CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

RESPONSE TO WRITTEN COMMENTS
ON THE ISSUANCE OF WASTE DISCHARGE REQUIREMENTS FOR:

U.S. Navy, Waste Water Treatment Plant (WWTP)
Treasure Island, San Francisco County

I. Department of the Navy (Navy), April 22, 2004 Comments and Responses
The Navy comments were submitted in letter format and therefore are summarized below. Interested persons should refer to the original letter to ascertain the full substance of each comment.

II. San Francisco Public Utilities Commission (City), April 22, 2004 Comments and Responses
The City comments are copied verbatim from their submittal.

A. General Comments
B. Comments Referenced to Specific Pages
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D. Attachment A Comments
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I. Department of the Navy, April 22, 2004 Comments and Responses

Navy Comment 1: Inappropriate Designation of the Navy as Operator

The Navy's concerns center around the designation of the Department of the Navy as the operator in this proposed permit. Such designation is not in concert with the provisions of the Clean Water Act and could very well reduce the ability of the Board to effect quick corrections of any violations that may arise.

It is a strange fiction to make the Department of the Navy a discharger and permittee simply because the Navy still owns the facility while all the activities generating a point source discharge requiring a permit come from non-Navy activities. While the Clean Water Act does state that owners and operators are subject to the provisions of the statute, NPDES permits regulate discharges and by extension dischargers. U.S.EPA regulatory guidance and requirements particularly in the area of stormwater management repeatedly mention operators, discharges and dischargers and do not discuss owners.
If there are plant upsets or failures which generate reportable violations, the Department of the Navy bears the misplaced brunt of the violations when it did nothing to cause nor contributed anything to the violation. With the Department of Navy named as operator and permittee, effective, quick correction of any violations of the proposed permit are hampered.

It is only fair and logical that the "person" generating the discharge and operating the treatment system be responsible and named in the permit to operate the treatment system.

Response 1

The Navy was named as discharger because it is the owner of the facility. While City staff performs day-to-day operations, monitoring and reporting, the Navy retains the authority to dispose of property, to modify facilities or to substantially change the nature of services provided by the system. It could reasonably be argued that naming the City as discharger might have the effect of hampering effective/timely correction of any violations.

The Navy is also the entity that submitted the application for permit renewal. Although Board staff conducted a site visit approximately one year ago to discuss permit reissuance with the Navy, Navy staff made no mention of the Navy's desire not to be named discharger. Further, the Navy has made no effort to rescind its application or request permit termination. While we appreciate the Navy's concern that naming it as discharger may hamper effective, quick correction of any violations, we also note that the City has been operating the facility under the current permit, with the Navy named as discharger, for more than one year and there have not been any problems in this regard.

***Navy Comment 2*: Objection to Naming the Navy as Owner, and Therefore Discharger**

The Navy objects to the wording in the Findings, paragraph 1, Discharger and Permit Application (also found on page 2 of the Fact Sheet and in the Public Notice) that lists the United States Navy as the owner and therefore the discharger. The Department of Navy is the owner and submitted the application for permit renewal in 1999. The City is the operator and the discharger since it is City tenants together with the US Coast Guard that produce the discharge. This is a waste water treatment plant which the Navy allows to be used solely to support leasing activities at the former Naval Training Station Treasure Island that benefit the residents of the City and County of San Francisco. It is only reasonable that the City acknowledge its significant role and the benefits they derive from the continuing operation of this essential utility. All language in the permit when referring to the Discharger in reality refers to actions that the City as operator is responsible for, and not to the Navy as owner. The Findings in paragraph 1 should be changed to list the City as the discharger.

Response 2

The Water Board is unable to list the City as the discharger because there is no binding agreement between the Board and the City obligating the City to operate the facility, the only agreement is between the Navy and the City. While it may be reasonable for the City to acknowledge its significant role and the benefits it derives from the continuing operation of the facility, the fact remains that it has not yet done so.

In fact, the 1997 Cooperative Agreement between the Navy and the City states: "Nothing in this Agreement shall require the Caretaker *(e.g., the City)* to become a secondary discharger or co-permittee on any existing environmental permit, license or authority without the consent of the Caretaker." To date, the Board has not received such consent.
Also See Response Nos. 1 and 3.

Navy Comment 3: City To Take Action to Assume Permits

In the Findings, paragraph 2, Facility Location, Service Area and Population, the permit, fact sheet and public notice all state that pursuant to the 1997 Cooperative Agreement (CA) between the Navy and the City, the City agreed to operate the plant. Actually as set forth in CA Functional Annex 6, Utilities Services, Technical Execution Plan Utilities Management, paragraph 15, Environmental and Operating Permit Management, the City and the Navy agreed that the Navy would remain permit holder until 1 April, 2000. The City was to "take necessary action to assume any permits…" needed for the continuing operations of the City. It is now more than reasonable for the City to take a lead role in the responsibility for the plant including its operation under the permit since the Navy is not directly controlling the operation of the plant and can't directly guard against potential permit violations. The actual operator who is also the source of the discharge must be held accountable for the permit requirements by naming the operator the discharger and permit holder.

Response 3

As stated above, while it may be reasonable for the City to have taken necessary action to assume any permits, the fact remains that it has not yet done so. The only contractual agreement the City is under for the operation of the Treasure Island WWTP is the above referenced Cooperative Agreement (CA). As stated in Article VII Section 701 of the CA, the Term of Agreement has an ending date (which is already past), with the option to exercise extensions. Although the City and Navy have been exercising this option every year, there is no guarantee that they will continue to do so; and in Article X, Section 1003, there is a provision which allows the City to terminate the CA with written notification to the Navy, prior to the ending date of the CA. If such a termination were to be made, liability for operation of the WWTP would be returned to the Navy.

Further, Article VIII Section 806 Part C of the CA states: "Nothing in this Agreement shall require the Caretaker to become a secondary discharger or co-permittee on any existing environmental permit, license or authority without the consent of the Caretaker." To date, the Board has not received such consent. The CA does not provide evidence the City should be named discharger for this permit.

Navy Comment 4: Permit Fee Payment

Finally there is the matter of permit fee payment. While not specifically referenced in the proposed permit, a considerable fee is assessed as part of the permittee's obligations. Once again, as incorrectly named discharger, the Department of Navy is responsible for additional costs associated with a City-run operation that benefits its citizens.

Response 4

Permit fees have been assessed for this facility for many years. We would expect that the Navy and City have come to agreement between themselves for payment of these fees. The Board is not able to enforce the terms of any such agreement between parties.

Navy Comment 5: Permit Transfer Protocol

We also note the current proposed wording of Paragraph 19 concerning Change in control or Ownership places Department of Navy in yet another untenable situation. As currently written, this provision does not allow for a clean, firm and final break from this permit when the Navy conveys Treasure Island to some other entity. As currently structured, the City must send a written request to the Board to transfer this Order. If the City fails to do so, the Department of Navy remains the sole discharger for the life of the permit. This is a completely untenable outcome when the sole goal of the Department of the Navy is to transfer the former Naval Training Center Treasure Island into non-federal ownership and productive reuse.

Response 5

This language summarizes the Standard Provisions and Reporting Requirements for transfer of the Order. When the Navy relinquishes ownership of the WWTP, the Navy may request that the Board transfer, modify, revoke and reissue or terminate the permit pursuant to 40 CFR sections 122.61-122.64. The latter action would not require consent of a new owner.

Navy Comment 6: Department of the Navy Named as Secondary Discharger

While not fully acceptable to the Department of the Navy, there is another method of designating dischargers that the Board has previously used. The Navy is willing to accept a secondary discharger role with the City as the primary discharger. The Board has used this approach with both the Astoria Metals Corporation NPDES permit for Dry Dock 4 and the Pegasus NPDES permit for drydock operation at Mare Island. In the case of this proposed permit, the approach is even more appropriate. The City of San Francisco Public Utilities Commission applies their knowledge and skills in successfully operating several municipal treatment facilities and has done an excellent job at Treasure Island. If the City is named the primary discharger with the Department of Navy being a secondary discharger, you will have the best and most direct designation of the two parties having the most interest and control in the operation of a fully compliant treatment plant.

Response 6

See Response Nos. 1 and 3, above. Astoria Metals Corporation (AMC) and Pegasus NPDES permits differ from this one in that they were for industrial facilities that had formal lease agreements. This is a WWTP with a cooperative agreement between the City and the Navy. AMC and Pegasus were also the entities that submitted the applications for their permit, which is not the case for this WWTP. Further, when the AMC permit was issued, the Navy also protested being named secondary discharger, but was named anyway.

II.A San Francisco Public Utilities Commission; General Comments

City Comment 1: Dilution credits

The draft permit limits the allowable dilution for the discharge, contrary to the State Implementation Policy. As a result, the permit must include interim limits because the "final limits" cannot be achieved by the current discharge. Some of the identified final limits may require the future application of tertiary treatment for this small and mainly residential discharge. Neither the Fact Sheet nor the Findings justify this method of determining effluent limitations for this site.

San Francisco proposes that the limitations in the permit be based on actual dilution. The rationale for this proposal is included in Attachment A to these comments. As discussed in the Attachment, the use of the Board's 10:1 cap on dilution is particularly inappropriate for this discharge because of the co-location of the site used for background samples.

Response 1

We disagree with the above contention that "*The draft permit limits the allowable dilution for the discharge, contrary to the State Implementation Policy.*" The dilution credit in the draft permit is in accordance with the State Implementation Policy, SIP, Section 1.4.2.2.B, which states:

> *"The RWQCB shall deny or significantly limit a mixing zone and dilution credit as necessary to protect beneficial uses, meet the conditions of this Policy, or to comply with other regulatory requirements. Such situations may exist based upon the quality of the discharge, hydraulics of the water body, or the overall discharge environment (including water column chemistry, organism health, and potential for bioaccumulation). For example, in determining the extent of or whether to allow a mixing zone and dilution credit, the RWQCB shall consider the presence of pollutants in the discharge that are carcinogenic, mutagenic, teratogenic, persistent, bioaccumulative, or attractive to organisms. In another example, the RWQCB shall consider, if necessary to protect beneficial uses, the level of flushing in water bodies in such lakes, reservoirs, enclosed bays, estuaries or other water bodies types where pollutants may not be readily flushed through the system. In the case of multiple mixing zones, proximity to other outfalls shall be carefully considered to protect beneficial uses.*"

The SIP, in fact, serves only to limit, not expand, the circumstances under which a dilution credit should be granted. The factors for limiting dilution are explained in Section IV of the Fact Sheet. In summary, the assimilative capacity of the Bay is highly variable due to the complex hydrology of the receiving water. Under the SIP, the Board has full discretion to deny or significantly limit mixing zones and dilution credits particularly for persistent and bioaccumulative pollutants unless evidence exists that demonstrates adequate assimilative capacity exists. As further explained in our response to the City's Attachment A, the City has not provided adequate justification for a higher dilution credit at this time.

Also, the City's characterization of the 10:1 credit as a "cap" based on superceded policy is erroneous. The value 10:1 is based on the Basin Plan's Prohibition number 1 (Table 4-1), which prohibits discharges with less than 10:1. The SIP did not supercede this prohibition. So

since the discharge is required to achieve at least 10:1, it is appropriate at this time to grant 10:1, provided the discharge does achieve 10:1, and there is no other evidence (i.e. lack of assimilative capacity) to further limit dilution credit. Based on the previous permit, and our general understanding of the function of deepwater diffusers, this facility does achieve 10:1.Thus, the draft permit proposes 10:1 for most pollutants. For bioaccumulatives, the State Board has upheld our previous permit action for another discharger, where we denied dilution credits for the same bioaccumulative compounds as in this draft permit. The State Board found, in that case (WQO 2002-0012, EBMUD, p. 16):

> *"…where there is pollutant-specific evidence of a lack of assimilative capacity, for instance due to fish tissue studies showing the presence of bioaccumulative pollutants at concentrations with the potential to threaten public health, then denial of dilution credit is clearly appropriate."*

Finding 24 of the draft permit clearly identifies the lack of assimilative capacity for mercury and pesticides based on high fish tissue levels in Bay fish.

We also reject the City's claim that compliance with final limitations will require tertiary treatment. Resolution of compliance with water quality based limits will be made through proper operation of secondary waste water treatment technology, and Total Maximum Daily Loads for mercury, and Site Specific Objectives for copper and cyanide, as explained in the specific findings for these pollutants (45, 48, 50). For DDE and dieldrin, the State Board has stated its intent to revise trigger 2 in the reasonable potential determination. Once approved, these pollutants will not trigger the need for limits in the next permit reissuance if effluent data continue to show that they are not present.

City Comment 2: Interim Limits/Compliance Schedules/Final Limits

The draft permit proposes interim limits for copper, mercury, cyanide, DDE, and Dieldrin. The permit and Fact Sheet also include compliance schedules and identify final limits. The proposed compliance schedules and final limits potentially may have a significant financial impact on the Discharger. The interim limits are inappropriate because they are not necessary; attainable final limits based on actual dilution can be used in the permit. Our rationale for each pollutant is summarized below.

> ***Copper**: Interim Limit / 5-year Compliance Schedule/Final Limit – Using real dilution in the calculation of a final limitations, as allowed by the SIP, will produce effluent limitations that are attainable by the discharge. The Fact Sheet identifies a final limit that will likely require the construction of additional treatment unless this proposed final limit is changed.*
>
> ***Mercury**: Interim Limit / 6-year Compliance Schedule/Final Limit[1] - As discussed in comment #1, use of actual dilution rather than assuming no dilution, will mean that interim limits are not required. (See Attachment B for a discussion of additional issues related to mercury.)*
>
> ***Cyanide:** Cyanide is a non-persistent pollutant. The available monitoring showed only one positive analysis for this chemical. Use of actual dilution, rather than the 10:1 factor will result in this pollutant not requiring interim limits.*

[1] Compliance for mercury is required by March 31, 2010.

DDE and Dieldrin – *These compounds have never been detected in the effluent and are very unlikely to be present. Neither interim nor final effluent limits are appropriate since neither demonstrates "reasonable potential" to exceed standards (see 40 CFR 122.44). The presence of these substances in the waters of San Francisco is not adequate justification for assuming that these substances are in the effluent and that limitations are required. (See the discussion under comment #4)*

Response 2

Copper: See Response to Comment No.1

Mercury: See Response to Comment No.1

Cyanide: See Response to Comment No.1

DDE and Dieldrin: As explained in Finding 34 of the Order, the SIP has three triggers by which reasonable potential is demonstrated. One of these triggers is activated if the observed maximum ambient background concentration is greater the applicable water quality criteria. The SIP requires limitations to be developed when this is the case. That said, the State Board has indicated its intent to revise this trigger in the near future. We will reflect the new policy in the next permit reissuance. At this time, there is little chance the discharge will not comply with the proposed limits; as noted, these compounds have not been detected in the effluent.

II. B San Francisco Public Utilities Commission; Comments Referenced to Specific Pages

City Comment 3: Daily Maxima Limitations

Finding #21.a. (page 12): This finding provides a lengthy discussion of the need to apply daily maximum limits to POTWs. However, the federal regulations [40 CFR 122.45(d)(2)] specifically state that limitations for POTWs shall be specified only in terms of weekly and monthly averages unless impracticable. The permit finding cites NPDES regulations, the SIP, and U.S. EPA guidance in the Technical Support Document to provide the basis to establish MDELs, specifically in relation to acute water quality effects, yet it provides no explanation of its rationale. The permit argument is that less than weekly or monthly averages would be impractical to protect against "acute toxicity impacts." This interpretation is unsubstantiated. Based on federal regulations, there is no justification to apply daily maximum limits to Oil and Grease or priority pollutants. If the regulations did not intend to include priority pollutants for POTW discharges, this intent would have been specified.

Recent court decisions support the removal of Maximum Daily Effluent Limits in NPDES permits for POTWs. One of the appeal issues in the LA and Burbank POTW permits was the presence of less than weekly limits. LA and Burbank brought suit against the State Water Resources Control Board and the Los Angeles Regional Water Quality Control Board. The trial court determined that the Boards were in error.
From the decision of the Appeals Court (J. Kitchen): "The trial court also sustained the petitions on the grounds that the Regional Board failed to adequately show how numerical permit effluent limitations were derived from the narrative criteria; the effluent limitations are not supported by adequate findings and evidence in the administrative record; the

permits improperly impose daily maximum limits rather than average weekly and average monthly limits; and the permits improperly specify the manner of compliance. Water Boards do not challenge this latter group of rulings on appeal and acknowledge that they must issue new permits in compliance with these rulings." (2002 WL 31867863 (Cal.App. 2 Dist.)) [emphasis added]

Response 3

We disagree with the City's contention that our interpretation of acute toxic impacts is unsubstantiated. We believe Finding 24 clearly demonstrates the need for daily limits for toxics. Daily limits are required in the SIP and the EPA's Technical Support Document. It follows logically that the absence of daily limits would theoretically allow discharges to be at concentrations in violation of the 1-hour or 4-day criteria for longer than these periods without triggering any permit violations. This renders the permit ineffective in ensuring compliance with the standards.

Regarding Oil and Grease, the authority for its regulation is not federal, but comes from State regulations specified within the Basin Plan. The discharge from this facility has been subject to the same daily limit for Oil and Grease since 1995, and has not had compliance problems, so the limit is both achievable and reasonable.

The commenter cites a trial court and appellate court opinion to support its position. We will not respond to the substance of either quotation. It is not appropriate to cite or rely upon a decision issued by a trial court in a case that does not involve this Board and the parties involved in this permit. The case involved another regional board and other dischargers; thus, it has no bearing on this permit. It is also inappropriate to quote, cite or rely upon the appellate court decision in the same case cited by the commenter because the California Supreme Court has granted review of the decision and the opinion has been superseded.

City Comment 4: Compliance Schedules, Interim and Final Limits and Mass Loadings for "legacy pesticides"

Findings #29 (page 16), #41 & #51 - Limits and compliance schedules for legacy pesticides: 4,4-DDE, dieldrin. The federal regulations at 40 CFR 122.44(d)(1)(i) specify that permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." These pollutants (4,4-DDE, dieldrin) have not been detected in the effluent; regardless, the draft permit has determined that these constituents cause, have the reasonable potential to cause, or contribute to an excursion above standards. We understand that this positive RPA determination is based on the presence of these pesticides at background levels in the Bay above standards and an interpretation of the SIP. However, this determination is simply not reasonable and flies in the face of common sense. A positive RPA determination incurs costs (monitoring, analytical method development, pollution prevention, etc.) that are not warranted because there is no evidence that the pollutants are even present. The small volume and domestic nature of this discharge suggest that it would be unlikely that these pollutants would be found in the effluent.

We are also concerned that future monitoring will identify more legacy pesticides and other organics which are present at background levels above Bay standards but which have never

been or are not currently detected in the effluent. Our concern is that the pollution prevention program will have to focus on these pollutants to the detriment of real pollutants of concern. Thus, not only are costs incurred with no benefit but also environmental programs will be misdirected to non-problems.

Response 4

See Response No. 2, above.

***City Comment 5*: Interim Limits for Copper**

Finding #29 (page 24) & #45 - Interim Limit / Compliance Schedule/Final Limit for Copper - Compliance with a final limit within 5 years could potentially require the construction of additional treatment. The Regional Board, however, is proposing to remove copper from the list of substances causing impairment in San Francisco Bay, based on the rationale that there is no evidence that copper at current ambient levels represents a threat to water quality. Another option proposed by the Board is the establishment of a site-specific objective. Since there is no assurance that either of these efforts will succeed, the TI facility and the other POTWs may be forced to achieve a copper limitation which, it is generally agreed, is unnecessarily stringent. Use of real dilution avoids this problem

Response 5

See Response No. 1, above.

***City Comment 6*: Interim Limits for Mercury**

Finding #29 (page 16) & #47; also Provision 8 - Interim Limit / Compliance Schedule/Final Limit for Mercury; Mass Emission Limitation – By accepting this draft permit and the proposed final limits, the Discharger is agreeing that it has the responsibility to attain these limits and will initiate the necessary interim activities including, as necessary, planning, designing, and building additional treatment facilities. Consequently, these final limits are very important. Although it has been suggested that the TMDL will provide relief and result in less stringent final limits this outcome is unlikely. (CWA section 303 (d)(4)(A) provides for revisions only in the case of attainment of standards. Attainment for mercury is problematic given that the primary sources are Bay muds and inflow from the delta. It is also not clear that limitation revisions can allow exceedance of standards at the point of discharge.) Use of actual dilution, as discussed in Attachment A will allow the discharge to comply with the final limitations.

Response 6

We disagree with the City's interpretation of the CWA and are optimistic that the TMDL will resolve compliance issues for mercury while establishing a limit that is protective. CWA section 303(d)(4)(A) provides that less stringent water quality based limits are allowed if the limit is based on a TMDL, and attainment of standards is assured. Our interpretation of this provision is that TMDL based limits can be implemented while the waterbody is being restored so long as ultimate attainment of standards is assured with the TMDL. Regarding use of actual dilution, see Response No. 1, above.

City Comment 7: Interim Limits for Cyanide

Finding #29 (page 16) and #50 – Cyanide: The permit does not include adequate justification for requiring a compliance schedule and an interim limit for cyanide. As stated in the permit, cyanide is a region-wide problem and there are analytical issues associated with matrix interferences. The permit indicates there is evidence to suggest that the cyanide measured in the effluent may be an artifact of the analytical method or a result of analytical interferences. Furthermore cyanide is not known to cause toxicity in the environment and ambient samples collected in the vicinity of the discharge were non-detect. Although there were two measured cyanide values in the TI effluent, it cannot be determined that those values are verifiable due to possible interferences. Known interferences include sulfides, fatty acids, aldehydes, carbonates, glucose, nitrates, etc. In addition, cyanide monitoring results tend to be ephemeral and difficult to reproduce.

Since cyanide is not a persistent pollutant, and due to the very limited data indicating the presence of cyanide, the permit should not have an effluent limit or compliance schedule at this time. If subsequent monitoring shows it is actually present and a site-specific objective is developed for the Bay then a limitation may be appropriate. The potential risk of problems is very low from this pollutant from a low flow discharge into a highly mixed receiving water.

Response 7

The SIP requires that this permit specify a limit for cyanide due to the measurement of cyanide in the discharge at levels above the criterion. Though we recognize that there is a possibility of analytical error, neither the Navy nor the City has provided evidence to prove this.

We cannot arbitrarily throw out data based on speculation of interference or discontent with sample results. The Navy and the City should take proper precaution with future cyanide analyses, and implement necessary quality assurance and quality control procedures to ensure that those results are reliable and irrefutable for the next permit reissuance.

City Comment 8: Mercury Mass Emissions

Effluent Limitations #47 – Interim Mass Emission Limitation for Mercury - page 23 - For Mercury, change the Interim Limit to Design Flow 2.0 MGD (from Discharge Description #5, page 7), rather than the average flow data. The federal regulations specify that mass limits for POTWs must be based on design flow:

> *"In the case of POTWs, permit limitations, standards, or prohibitions shall be calculated based on design flow [40 CFR 122.45(b)]"*

Response 8

Finding #47.f. has been revised as follows:
Interim Mercury Mass Emission Limitation. In addition to the pooled performance-based mercury effluent limit, this Order establishes an interim mass-based mercury effluent limitation of 0.0058 kg/month. This limitation is calculated based on the WQO of 0.025 ug/L and the dry weather design capacity of the WWTP (2 mgd), and applies only during the dry weather season (May through October). The previous Order did not include mass-based effluent limitations for mercury. The mass-based effluent limitation in this Order, 0.0058

kg/month, maintains current loadings and is consistent with state and federal antidegradation and antibacksliding requirements.

City Comment 9: Mercury Source Control Special Project

Finding 47. Mercury, item j. (page 23) – Change as follows:

Mercury Source Control Strategy. As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger will implement the mercury source control special project detailed in PROVISION 3 and mercury source control strategies consisting of those ~~detailed~~ to be developed in the Treasure Island Wastewater Pollution Prevention Program.

Then in E. PROVISIONS on page 36 add "and Projects" to the heading:

Special Studies and Projects

On page 37 insert a new #3, and also renumber the remaining Provisions.

3. Mercury Source Control Special Project

The Discharger will develop a mercury source control special project for fluorescent bulb collection and diversion from the solid waste stream. The Discharger shall submit the project outline to the Board with in six months of permit approval and initiate the project within 12 months of permit approval.

Response 9

Finding 47.k. has been revised as follows:

Mercury Source Control Strategy. As a prerequisite to being granted the compliance schedule and interim limits described above, the Discharger will implement the mercury source control special project detailed in Provision E.3 and mercury source control strategies consisting of those to be developed in the Treasure Island Wastewater Pollution Prevention Program. This should benefit overall mercury loadings to the Bay by reducing tube breakage during household garbage collection, which contributes mercury to storm runoff and the atmosphere.

Provision E.3, Mercury Source Control Special Project, was added as follows:

The Discharger shall develop a mercury source control special project for fluorescent bulb collection and diversion from the solid waste stream. The Discharger shall submit the project outline to the Board within six months of permit adoption for approval by the E.O. and initiate the project within 12 months of permit adoption.

City Comment 10: Special Studies

Special Studies - Provision E.3 (Ambient Background), E.4 (Cyanide Compliance Schedule), E.5. (Pollution Prevention and Pollutant Minimization Program) (page 43)

Based on the small volume of this discharge, the permit should indicate that independent studies by the Discharger are not required, and that the Discharger will implement findings conducted, reviewed and accepted through regional and independent studies of other Bay Area dischargers.

Some of the studies and special conditions are inappropriate. For example, Provision E.5.c.iii. (page 45) requires an expansion of the Pollution Prevention Program if the dioxin TEQ exceeds the Bay objective (0.014 pg/L). As shown by the Board's dioxin monitoring program stormwater runoff contains in the range of 0.1 to 68 pg/L (e.g., 10% inflow with 10 pg/L will result in an effluent with 1 pg/L which exceeds the standards). Even a very small amount of leakage of stormwater into a sanitary sewer will cause an exceedance. In these situations, it is not appropriate to waste effort amending the Pollution Prevention Program to somehow address this ubiquitous pollutant.

Response 10

In consideration of the size of this discharge, we agree that independent study will not be fruitful for cyanide and dioxins. We note, however, that the reasoning presented by the City, that stormwater infiltration into the sanitary sewer will cause an exceedance of the dioxin TEQ WQO, is flawed. The WWTP, if properly optimized for solids removal, should be able to treat the water it receives such that dioxin TEQ levels are below the criterion at non-detect or nearly non-detect.

For cyanide, Provision E.5 (previously E.4) already allows the Discharger to satisfy this requirement through BACWA efforts. For dioxin TEQ, the draft permit has been revised to remove the Pollution Prevention language from the permit.

For ambient background, we believe independent study would provide the most representative information for effluent limit calculation. However, in consideration of the desire of all dischargers in the Region to keep costs down, we have allowed dischargers to collaborate. This fact is already reflected in the draft permit's Provision E.4 (previously E.3), so no revision is necessary in response to the City's comment.

For pollution prevention, we believe all facilities, regardless of the volume of discharge, can effectively reduce the load of pollutant discharges through implementation of Pollution Prevention and Pollutant Minimization Programs. However, because of the small size of this discharge, much of its program can be copied and borrowed from existing larger programs, such as the program developed by the City for areas currently within city limits.

City Comment 11*: *Pollution Prevention and Pollutant Minimization Program

Page 38, Provisions Item #5 (to be renumbered as 6.)

As discussed with the Board, we recommend replacing "a." with:

a. The Discharger shall develop and design a Treasure Island Pollution Prevention Program to reduce pollutant loadings to the treatment plant and therefore to the receiving waters within 12 months from the date of adoption of this Permit. Development of the Program shall include a target audience assessment, consisting of identification of POCs and surveying of businesses and the public in order to determine which behaviors or actions might contribute to the disposal of POCs to the wastewater stream. The Treasure Island Pollution Prevention Program shall be developed to include messages and materials developed specifically to address the findings of the target audience assessment.

Response 11:

Provision E.6.a. (previously E.5.a.) has been revised as follows:

The Discharger shall develop and design a Treasure Island Pollution Prevention Program to reduce pollutant loadings to the treatment plant, and therefore to the receiving waters, within 12 months from the date of adoption of this Order. Development of the Program shall include a target audience assessment, consisting of identification of Pollutants of Concern and surveying of businesses and the public in order to determine which behaviors or actions might contribute to the disposal of pollutants of concern to the wastewater stream. The Treasure Island Pollution Prevention Program shall be developed to include messages and materials developed specifically to address the findings of the target audience assessment.

II.C. San Francisco Public Utilities Commission *Comments on the Self Monitoring Program*

City Comment 12: Dioxin

Dioxin– 2,3,7,8-TCDD and Congeners [11]: Effluent is required to be monitored twice per year. Footnote 11 indicates that "Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613; the analysis shall be capable of achieving one-half of the U.S. EPA MLs and the Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable…

Footnote 1 of the Self-Monitoring Program of this order requires "The Discharger shall use U.S. EPA Methods with the lowest Minimum Levels (MLs) specified in the SIP and described in footnote 1 of effluent limitations B.7, and in the August 6, 2001 Letter." The SIP does not contain an ML for TCDD-TEQ, and the August 6, 2001 Letter requires the use of the most currently approved U.S. EPA methods for analysis. The most current U.S. EPA method for TCDD analysis is method 1613 that requires a 1-liter volume sample. The August 6, 2001 Letter further states that the Discharger has the option of using the current U.S. EPA method or conducting a special study to reduce detection limits by increasing sample volume size. Since it is clearly recognized that POTWs are not significant contributors of dioxin and given the extremely small volume of effluent from this discharge, any special studies associated with dioxin testing are unwarranted. This Discharger chooses to use U.S. EPA Method 1613 for the analysis of 2,3,7,8-TCDD and Congeners. Footnote 11 of the SMP should delete the second component of the first sentence "~~the analysis shall be capable of achieving one-half of the U.S. EPA MLs and the Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable~~". Compliance testing must retain comparability to existing methods in order to justifiably evaluate individual contributions. Special studies to determine if method analyses require modifications should and have been conducted outside the realm of compliance monitoring. Changes to compliance monitoring analytical requirements should be effected only after method changes have been tested and approved by the U.S. EPA.

Response 12

We agree there is conflicting language between the Order and the Self Monitoring Program. These conflicts are corrected with the following changes to Footnote 11:

> "Chlorinated dibenzodioxins and chlorinated dibenzofurans shall be analyzed using the latest version of U.S. EPA Method 1613; the analysis shall be capable of achieving one-half of the U.S. EPA MLs. Also, the Discharger shall participate as appropriate in the regional collaborative effort with other POTWs to validate the 4-liter sample methodology for lowering the detection limit for dioxins."

We do not agree, however, with the City's request to refrain from requiring the Discharger to achieve one-half U.S. EPA MLs. One-half U.S. EPA MLs are routinely achievable by both the labs in California that perform dioxin analysis. Furthermore, one-half U.S. EPA ML was developed two years ago in collaboration with BACWA (see attached letter), to which the City is a member.

City Comment 13: ***Acute Toxicity Testing:***

Effluent monitoring in this Order is required on a monthly frequency. There have been 94 acute toxicity effluent tests performed on this discharge from June 1996 through March 2004 on a monthly frequency using threespine stickleback and rainbow trout. Aside from one survival percentage of 85% for rainbow trout in December 2000, all other survival results ranged between 90% and 100%. Survival for threespine stickleback, which are not approved for 5th edition testing, was reported at 80% for the same December 2000 sampling event, with all other survival results ranging between 85% and 100%. The Discharger has begun concurrent acute toxicity testing using threespine stickleback, rainbow trout and fathead minnow in March 2004 and will continue to conduct concurrent testing using rainbow trout and fathead minnow once the new Order is approved. Results from the first test showed 100% survival for both rainbow trout and fathead minnow. These results strongly and clearly indicate there is no acute toxicity concern with this effluent.

The Discharger will submit a work plan to address concurrent testing using rainbow trout and threespine stickleback once the new Order is approved. The testing frequency following the concurrent testing results should be reduced to twice per year, once during the wet weather season and once during the dry weather season, as long as the volume of effluent remains below 1 MGD. More frequent monitoring of acute toxicity is not warranted and results in a waste of resources (organisms) for no apparent reason.

Response 13

The Board is retaining the acute toxicity test requirement at a monthly frequency for the following reasons: 1) acute toxicity test results from the past do not necessarily represent the future, especially in the case of this discharge since the service area is undergoing redevelopment, and 2) this Order requires a screening period for a new test organism, which may be more sensitive than organisms used in previous tests. Additionally, we believe a monthly frequency is reasonable and consistent with the frequency in other permits of similar facilities. Recent permits issued for similar discharges, with facility design capacities ranging from 0.98 MGD to 3.6 MGD, all have monthly acute toxicity test requirements.

II.D. San Francisco Public Utilities Commission Attachment A: Discussion of Appropriate Dilution Factor and Dilution Modeling for the Treasure Island Outfall

We thank you for your comments and preparation of a dilution study. Based on our review, we believe there remains uncertainties in the assumptions used by the City, which leads us to retain the 10:1 currently proposed in the draft permit. Given the very short time for review of

the study results, our comments are somewhat preliminary. Because the Water Board has limited staff resources at this time, we invite the City to resubmit a revised model that addresses all the concerns we identified below prior to the next permit reissuance, or at the latest, along with the application for permit renewal. This is not an unreasonable request as Water Board staff met with City staff over 1 year ago regarding the Board's intent to reissue this permit, giving the City ample opportunity to consider its issues and provide justification. However, the City waited until less than one month before Board consideration to submit its dilution study. It would be more conducive to a constructive exploration of this very important issue if all relevant information was made available in a timely fashion.

To ensure that this will be the case, Provision E. 23 b (previously E. 22b) of the draft permit has been revised as follows to clarify the Water Board's expectation for what is a "complete" application for permit reissuance.

> Provision E.23 b: Order Expiration and Reapplication
> In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements. The application shall be accompanied by a summary of all available water quality data including conventional pollutant data from no less than the most recent three years, and of toxic pollutant data no less than from the most recent five years, in the discharge and receiving water. Additionally, the Discharger must include with the application the final results of any studies that may have bearing on the limits and requirements of the next permit. Such studies include dilution studies, translator studies and alternate bacteria indicator studies.

What follows are our preliminary responses to the comments included in Attachment A, followed by our concerns about the assumptions the City used in its dilution model:

City Attachment A: Comment (a) 1. Far-field Background Station

A far-field background station is appropriate because San Francisco Bay is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs.

The use of a far-field background station is not relevant to the methodology for determining the dilution factor. However, it is relevant in the calculation of effluent limits. The use of far-field background station rather than local background values can have a significant effect on calculating the effluent limitations, especially if the local water has higher pollutant concentrations. For most dischargers, the use of Yerba Buena results in a less restrictive effluent limit. This is because most other discharges are in more constrained and less well-flushed locations. If true local background values were used (with higher pollutant concentrations) these discharges would have more restrictive limits since high background concentrations mean that there is less dilution capacity in the receiving water. The Yerba Buena sampling site is well-flushed and thus has relatively low background concentrations. The Board may be implying that because they have benefited (most) dischargers by giving them a lower background values (as measured at Yerba Buena rather than locally) that it is then appropriate to counterbalance this liberality by being overly restrictive with the dilution factor. Regardless of the intent, this approach is wholly inappropriate for Treasure Island which is adjacent to Yerba Buena. The Yerba Buena data represents the "true" background

data for this discharge and does not provide the benefit that other dischargers get by being allowed to use a cleaner site for background values than their own "true" background. In other words, other dischargers benefit for being given a distant (clean) background site to use in their calculations. The Treasure Island site receives no similar benefit.

Attachment A: Response (a) 1.

For a truly representative background where factors of safety would not have to be applied, the samples should be collected adjacent to the discharge's mixing zone, and collected for a sufficient duration of the time to capture seasonal, and annual variability. The RMP Yerba Buena Island station (YBI) is approximately 1 mile away from the WWTP outfall, which is too far to be considered adjacent to the mixing zone. YBI is also located adjacent to or in the deeper shipping channel of that part of Bay. The treatment plant's outfall is located only 400 feet from shore, versus YBI, which is over 4000 ft. from shore. The waters at the outfall are subject to greater near shore effects such as storm runoff, and contaminated groundwater seepage. For these reasons, we believe that YBI is a far-field station and applying a conservative approach for dilution is an appropriate off-set.

City Attachment A: Comment (a) 2.: Complex Hydrology and Mixing Zone

Due to the complex hydrology of San Francisco Bay, a mixing zone cannot be accurately established.

It is not apparent what the Board is trying to say with this statement. By using a 10:1 dilution factor the Board is, in effect, establishing a mixing zone that is approximately 2 meters or less. The EPA models in general use for calculating dilution factors can determine a zone of initial dilution (ZID) where turbulent mixing is caused by a combination of the jetting action of the discharge pipe, and the buoyancy of the freshwater discharge. Using conservative current data and receiving water data, these models are able to determine the ZID and the dilution factor within this ZID. There is no unique factor in SF Bay that prevents this determination.

Attachment A: Response (a) 2.

The ZID changes shape with each tidal cycle. This fact is not accounted for in the dilution model that was submitted.

City Attachment A: Comment (a) 3.: Cumulative Effects of Other Wastewater Discharges

Previous dilution studies do not fully account for the cumulative effects of other wastewater discharges to the system.

It is, of course, possible to redo studies so that they take into account current conditions. Regardless, the cumulative effects of other discharges are always taken into account because effluent limitations are calculated using background values. High background values limit the dilution available and result in more restrictive effluent limits. Other wastewater discharges, including stormwater runoff, add pollutants to the Bay. These pollutants are present in the receiving water at the point of discharge. When calculating effluent limits, the cumulative effects are taken into account especially when "true" local background values are used as is the case with the Treasure Island discharge.

Attachment A: Response (a) 3.

See Response (a) 1.

City Attachment A: Comment (a) 4.: Limiting Mixing Zone and Dilution Credit for Persistent Pollutants

The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper, lead, and nickel).

The Fact Sheet discussion states that discharges to Bay Area waters are not completely mixed discharges. The SIP is not clear on this topic, however, the one use of this term (applied to discharges) is usually in reference to situations such as a laminar (non-turbulent) discharge to a stream where the effluent does not fully mix with the receiving water. For the Treasure Island discharge, we used an EPA model to calculate the zone of initial dilution which is defined as the limit of turbulent mixing. Within this turbulent mixing zone, the mixing is complete.

Another use of the term is for incompletely mixed receiving waters (see TSD Section 4.3). Although the Bay is not "completely mixed," this situation is not relevant since the calculated dilution factor only pertains to the zone of instantaneous (turbulent) mixing, not subsequent (far-field) Bay mixing due to currents, wind, etc.

The statement regarding copper, lead, and nickel being "persistent" apparently means that full dilution credit would only go to pollutants such as cyanide or ammonia which are not persistent. This approach does not appear to be supported by EPA's Technical Support Document for Water Quality-based Toxics Control. While the SIP requires the Board to consider such pollutants in evaluating mixing zones, it does not require that the Board automatically default to at 10:1 dilution factor when the real dilution is much higher. In addition, the evaluation needs to be documented – what was the site-specific consideration that was given to these pollutants.

In this permit, it is appears that the Board has "mechanically applied" the 10:1 dilution cap since the permit does not use a greater than 10:1 factor for the non-persistent pollutant – cyanide.

Attachment A: Response (a) 4.

The SIP defines a completely mixed discharge as one with "not more than a 5 percent difference, accounting for analytical variability, in the concentration of a pollutant exists across a transect of the water body at a point within two stream/river widths from the discharge point." The discharge does not meet this definition for a completely mixed discharge, and is therefore an incompletely mixed discharge. The SIP allows for limiting dilution for persistent pollutants.

The Board has not "mechanically applied" 10:1 dilution, and it is not a "cap". The 10:1 is a conservative allowance, provided in accordance with the SIP for the reasons detailed in the Fact Sheet. Please see also response to the City's comment 1.

City Attachment A: Comment (b): Conservative Approach

The Board finding refers to a "conservative allowance of 10:1 dilution" as apparent justification (Finding 24.c.). However, conservative approaches are already built into the system. For example:

- *Dilution takes into account background values and uses the highest background value[2] measured since the start of the Regional Monitoring Program (1992 or 1993 depending on chemical). In reality, these high values over a twelve-year period likely represent extreme situations of high runoff and are not the average background to which the discharges are exposed.*
- *The standards are based on EPA's criteria which use the maximum bioaccumulation factors for the pollutant (or similar pollutant). These bioaccumulation factors may not be applicable to the biota in the site-specific waterway. (This may explain the lack of bioaccumulation of PAHs in San Francisco Bay fish even though EPA's criteria assume this will occur.)*
- *Criteria based on human health risk are derived from EPA's IRIS database that uses very conservative approaches when converting animal risk data to human risk assumptions and when extrapolating risks to very low exposures.*

Since lower limits have consequences in terms of substantial public expenditures, the basis for the increased conservatism must be identified and defensible.

Attachment A: Response (b)

The City implies that the Board's conservative approach on dilution is overkill in light of conservatism applied in other areas of toxics regulations. We disagree. All three examples cited by the City are required by either the SIP or the CTR. In other words, the State Board and U.S. EPA, in adopting the SIP and CTR, established the conservative approaches listed above. Moreover, the State Board saw fit to allow further limits on dilution.

City Attachment A: Comment (c): Lack of required economic assessment

Contrary to the requirements of California Water Code section 13241, the Fact Sheet does not assess the environmental and economic consequences of the mechanical application of the 10:1 cap rather than SIP procedures. The Board always uses this 10:1 value, for discharges with high current speeds and those with low current speeds, for those with elevated "true" local background pollutant levels and those, such as Treasure Island, with low background levels. In effect, the use of the 10:1 factor, and the denial of any dilution for bioaccumulative pollutants, has become Board policy without being formally established. As a policy, it needs to be formally assessed, including the Section 13241 economic review.

Attachment A: Response (c)

We disagree with this assertion. As previously stated, the 10:1 dilution allowance is not a mechanical application of a cap, nor is it a defacto Board policy. For each permit, individual analysis was performed. In every case, as in this case, there was inadequate basis provided for a higher dilution credit. The most common problems involve technical uncertainties that were not adequately addressed with the modeling studies, or biological data were not available to support dilution for bioaccumulatives (as required in the State Board's Order No. WQO 2002-0012).

Specifically, regarding the City's assertion that the Board must assess economics pursuant to 13241 in its application of 10:1 dilution, the Board does not need to consider the factors

[2] Water quality based effluent limitations intended to protect human health from carcinogenic effects are based on average background values since the risk is generally calculated assuming a 60-year exposure.

listed in Water Code section 13241 when establishing effluent limitation in permits. Consideration of economic costs and benefits is appropriate when setting water quality standards. Once a regional board establishes water quality standards it is not required to revisit those same considerations each time it establishes effluent limits in a permit.

City Attachment A: Comment (d): Need for technical accuracy

Permits should be based on the best scientific information available. Since detailed information is available regarding mixing characteristics at the point of discharge, this information should be used.

For the reasons discussed above, we specifically request that the dilution credit (D) as discussed on page 13 of the Fact Sheet be changed to reflect actual dilution. If this is done, the discharge will comply with most or all of the "final" effluent limits and interim limits will not be necessary.

It is inappropriate to propose a compliance schedule and final limits which will potentially require substantial costs for attainment (facility construction, etc.) when the pollutant in question is either unlikely to be causing any environmental problem (copper, based on Regional Board's rationale for removal from 303(d) list) or for which POTWs are a de minimis contributor (mercury). By using real dilution, instead of an artificial cap, this problem is resolved.

Attachment A: Response (d)

Although a modeling study has been performed, there is still significant technical uncertainty regarding the appropriate dilution factor for this discharge.

II.E. San Francisco Public Utilities Commission Attachment B: Additional issues related to the mercury limitation

City Attachment B: Comment 1:

TMDL relief from water quality based effluent limitations

San Francisco is concerned that the upcoming mercury TMDL will not resolve the compliance problems. Regional Board staff have suggested that the completion of the mercury TMDL will mean that the POTWs will not need to comply with the final limits identified in the permits. Their belief is that the TMDL will identify relatively high mass loadings for allocation to POTWs and this will result in less stringent limitations on mercury concentration. We believe this outcome is unlikely. CWA section 303 (d)(4)(A) provides for revisions only in the case of attainment of standards; attainment for mercury is problematic given that the primary sources are Bay muds and inflow from the delta. In other words, the mercury TMDL is unlikely to provide an assurance of attainment of standards and removal of the cause of the listing: elevated tissue levels of mercury. EPA's comment letter on the draft Mercury TMDL reaffirms this conclusion.

Cumulatively, POTWs account for approximately one percent of the mercury loading in San Francisco Bay. The mercury reductions required of the POTWs by the proposed future

permit limits will slightly reduce this 1% loading and will have very little or no observable effect on water quality because the POTWs are such a minor source. However, the costs of attaining the reductions will likely require major public expenditures. Consequently, establishment of an interim limit, with compliance schedule, intermediate compliance steps, and a goal of attaining a future limit is not appropriate because it will force the unsubstantiated expenditure of public funds.

Mass limits for mercury and other pollutants (flow basis)

The approach of basing mass limits on actual flow appears contrary to the regulations: In the case of POTWs, permit limitations, standards, or prohibitions shall be calculated based on design flow [40 CFR 122.45(b)]
Allowing a dilution factor for mercury

A remaining issue is the whether dilution should be allowed for mercury, which is a bioaccumulative substance. However, the bioaccumulation has been taken into account in the setting of the objective. The criteria for mercury is very low because of its propensity for bioaccumulation. The bioaccumulation factor for the pollutant causes the pollutant to have a much lower objective than it would otherwise. If bioaccumulation were not considered then the criteria would be much higher. Since, bioaccumulation is accounted for in the criteria, there is no need to include another safety factor in disallowing a dilution factor because of the tendency to bioaccumulate.

In addition, San Francisco Bay is not a closed system. The volume of water moving in and out of San Francisco Bay estuary in each tidal cycle represents approximately 24 percent of its total volume [A.N. Cohen, An Introduction to the San Francisco Estuary (2000)]; there are two tidal cycles per day. Thus, the Bay has a reasonable turnover. The ambient background concentration is used in the calculation of limits following SIP procedures and therefore any increased concentration due to previous or other discharges is taken into account.

It is necessary to establish for each specific pollutant under consideration whether the requirements of CWA section 303(d) require that mixing zones be disallowed. This position is supported by the decision of the Superior Court of California, County of Sacramento, in San Francisco BayKeeper v. California State Water Resources Control Board, July 27, 2000 (Case No. 99CS01929):

"So long as pollutants in storm water discharges do not cause or contribute to water quality exceedances, the CWA and implementing regulations do not prohibit the discharges even when the receiving waters are already impaired. (See Arkansas v. Oklahoma (1992) 503 U.S. 91. 108, 113-114 (discharges into waterways already degraded in water quality are not banned so long as the discharges have no actual "detectable" adverse effect on the water quality of the waterway)."

Based on this decision, in the absence of detectable adverse effects, there would be no need for interim limits as a proxy for final limits and no requirement for a compliance schedule since the discharge with final limits issued as part of this permit would be in full compliance with the CWA. Mixing zones should be considered as long as it can be demonstrated that the discharge will have no detectable adverse effect on water quality. The Fact Sheet needs to specifically demonstrate the basis of the allowance or denial of a dilution factor for mercury.

Mercury is a serious environmental problem throughout the United States and is the source of more fish consumption warnings than any other pollutant. However, with the apparent exception of the Bay Area, POTWs discharging to marine waters (and possibly most fresh waters) are not required to plan for tertiary treatment. The Board has other options in setting these effluent limitations. Attainment of mercury final limitations based on the objective in the CTR would likely require the construction of additional treatment facilities. However, the expected mercury reductions from all POTWs combined may not produce identifiable benefits. Consequently, the Board should hold in abeyance the implementation of mercury limitations until a Basin-wide mercury strategy is developed.

Attachment B Response

See Response to Comment No. 1 of the City's "General Comments", above.

Preliminary Comments and Concerns Regarding Assumptions In the Dilution Modeling for the Treasure Island Outfall, City and County of San Francisco, April 19, 2004

Some of our preliminary comments and concerns on the above-referenced modeling are as follows:

- Using Ocean Discharge Criteria at 40 CFR 125.121(c) for definition of mixing zone dimensions is not an appropriate reference. The Bay is a restricted water body with limited flushing, which accounts for the different state policies on dilution in the SIP as compared to the Ocean Plan.
- No basis is given for how the current speed value of 15cm/s was chosen for the model.
- It is unclear what the estimated current speed is based upon. While it appears to have been chosen based on some relation to current speeds recorded at the S.F. Airport and Suisun Bay, that relationship is not indicated in the document.
- Because the Bay reverses itself approximately four times a day due to tidal movement, it would be appropriate to use either zero (which occurs during slack and flood tides), or perhaps the lower 90^{th} percentile value of current speeds, to estimate current speeds for the model. The water quality standards must be met at all times, not only at "average" times.
- In calculating the effective diameter of the outflow pipe, flow rates of 0.4 and 0.9 MGD, which are the current average dry weather and wet weather discharge flows, were used. It would be more appropriate to use the permitted design flow (including an estimated allowance for wet weather) in this calculation, as the facility is permitted to treat greater flows than it is currently receiving.
- No temperature data or reference information was submitted to support the estimation that the temperature of the Bay is an average of 2 degrees C lower than the discharge.
- Additionally, a worst case scenario should be modeled instead of the average since the standards must be met at all times, not just at "average" times.