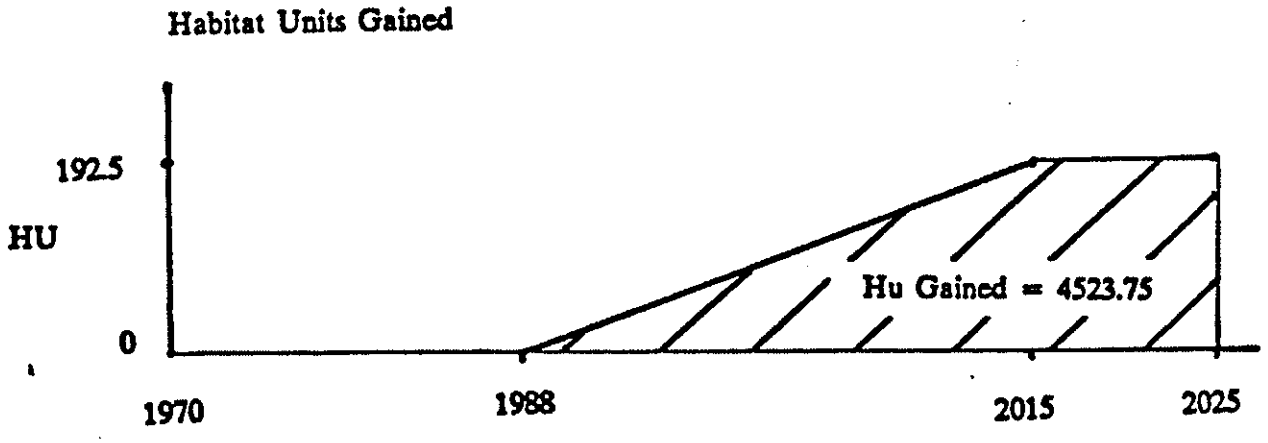




$$\frac{\text{Hu Lost}}{\text{Hu Gained}} = \frac{3460}{3259.7} = 1.1$$

Figure 3. Habitat units lost and gained using a poor mitigation site. Figures not to scale.





$$\frac{\text{Hu Lost}}{\text{Hu Gained}} = \frac{6401}{4524} = 1.4$$