NILAND SANITARY DISTRICT
P.O. Box 40
Niland,CA. 92257
760-359-0454

October 1, 2007

Matt Mitchell
Environmental Protection Agency
75 Hawthorne Street WTR-5
San Francisco, CA 94105

SUBJECT: Niland Sanitary District - Reclassification of R Drain – Imperial Co.
NPDES Permit No. CA0104551

Dear Mr. Mitchell:

The Niland Sanitary District wastewater treatment plant currently discharges into an agricultural drain (R Drain) which empties into the Salton Sea. The R Drain is owned and operated by the Imperial Irrigation District. At this time, the R Drain is classified as saltwater. The Niland Sanitary District seeks approval from the U.S. Environmental Protection Agency to use alternative freshwater criteria for a body of water segment where no marine beneficial use designation occurs, even if salinity is above one part per thousand. The District also seeks to reclassify the R Drain as freshwater.

The attached report, titled *Bioassessment of the R Drain to the Salton Sea at the Niland Sanitary District Wastewater Treatment Plant Discharge* and dated May 14, 2007, contains the results of Tierra Environmental Services' bioassesment of the Sanitary District's treatment plant outfall and R Drain. The purpose of the report is to reclassify the R Drain from saltwater to freshwater.

Sincerely,

David Godsey
General Manager
Niland Sanitary District

Cc: James F. Owens, Nolte Associates, Inc.
Joel Figueroa, California Regional Water Quality Control Board – Region 7

TIERRA
ENVIRONMENTAL SERVICES

May 14, 2007

Mr. James Owens
Nolte Associates
1605 West Main Street
El Centro, CA 92243

Subject: Bioassessment of the R Drain to the Salton Sea at the Niland Sanitary District Wastewater Treatment Plant Discharge

Dear Mr. Owens:

The following letter report documents the findings of our bioassessment of the Niland Sanitary District's Wastewater Treatment Plant discharge pipe. Samples were taken at, upstream, and downstream of the discharge pipe within the R Drain that flows from east to west where it empties into the Salton Sea, approximately 3 miles west of the Niland Wastewater Treatment Plant.

Objective

TIERRA Environmental Services (TIERRA) was retained by Nolte Associates to conduct a rapid assessment of aquatic and shore organisms in the R Drain at the point of discharge from the Niland Wastewater Treatment Plant. The objective of this survey was to determine whether the water, plant life, and aquatic life at this discharge point are more typical of saltwater or freshwater environments. The goal of the Niland Sanitary District is to gain approval from the U.S. Environmental Protection Agency (EPA) to use alternative freshwater criteria for a body of water segment where no marine beneficial use designation occurs, even if the salinity is above one part per thousand.

Background

The Niland Wastewater Treatment Plant discharges into an agricultural drain (R Drain) that flows from east to west, ultimately emptying into the Salton Sea near Mullet Island. The agricultural drain is approximately 3 meters wide and is less than 1 meter deep upstream of the discharge point.

All agricultural drains within the Imperial Valley drain into the Salton Sea, which was formed in 1905-1907 when the Colorado River broke through levies. The water is obtained from the Colorado River and used to irrigate crops before the runoff is collected by the drains. The naturally high levels of salts and minerals in the soils, combined with the use of fertilizers, herbicides, and pesticides, has resulted in elevated levels of salinity and other toxic elements. The heightened salinity levels have resulted in the application of more stringent discharge requirements for treated wastewater that were intended for coastal marine environments.

The California Toxics Rule (CTR) at 40CFR 131.38(c)(3) provides that waters that have salinity between 1 and 10 parts per thousand should be addressed as follows:

> For waters in which the salinity is between 1 and 10 parts per thousand as defined in paragraphs (c)(3)(i) and (ii) of this section, the applicable criteria are the more stringent of the freshwater or saltwater criteria. However, the Regional Administrator may approve the use of the alternative freshwater or saltwater criteria if scientifically defensible information and data demonstrate that on a site-specific basis, the biology of the water body is dominated by freshwater aquatic life and that freshwater criteria are more appropriate; or conversely, the biology of the water body is dominated by saltwater aquatic life and that saltwater criteria are more appropriate.

Methods

A bioassessment of the outfall was conducted between the hours of 1600 and 1830 March 29, 2007 by C. Nordby and M. Page of TIERRA Environmental Services. Sampling stations were established at the outfall and approximately 200 meters upstream and downstream from the point of discharge. At each sampling station the following data were collected: water salinity, dominant vegetation, and aquatic organisms.

Water salinity was measured using a hand held, temperature compensated salinity refractometer. The refractometer is accurate to 1 part per thousand (ppt) and was calibrated using deionized water prior to each measurement.

Aquatic invertebrates were collected from the shore using a kick net, which was dragged along the drainage bottom perpendicular to the bank for a linear sampling distance of approximately 6 feet. This net is also efficient in the capture of small fishes, if present. Shore vegetation was recorded from visual observation.

Results and Discussion

The R Drain that serves as the outfall for the Niland Sanitary District's Wastewater Treatment Plant is a typical Imperial Valley agricultural drain with sparse weedy vegetation occurring on the banks. The dominant plant species included arrow weed (*Pluchea sericea*) and Bermuda grass (*Cynodon dactylon*). Evidence of the recent

clearing of vegetation along the banks of the drain and the dredging of the channel were noted. The evidence consisted of freshly piled muck from the drain and freshly cut vegetation along the banks. The substrate of the channel and banks is composed of fine mud. Water in the drainage upstream of the discharge point flows relatively slowly. The flow volume and velocity increases downstream of the discharge point, but the flow is still relatively slow. There is a concrete drop structure where the water falls several feet immediately downstream of the discharge point and upstream of the downstream sampling station.

Salinity. Water salinity recorded at each station is presented below. Water salinity was 0 ppt at each sampling station indicating that both the outfall water and water occurring in the drain from agricultural uses is fresh.

200 meters upstream of outfall – 0 ppt.
At outfall - 0 ppt.
200 meters downstream of outfall – 0 ppt.

Vegetation. Vegetation was similar at each sampling site, e.g., was dominated by weedy species. There were no trees or shrubs present and the banks of the drain appeared to have been mowed. Dominant plant species included Bermuda grass and arrow weed. Bermuda grass can tolerate some salinity but is most common in freshwater systems. Arrow weed is common along desert watercourses and can tolerate some salinity. As presented previously, the water in the R Drain is fresh.

Aquatic Invertebrates. The aquatic invertebrates collected at each sampling station are presented in Table 1. Epifaunal molluscs and backswimmers (*Notonecta* sp.) dominated the collections. Dominant mollusc taxa included snails of the family Physiidae followed snails of the family Planobidae (Table 1). Some species of backswimmer are tolerant of saline environments. Both mollusc taxa are freshwater taxa.

In addition to freshwater molluscs, freshwater crustaceans were collected. These included the detached claws of crayfish, which are a freshwater taxa.

A number of insect larvae were collected, including those of the family Chironomidae, Orthocladiinae, and Psychodidae and Ephydridae. *Psychoda* sp. is highly tolerant of organic waste and can live in raw sewage. Many ephydrids and chrionomids are tolerant of salinity; however, identification beyond family was not possible. Most Orthocladiinae are found in freshwater systems.

Fishes. One species of fish was collected – mosquito fish (*Gambusia affinis*). Mosquito fish were introduced into California in 1922 and have since spread over the state (Moyle, P. *Inland Fishes of California*, 1976). They can tolerate a wide range of environmental variables, including salinity. Thus, mosquito fish are not good diagnostic indicators of a freshwater versus a saline system, as they can be found in both extremes and in various intermediate conditions.

Conclusion

Based on the salinity measurements and the aquatic organisms that inhabit the Agricultural drain that receives discharges from the Niland Wastewater Treatment Plant, it is concluded that this system is a freshwater ecosystem. None of the species typically found in saltwater ecosystems were present, including barnacles (*Balanus amphrite*), pileworms (*Nenathes succinea*), and brackish water snail (*Thiara granifera*). The discharge drainage is small and shallow and is easily accessed. Therefore, the samples collected during this rapid assessment are considered representative of the overall system.

Please feel free to call me at (858) 578-9064 if you have any questions regarding this biological assessment.

Sincerely,

Chris Nordby, Principal Biologist

Table 1. List of Organisms Collected at Three Sampling Stations at the Niland Sanitary District Wastewater Treatment Plant

Upstream
Mollusca
Gastropoda – snails
Planorbidae
Physidae
Physa sp.
Arhtropoda
Insecta
Diptera – midges, mosquitoes
Notonectidae
Notonecta
Chironomidae
Chironomini
Ephydridae
Orthocladiinae
Psychodidae
Psychoda sp.

Chordata
Osteichthyes
Cyprinodontiformes
Poeciliidae
Gambusia affinis

Outfall
Mollusca
Gastropoda – snails
Planorbidae
Physidae
Physa sp.

Arthropoda
Insecta
Diptera – midges, mosquitoes
Notonectidae
Notonecta
Chironomidae
Chironomini
Orthocladiinae

Downstream

Mollusca
- Gastropoda – snails
  - Planorbidae
  - Physidae
    - *Physa* sp.

Arthropoda
- Insecta
  - Diptera – midges, mosquitoes
    - Notonectidae
      - Notonecta
    - Chironomidae
      - Chironomini
    - Orthocladiinae5/
- Decapoda
  - Crustacea
    - Astacidea
    - crayfish claw