

California Regional Water Quality Control Board
San Francisco Bay Region

RESPONSE TO WRITTEN COMMENTS

On the Reissuance of an NPDES Permit for Discharges from the
San Francisco International Airport

The Regional Water Board received written comments from the San Francisco International Airport and the U.S. Environmental Protection Agency (U.S. EPA) on a tentative order distributed for public comment. This response to those comments summarizes each comment in *italics* (paraphrased for brevity) followed by a staff response. Revisions are shown with ~~strikethrough~~ for deletions and underline for additions. For the full content and context of each comment, refer to the comment letters.

SAN FRANCISCO INTERNATIONAL AIRPORT

Airport Comment 1: The airport notes that, for aircraft deicing, the term “infrequently” rather than “rarely, if ever” better reflects the frequency of deicing fluid use. The airport notes that, when used, it is not to remove frozen precipitation from aircraft or runways, but frost during cold snaps. Only relatively small quantities of deicing fluids are necessary.

Response to Airport Comment 1

We agree and changed section II.B.2, second paragraph, of the tentative order as shown below:

The first flush of stormwater runoff from terminals, taxiways, tarmacs, and aircraft and vehicle parking is collected in four detention ponds... Runoff from runways and some portions of taxiways is discharged directly to the Bay after flowing through grassy runway medians. Deicing fluids, to defrost planes, could be used at any gate depending on the destination of the departing aircraft, but in practice are infrequently ~~rarely if ever~~, used. Any deicing fluid wastewater would be routed to the detention basins with the first flush of stormwater runoff and treated at the Industrial Plant. The nine stormwater outfalls are monitored by the Discharger pursuant to the requirements of this Order.

We changed Fact Sheet section II.A.2, second paragraph, as shown below:

The first flush of stormwater runoff from terminals, taxiways, tarmacs, and aircraft and vehicle parking is collected in four detention ponds... Runoff from runways and some portions of taxi ways is discharged directly to the Bay after flowing through the grassy runway medians. Deicing fluids, to defrost planes, could be used at any gate depending on the destination of the departing aircraft, but in practice are infrequently ~~rarely if ever~~, used. Any deicing fluid wastewater would be routed to the detention basins with the first flush of stormwater runoff and treated at the Industrial Plant. ~~The~~

nine stormwater outfalls are monitored by the Discharger pursuant to the requirements of this Order.

We changed Fact Sheet section IV.A.6 as shown below:

Discharge Prohibition III.F (Discharge of deicing fluid that contains urea is prohibited): U.S. EPA has established technology-based limitations and standards for de-icing operations at airports... . While there are no runway de-icing operations rarely occur at the airport, on ~~these~~ rare occasions, ~~the~~ de-icing fluid is used to defrost planes. Any surplus fluids that fall on taxi areas are collected and routed to the Industrial Plant for treatment.

Airport Comment 2: The airport notes that Table 6, footnote 3, is unclear in how it describes the 85% removal requirement for total suspended solids (TSS) at the Industrial Plant. While this reduction should apply to BOD₅ treatment, for TSS it should apply only if the industrial plant were used to treat sanitary waste.

Response to Airport Comment 2

We agree and changed section IV.A.1, Table 6, footnote 3, of the tentative order as shown below:

The 85 percent removal requirement applies to CBOD₅ and TSS at Discharge Point 001-San. It applies to BOD₅ at Discharge Point 001-Ind when the Industrial Plant influent BOD₅ is greater than 45 mg/L. It applies to BOD₅ and TSS at Discharge Point 001-Ind if and when sanitary waste is routed to the Industrial Plant, in which case compliance will be based on flow-weighted averages. This means that only those samples collected when the limits apply shall be used to calculate the monthly averages for compliance with the monthly average limits. ~~The 85 percent removal requirements apply at Discharge Point 001-San (except BOD₅). The requirements would also apply at Discharge Point 001-Ind (except CBOD₅) if the Industrial Plant is modified to treat sanitary wastewater and, or applies to BOD₅ when the inflow BOD₅ is greater than 45 mg/L. If the sanitary waste is routed through the industrial plant, compliance with effluent limitations will be based on flow-weighted averages.~~

Airport Comment 3: The airport requests clarification that effluent cyanide is to be monitored post-dechlorination at Monitoring Station EFF-002. It proposes a new footnote.

Response to Airport Comment 3

We agree and changed section IV.B of the tentative order as shown below:

Discharges at Discharge Point No. 001 (as determined at Monitoring Location EFF-001 as described in the MRP) shall comply with the following limitations. The total recoverable cyanide limitation may apply at Discharge Point No. 001 or, following dechlorination, at Discharge Point No. 002 (as determined at Monitoring Location EFF-002 as described in the MRP) ~~instead of Discharge Point No. 001.~~

We added a footnote to Table 7 of the tentative order as shown below:

Table 7. Toxic Pollutant Effluent Limitations

Parameter	Units	Effluent Limitations ^[1]	
		Average Monthly	Maximum Daily
Copper	µg/L	42	84
Selenium	µg/L	2.9	8.8
Zinc	µg/L	350	910
Dioxin-TEQ	µg/L	1.4 x 10 ⁻⁸	2.8 x 10 ⁻⁸
Total Ammonia	mg/L	120	310
Cyanide, Total Recoverable ^[2]	µg/L	20	44

Footnotes

^[1] All limitations for metals are expressed as total recoverable metals.

^[2] Cyanide may be measured at Monitoring Location EFF-001 or, following dechlorination, at Monitoring Location EFF-002.

Airport Comment 4: The airport requests that specific language be added to allow pH control during acute toxicity tests. It notes that its current practice is to control pH within the range of 6.5 to 6.7 to eliminate un-ionized ammonia toxicity.

Response to Airport Comment 4

While such language is not necessary, because the Monitoring and Reporting Program already allows for such changes, we have made the change to section V.A.4 as follows:

If the Discharger demonstrates that specific identifiable substances in the discharge are rapidly rendered harmless upon discharge to the receiving water, compliance with the acute toxicity limit may be determined after the test samples are adjusted to remove the influence of those substances. Written acknowledgement that the Executive Officer concurs with the Discharger's demonstration and that the adjustment will not remove the influence of other substances must be obtained prior to any such adjustment. The Discharger may manually adjust the pH of whole effluent acute toxicity samples prior to performing bioassays to minimize ammonia toxicity interference.

Airport Comment 5: The airport notes that the scientific name for purple sea urchin has been spelled incorrectly. The correct spelling is "Strongylocentrotus."

Response to Comment 5

We agree and changed Monitoring and Reporting Program section V.B.1.b as shown below:

Test Species. The test species shall be ~~Storngylocentrotus~~ Strongylocentrotus purpuratus (purple sea urchin) or Dendraster excentricus (sand dollar) depending on the spawning season... .

We changed Fact Sheet section IV.C.6.b as shown below:

Reasonable Potential Analysis. The previous orders included a chronic toxicity trigger of a three sample median of 10 TUc or a single sample maximum of 20 TUc, which would trigger accelerated chronic toxicity testing if exceeded. Chronic toxicity testing results during the previous order terms using *Dendraster excentricus* and ~~*Strongylocentrotus*~~ *Strongylocentrotus purpuratus* indicate that the maximum single sample chronic toxicity was 6.67 TUc... .

We changed Fact Sheet section IV.C.6.d as shown below:

Screening Phase Study and Monitoring Requirement. The Discharger initiated a three-phase chronic toxicity screening study from January 2012 through March 2012 to identify the indicator organism most sensitive to the effluent. Results showed that ~~*Strongylocentrotus*~~ *Strongylocentrotus purpuratus* was the most sensitive of the species tested... .

Airport Comment 6: The airport corrects a chronic toxicity test citation. Instead of “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, currently third edition (EPA-821-R-02-014),” the correct reference should be “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, EPA/600/R-95-136.”

Response to Airport Comment 6

We agree and changed Monitoring and Reporting Program section V.B.1.d as shown below:

Methodology. Sample collection, handling, and preservation shall be in accordance with USEPA protocols. In addition, bioassays shall be conducted in compliance with the most recently promulgated test methods, as shown in Appendix E-1. These are *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*, EPA/600/R-95-136, ~~currently third Edition (EPA-821-R-02-014).~~ If these protocols prove unworkable... .

Airport Comment 7: The airport proposes adding 15% dilution to the chronic toxicity monitoring dilution series. The airport notes also that the dilution requirements in *Monitoring and Reporting Program Appendix E-1* are inconsistent with its existing practices.

Response to Airport Comment 7

We agree, in part, and changed Monitoring and Reporting Program section V.B.1.e as shown below:

Dilution Series. The Discharger shall conduct tests at 20%, 15%, 10%, 5%, and 2.5%. The “%” represents percent effluent as discharged... .

Monitoring and Reporting Program Appendix E-1, section II.B.5, already allows the Executive Officer to approve alternative dilution series for chronic toxicity screening, stating “or as otherwise approved by the Executive Officer if different dilution ratios are needed to reflect discharge conditions.”

Airport Comment 8: The airport recommends changing the test duration cited for echinoderm larval development tests in Table AE-1. The airport recommends 72 hours, not 1 hour.

Response to Airport Comment 8

We agree that one hour is not the correct duration to test echinoderm larval development. However, for echinoderms, nearly every NPDES permit in the San Francisco Bay Region specifies the fertilization test, not the larval development test. One hour is the correct duration for an echinoderm fertilization test. To be consistent with most other permits, we changed Monitoring and Reporting Program Appendix E-2, Table AE-1, as shown below:

Table AE-1. Critical Life Stage Toxicity Tests for Estuarine Waters

Species	(Scientific Name)	Effect	Test Duration	Reference
∴	∴	∴	∴	∴
Oyster Mussel	<i>(Crassostrea gigas)</i> <i>(Mytilus edulis)</i>	Abnormal shell development; percent survival	48 hours	2
Echinoderms Urchins Sand dollar	<i>(Strongylocentrotus purpuratus, S. franciscanus)</i> <i>(Dendraster excentricus)</i>	Percent normal larval development <u>fertilization</u>	1 hour	2
Shrimp	<i>(Americamysis bahia)</i>	Percent survival; growth	7 days	3
∴	∴	∴	∴	∴

Airport Comment 9: The airport requests clarification that the 85% removal requirement only applies to TSS when the industrial plant processes sanitary waste.

Response to Airport Comment 9

We agree and changed Fact Sheet section II.D, second paragraph, as shown below:

The Discharger’s failures to achieve 85% TSS removal were due to the very low TSS concentrations at the Industrial Plant, which made 85% reduction very difficult. The requirement was intended for sanitary waste treatment; therefore, in this Order, 85% TSS removal is only required at the Industrial Plant if and when the plant treats sanitary waste. Failures to achieve 85% removal of TSS were due to the very low TSS concentrations in the industrial influent making an 85% reduction difficult. Because the 85% removal requirement was established for treatment of sanitary wastes, in this Order, 85% reduction is only required if the Industrial Plant would be used to treat sanitary waste. and at all times when the influent concentration is 45 mg/L or higher.

Airport Comment 10: The airport recommends changing the bacteria units of measurement to “colony forming units” instead of “most probable number” for consistency.

Response to Airport Comment 10

We agree that the permit should be consistent. However, we retained “most probable number (MPN)/100mL” and replaced “colony forming units (CFU)/100mL.” Basin Plan Table 4-2A expresses bacteria limits in terms of MPN/100mL. Some acceptable laboratory methods may

provide results in CFU/100mL; therefore, we also revised a footnote to allow such results. We changed section IV.A.2 of the tentative order as shown below:

Discharges at Discharge Point No. 001 (as determined at Monitoring Locations EFF-001 as described in the MRP) shall comply with the following limitations.

- a. **Enterococcus Bacteria:** The geometric mean of the enterococcus densities of all discharge samples collected within a calendar month shall not exceed 35 most probable number colony forming units/100 mL (~~CFU~~ MPN/100 mL).
- b. **Fecal Coliform Bacteria:** The geometric mean fecal coliform density in all effluent samples collected within a calendar month shall not exceed 200 most probable number colony forming units per 100 mL (~~CFU~~ MPN/100 mL); and the 90th percentile value of the last eleven samples shall not exceed 400 ~~CFU~~ MPN/100 mL.

We changed Monitoring and Reporting Program Table E-4 as shown below:

Table E-4. Effluent Monitoring at EFF-001

Parameter	Units	Sample Type ^[1]	Minimum Sampling Frequency ^[2]
Flow ^[3]	MGD	Continuous	Continuous/D
Total Ammonia as N	mg/L	Grab	1/Month
Fecal Coliform Bacteria	<u>MPN</u> CFU ^[6] /100 mL	Grab	2/Week
Enterococcus Bacteria	<u>MPN</u> Colonies ^[6] /100 mL	Grab	1/Month
Acute Toxicity ^[4]	% Survival	Flow through	1/Month

Footnotes

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^[5] As total recoverable metal.

^[6] MPN, Most Probable Number. Results may be reported as Colony Forming Units (CFU/100 mL) if the laboratory method used provides results in CFU/100 mL.

Airport Comment 11: The airport notes that chronic toxicity tests should occur twice per year. In contrast, the Fact Sheet states the frequency as once per year.

Response to Airport Comment 11

We agree and changed Fact Sheet section IV.C.6 as shown below:

This Order establishes a requirement for the Discharger to conduct chronic toxicity testing ~~once~~ twice a year to ensure the discharge ~~has~~ does not have unacceptable levels of chronic toxicity.

U.S. ENVIRONMENTAL PROTECTION AGENCY

U.S. EPA Comment 1. U.S. EPA provides an additional citation in support of backsliding from best professional judgment-based technology-based effluent limits. In addition to citing CWA section 401(o)(2)(A), U.S. EPA recommends citing 40 CFR 122.44(l)(2)(i)(A) as a regulatory basis for backsliding from the previous BOD and TSS percent removal effluents limits at the Industrial Plant.

Response to U.S. EPA Comment 1

We agree and changed Fact Sheet section IV.B.1.b, fifth paragraph, as shown below:

In accordance with CWA 402(o)(2)(A) and 40 CFR 122.44(l)(2)(i)(A), the removal of the percent removal requirements complies with anti-backsliding requirements because substantial alterations have occurred due to the pretreatment of industrial wastewater by United Airlines, resulting in BOD₅ and TSS concentrations significantly reduced from such concentrations typically found in sanitary wastewater. For example, wastewater to the Sanitary Plant, in a typical month, has CBOD₅ between 400 and 700 mg/L, and TSS between 450 and 950 mg/L. In contrast, the influent to the Industrial Plant now has BOD₅ between 6 and 20 mg/L and TSS between 30 and 140 mg/L.

U.S. EPA Comment 2. U.S. EPA expresses support for this Order's approach to backsliding. This Order applies the most stringent existing water quality-based effluent limits. New limits are compared individually to the corresponding limit in the previous order.

Response to U.S. EPA Comment 2:

This comment does not require a response.

STAFF-INITIATED REVISIONS

Besides making minor editorial and format changes, we revised Monitoring and Reporting Program Table E-4 as follows to allow the airport to collect either grab or 24-hour composite ammonia samples. As such, sampling for this permit can also be used to comply with our March 2, 2012, letter requiring nutrient data pursuant to Water Code section 13267.

Table E-4. Effluent Monitoring at EFF-001

Parameter	Units	Sample Type ^[1]	Minimum Sampling Frequency ^[2]
Flow ^[3]	MGD	Continuous	Continuous/D
Total Ammonia as N	mg/L	Grab or C-24	1/Month
Fecal Coliform Bacteria	MPN ^[6] /100 mL	Grab	2/Week
⋮	⋮	⋮	⋮