

**Appendix B**  
**Comment Letters**

A PUBLIC AGENCY  
SERVING  
City of Half Moon Bay  
Granada Sanitary District  
Montara Water and Sanitary District

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**SAM**  
**SEWER AUTHORITY MID-COASTSIDE**

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July 2, 2012

Mr. Bruce H. Wolfe  
Executive Officer  
Regional Water Quality Control Board  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

Attn: Marcia Liao, NPDES Division

**Subject: Comments on the Reissued Tentative Order NPDES No. CA0038598 – Sewer Authority Mid-Coastside**

Dear Mr. Wolfe:

The Sewer Authority Mid-Coastside (SAM) appreciates the opportunity to submit comments on the Tentative Order (TO) NPDES No. CA0038598, reissuing the SAM Waste Discharge Requirements. SAM operates a 4 million gallons per day (mgd) design capacity secondary treatment plant treating primarily residential, with some commercial, wastewater from a service area population of approximately 25,000. From 2009-2011 the average dry weather flow was considerably less at only 1.77 mgd. During this period the maximum monthly average flow, including wet season months, was 2.75 mgd.

The SAM treatment plant provides a very high and reliable level of treatment. During the term of the previous permit, SAM experienced only one effluent measurement that resulted in a mandatory minimum penalty. This was a single exceedance of the daily maximum chlorine residual effluent limit, out of a total of 1,535 reported chlorine residual results.

The treated effluent is discharged to the Pacific Ocean through a discharge pipe and submerged diffuser extending approximately 1,900 feet from shore and terminating at a depth of approximately 37 feet (-37 MLLW). From June 2006 – June 2012, the velocity of ocean currents in the vicinity of the SAM outfall averaged 14.9 centimeters per second (cm/s), based on approximately 4,500 hourly measurements.

Permit Provision V.C.5 of the existing permit required that “The Discharger shall provide documentation to verify that the discharge receives an initial dilution of 119:1.” SAM submitted an updated dilution study entitled *Engineering for Outfall Initial Dilution Analysis* (Whitley, Burchett and Associates), dated March 25, 2008, using the U.S. EPA Visual Plumes Model, 4<sup>th</sup> edition.

That study found that the SAM outfall system conservatively achieves the historic 119:1 initial dilution and in actuality achieves considerably higher average dilution depending on current speeds, as shown in the table below.

**Initial Dilution of SAM Diffuser – Visual Plumes Modeling Results (2008)**

<b>Model Conditions</b>	<b>Current Speed (cm/sec)</b>	<b>Average Initial Dilution over plume width</b>
Monthly average dry-weather flow (ADWF) of 2.75 mgd. Initial dilution as occurring at mean lower low water (MLLW).	0	79
	5	266
	10	550
	15	837

Reference: *Engineering for Outfall Initial Dilution Analysis*, Whitley, Burchett and Associates, March 25, 2008

SAM is greatly concerned about the proposed reduction of allowable initial dilution in the Tentative Order from the historic 119:1 to 79:1. This single change would result in a lowering of all but one of the SAM effluent limits by approximately 34 percent. Sam believes that the assumption of zero current speed in the vicinity of the outfall is an extremely and unnecessarily conservative interpretation of the Ocean Plan. Equally important, it is an assumption not supported by the facts.

As noted in our detailed comments (attached), out of approximately 4,500 hourly ocean current measurements, there were none that reported zero current velocity. The lower 10<sup>th</sup> percentile of the monthly average current velocities was 11.5 cm/s. The lower 10<sup>th</sup> percentile of individual hourly values was 5.0 cm/s. Based on these conservative statistics, as shown in the table above, this means that 90 percent of the time, initial dilution would range from 266:1 to 550:1 depending on whether hourly or monthly average current values were used. The Ocean Plan states that “minimum initial dilution is the lowest average initial dilution within any single month of the year” which indicates that it would be reasonable to use monthly average current values.

SAM recognizes that the Ocean Plan (Section III.C.4.d) directs that dilution estimates be based on the very conservative “assumption ...” of “no currents ...” However, the Ocean Plan (Section III.C.4.e) also allows a discharger “to propose alternative methods of calculating Dm, and the Regional Board may accept such methods upon verification of its accuracy and applicability.” SAM supports the use of the best available science in these initial dilution calculations.

SAM respects the technical abilities of RWB staff and their general use of the best available science in deriving NPDES permit requirements. SAM notes that RWB staff, in accordance with Section III.C.4.e of the Ocean Plan, employed an alternative initial dilution calculation approach, using locally measured ocean current values, in another recently (February 8, 2012) adopted ocean discharge permit.


SAM also recognizes that while use of locally measured ocean current values is technically defensible, only limited and somewhat dated (1976 vintage) ocean current data were available at the time of the 2008 Visual Plumes modeling. SAM also recognizes that allowing a higher initial dilution in the reissued SAM permit could potentially trigger anti-backsliding and/or anti-

degradation issues, if used to calculate less stringent effluent limits. SAM has not yet conducted the legal and technical analyses potentially needed to address these issues.

Accordingly, SAM requests that the Tentative Order retain the current 119:1 initial dilution and associated effluent limits. Following reissuance of the Permit, SAM will work with RWB staff to develop a mutually acceptable workplan for conducting an updated initial dilution study using the most appropriate effluent flow and ocean current data. SAM will complete and submit the results of the updated study within one year of RWB staff approval of the initial dilution study workplan. SAM will also work with RWB staff to prepare documentation of compliance with any anti-backsliding and anti-degradation requirements associated with potential granting of an increase in initial dilution credit

Please contact me or Tom Hall at EOA (510.832.2852 x110) if you would like to discuss these comments.

Sincerely,  
SEWER AUTHORITY MID-COASTSIDE



Steve Leonard  
General Manager

Attachment

Cc: Bill Johnson, RWQCB  
Kristin Kerr/Tom Hall, EOA

**COMMENTS ON THE TENTATIVE ORDER REISSUING THE SEWER AUTHORITY  
MID-COASTSIDE (SAM) NPDES PERMIT – PUBLISHED JUNE 1, 2012**

**Dilution Ratio**

In 1995, as part of the reissuance of SAM’s existing permit (R2-2007-0003) SAM submitted a May 1995 updated dilution factor calculation prepared by Carollo Engineers using U.S. EPA CORMIX Model Version 3.0. As noted in that 2007 permit reissuance Fact Sheet (page F-24) “Carollo’s calculation found an initial dilution ration of 310:1, but the previous 119:1 ratio was retained to be conservative. The dilution factor needs to be verified and documented to ensure that the previous conditions and assumptions are still consistent with current operations.”

Permit Provision V.C.5 of the existing (2007) permit required that “The Discharger shall provide documentation to verify that the discharge receives an initial dilution of 119:1.” SAM submitted an updated dilution study entitled *Engineering for Outfall Initial Dilution Analysis* (Whitley, Burchett and Associates), dated March 25, 2008, using the U.S. EPA Visual Plumes Model, 4<sup>th</sup> edition. As noted in that study, existing EPA-approved methods for calculating initial dilution, such as Visual Plumes, all compute the average dilution of the plume. This computation of average dilution is consistent with the Ocean Plan which states that “minimum initial dilution is the lowest average initial dilution within any single month of the year” (emphasis added).

The table below presents the results of the average initial dilution at several ocean current speeds. Also presented below are the 1976 ocean current data used for the dilution calculations. Note that the flow used in the model, 2.75 mgd, is essentially equivalent to SAM’s maximum monthly average flow from March 2007 to March 2011 of 2.78 mgd.

**Initial Dilution of SAM Diffuser – Visual Plumes Modeling Results (2008)**

<b>Model Conditions</b>	<b>Current Speed (cm/sec)</b>	<b>Average Initial Dilution over plume width</b>
Average Dry-Weather Flow (ADWF) 2.75 mgd. Initial dilution at mean lower low water (MLLW).	0	79
	5	266
	10	550
	15	837

Reference: *Engineering for Outfall Initial Dilution Analysis*, Whitley, Burchett and Associates, dated March 25, 2008

**Current Speed at SAM Diffuser Site**

<b>Period</b>	<b>Average Current Speed (cm/sec)</b>
June 24 – July 20, 1976	10-15
July 20 – August 10, 1976	10-15
August 10 – August 31, 1976	10-15
August 31 – September 21, 1976	10-15
September 21 – October 11, 1976	10

Reference: *Engineering for Outfall Initial Dilution Analysis*, Whitley, Burchett and Associates, dated March 25, 2008

As can be seen from the above tables, measured ocean current speeds in the vicinity of the SAM outfall ranged from 10-15 cm/sec. Visual Plumes calculated that the average initial dilution at those current speeds ranged from 550:1 to 837:1.

SAM recognizes that the Ocean Plan (Section III.C.4.d) directs that dilution estimates be based on the very conservative “assumption ...” of “no currents ...” However, the Ocean Plan (Section III.C.4.e) also allows a discharger “to propose alternative methods of calculating Dm, and the Regional Board may accept such methods upon verification of its accuracy and applicability.” In accordance with that section of the Ocean Plan, an alternative initial dilution calculation approach using locally measured current values was used in the recently (February 8, 2012) adopted North San Mateo County Sanitation District (NSMCSD) ocean discharge permit (Order No. R2-2012-0013).

The NSMCSD Permit Fact Sheet page F-12 states the following:

“The previous Order used a dilution credit of 70:1, developed in the 1990s, for reasonable potential analysis and effluent limit calculation. The Discharger provided an updated study in a November 9, 2011, Technical Memorandum, *Dilution Modeling of NSMCSD Outfall: Results of Dilution Modeling for Discharge to Pacific Ocean*, which estimated dilution under different flow conditions. For purposes of this Order, the dilution factor is based on the maximum discharge flow over the past five years, 11.5 mgd, and an ocean current speed of 0.47 feet/second (fps), which is the 10th percentile of the 30-day average of hourly values for NOAA Station 46011 (Santa Maria) for the period 2005-2008. The Ocean Plan requires that dilution estimates be based on the assumption of no currents; however, it also says dischargers may propose alternative methods of calculating dilution if acceptable to the Regional Water Board. The resulting initial dilution (at near field, 30 feet from the outfall ports) is at least 115:1.”

SAM supports the position that position that it is most appropriate scientifically to use actual measured ocean current data in the calculation of initial dilution, rather than an extremely conservative and unrepresentative assumption of “zero” current speed. SAM also understands that limited and somewhat dated ocean current information were used in its 2008 initial dilution study. Therefore, to be consistent with the approach used in the NSMCSD permit, SAM researched potential sources of recent ocean current data.

SAM was able to obtain ocean current data from the Central and Northern California Ocean Observing System (CeNCOOS) for a location approximately 2 miles northwest of the outfall at 37.478 degrees latitude and -122.4894 degrees longitude. The data consisted of hourly measurements over six years from June 27, 2006 through June 18, 2012. A review of these 44,915 data points indicates that there was never an instance observed of “zero” current speed. Any assumption of “zero current” would therefore be highly unrepresentative of the conditions that exist at the diffuser and would greatly underestimate the actual dilution achieved.

As noted above, the NSMCSD initial dilution calculations used the lower tenth percentile of the 30-day average of hourly measured ocean current values. The lower tenth percentile of the monthly average of hourly measured ocean current values for the most recent six year period from the CeNCOOS site closest to the SAM outfall is 11.5 cm/s. Note that this means that 90 percent of the time than ocean current values exceeded 11.5 cm/s near the SAM outfall.

Using a conservative assumption to round down the 11.5 cm/s value to the nearest 10 cm/s value reported from the Visual Plumes modeling above, supports the conclusion that a minimum average initial dilution of at least 550:1 is achieved by the SAM outfall and diffuser system.

The table below presents a summary of the CeNCOOS ocean current data.

**Ocean Current Data at Nearest CeNCOOS Station to SAM Outfall**  
(June 27, 2006 - June 18, 2012)

	<b>Hourly (cm/sec)</b>	<b>Daily Average<sup>1</sup> (cm/sec)</b>	<b>Monthly Average<sup>1</sup> (cm/sec)</b>
# data points	44,913	1,957	72
Minimum	0.04	1.5	9.2
<b>10<sup>th</sup> percentile</b>	<b>5.0</b>	<b>9.0</b>	<b>11.5</b>
25 <sup>th</sup> percentile	8.4	10.6	12.7
Median	13.3	13.5	14.3
Mean	14.9	15.3	16.3
75 <sup>th</sup> percentile	19.5	17.8	17.3
90 <sup>th</sup> percentile	27.0	23.8	20.6
Maximum	86.9	72.1	47.6

Note: There were time periods when the monitoring station was not recording current speed. Some of the daily average values are represented by fewer than 24 individual data points. Some of the monthly averages are represented by fewer than 720 individual data points.

SAM believes that these extensive ocean current data clearly indicate that moderate to significant currents are present the vast majority of the time in the vicinity of the SAM outfall. These currents are responsible for the high amount of initial dilution calculated by the Visual Plumes model. SAM believes that these data support a finding that the SAM outfall system conservatively achieves the historic 119:1 initial dilution and that in actuality achieves at least 550:1 dilution based on the lower 10<sup>th</sup> percentile of the observed ocean current speeds.

SAM also recognizes that while technically defensible, and consistent with the action taken in the February 2012 NSMCSD adopted permit, only the limited 1976 ocean current data were used for the 2008 Visual Plumes modeling. SAM also recognizes that allowing a higher initial dilution in the reissued SAM permit could trigger anti-backsliding and/or anti-degradation issues. SAM does not currently have available legal and technical analyses to address these potential issues.

Accordingly, SAM requests that the Tentative Order retain the current 119:1 initial dilution and associated effluent limits. Following reissuance of the Permit, SAM will work with RWB staff to develop a mutually acceptable workplan for conducting an updated initial dilution study using the most appropriate effluent flow and ocean current data. SAM will complete and submit the results of the updated study within one year of RWB staff approval of the initial dilution study

workplan. SAM will also work with RWB staff to prepare documentation of compliance with any anti-backsliding and anti-degradation requirements associated with potential granting of an increase in initial dilution credit.

### **Minor Comments**

1) SAM requests that the turbidity monitoring frequency be reduced to quarterly, consistent with the frequency for settleable solids and O&G, for which there also no longer effluent limits required in the permit. Since there are no effluent limits, frequent monitoring is not required for compliance evaluation purposes. Frequent turbidity monitoring is only common at treatment plants that are required to provide effluent filtration as part of their recycled water program requirements. Turbidity monitoring is sometimes used for process control purposes (e.g., polymer dosage control) at treatment plants with filters. However, SAM is a conventional secondary treatment plant that does not provide filtration. Therefore there is limited if any value to collecting turbidity data more frequently than quarterly.

2) SAM requests that the language in the prior permit MRP Section V.b.1.d. Chronic Toxicity Rescreening be retained. This wording clarifies the conditions under which a screening study can be terminated early. This condition is expected for SAM given the high degree of dilution achieved by the outfall and the corresponding low concentrations of effluent used in the laboratory toxicity tests. This wording is also consistent with the recently adopted North San Mateo County Sanitation District (R2-2012-0013), also an ocean discharger. It is also consistent with the Ocean Plan that states "After a screening period, monitoring can be reduced to the most sensitive species." (page 34).

**Rescreening.** The Discharger shall conduct a screening chronic toxicity test as described in Appendix E-1 following any significant change in the nature of the effluent and at least 180 days prior to application for permit reissuance. The Discharger shall conduct screening tests with a minimum of three test species, if possible including a vertebrate, an invertebrate, and an aquatic plant, for the first three suites of tests. If the first suite of re-screening tests demonstrates that the same species is the most sensitive then re-screening does not need to include more than one suite of tests. If a different species is the most sensitive or if there is ambiguity, then the Discharger shall proceed with suites of screening tests for a minimum of three, but not to exceed five suites. After the screening period, monitoring shall be conducted using the most sensitive species.

3) The MRP Appendix E-1 II.B.5 specifies the chronic toxicity screening study dilution series as: 100%, 85%, 70%, 50%, 25%, and 0 %. We request replacing that text with that similar to that in the San Francisco Oceanside Permit (R2-2009-0062) that specifies that the "Dilution series should include the IWC, and four concentrations that bracket the IWC, or other concentrations approved by the Executive Officer." SAM's chronic toxicity contract laboratory, Pacific Eco Risk Laboratories, PERL, provided the following rationale regarding the appropriate dilution series for the screening test.

*The current dilution series in SAM's permit is 0% (Control), 0.21%, 0.42%, 0.84%, 1.7% and 3.4%. This dilution series is centered on the calculated effluent concentration (0.84%) at the edge of the zone of initial dilution (dilution ratio 119:1). The importance of centering the dilution*



*series around the effluent concentration of concern is to provide higher resolution in case toxicity were to be seen in this series. If the toxicity concentration-response curve is steep, you need higher resolution (i.e., for the test concentrations to be closer to the "compliance concentration" of 0.84% effluent) for more accurate statistical calculations, and having high resolution around the compliance point (i.e.,  $100/0.84 = 119$  TUC) provides critically important information needed to calculate an accurate IC25 or EC25. Some of the screening test species (e.g., bivalves) are known to have very steep concentration-response curves; having relatively wider differences between test concentrations allows for the possibility that the test responses at those concentrations occur at the asymptotic extremes of the concentration-response curve, missing the partial response part of the curve entirely. Even though SAM has shown consistent compliance with past chronic toxicity tests, we believe it is important to have good resolution around the effluent "compliance concentration" of interest for future tests in case toxicity near the compliance concentration does occur. It is also helpful to have data consistency with previous tests that used those concentrations.*

4) SAM requests that to remain consistent with the Ocean Plan formula in Appendix VI Step 4, that the <ML results in the column in the Fact Sheet Table F-7 titled "Max Expected Concentration After Mixing" be calculated using dilution.

The Ocean Plan Appendix VI reasonable potential analysis (RPA) procedure Step 4 is to adjust all effluent monitoring data, "including censored (ND or DNQ) values to the concentration X expected after complete mixing." (underline added for emphasis). For ND values the effluent concentration is replaced with <MDL and for DNQ values the effluent concentration is replaced with <ML. The concentration X, referred to above, is  $X = (C_e + D_m C_s) / (D_m + 1)$  where  $C_e$  is the effluent concentration,  $D_m$  is the dilution and  $C_s$  is the background seawater concentration.

The Ocean Plan Appendix VI RPA has a procedure for when all of the data are censored. It is thereby possible under the Ocean Plan RPA procedure to have a conclusive finding of no reasonable potential (Endpoint 2) with an entirely censored data set. Including the data in the RPA as recommended above will more accurately allow for this alternative to be evaluated. The non-parametric RPA is described in Step 11 and consists of comparing the censored effluent concentration after complete mixing (X) to the water quality objective ( $C_o$ ).

In addition, if the complete <ML data set is entered into the State Board's RPAcalc program it will calculate the values after complete mixing. The program will also report if the non-parametric RPA found conclusive non-exceedances of the WQO. Therefore, it is appropriate to place the maximum value after complete mixing in the RPA table to indicate the values are below the WQO even if the RPA result is inconclusive because there are too few data points (Ocean Plan RPA procedure Step 12).

This recommendation is also consistent with the RPA approach used in the recently adopted ocean discharge permit, North San Mateo County Sanitation District (R2-2012-0013).



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
Monterey Bay National Marine Sanctuary  
99 Pacific Street  
Monterey, California 93940

June 28, 2012

Ms. Marcia Liao  
California Regional Water Quality Control Board  
San Francisco Bay Region  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

**Subject: Authorization of NPDES Permit No. CA0038598 for Sewer Authority Mid-Coastside**

Dear Ms. Liao:

The Monterey Bay National Marine Sanctuary (MBNMS) has reviewed the Regional Water Quality Control Board's National Pollutant Discharge Elimination System (NPDES) No. CA0038598 for Sewer Authority Mid-Coastside

The Sanctuary reviewed the draft NPDES permit under its authority defined at 15 CFR Sections 922.49 and 922.134(b), and procedures defined in Section V.E of the Memorandum of Agreement on water quality protection within the Sanctuary. Consideration of the permit is scheduled for the public meeting on August 8, 2012.

This facility owns and operates a sanitary sewage treatment plant and a collection system that collects sewage from three satellite collection systems: the City of Half Moon Bay, Granada Sanitary District, and Montara Water and Sanitary District. The treatment system, consisting of influent screening, grit removal, primary clarification, activate sludge, secondary clarification, chlorination, and dechlorination, provides secondary treatment of domestic and commercial wastewater from the service area. The combined service population is approximately 25,000. The treatment plant's design capacity is an average dry weather flow of 4 MGD and a peak wet weather flow of 15 MGD.

The Office of National Marine Sanctuaries seeks to address impacts to water quality from the coastal zone, and with this in mind, we require the following comments / changes to be incorporated into this permit

1. Attachment E VII.D.2.a: Unauthorized: Discharges from Municipal Wastewater Treatment Plants Two hour notification: Currently this section only requires notification to SFRWQCB, CalEMA, and local health department. Please update this list to reflect the MBNMS emergency response number (831-236-6797) for any discharges with potential for entering the sanctuary.



On the basis of the revised changes being incorporated into the final NPDES permit, the MBNMS does not object to the issuance of this permit [15 CFR Section 922.49(e)]. Please send a copy of the signed permit to the MBNMS office after the regional board adopts it at the August meeting.

Should you have any questions regarding this matter, please contact Ms. Deirdre Whalen by phone at 831-647-4207 or via email at [deirdre.whalen@noaa.gov](mailto:deirdre.whalen@noaa.gov). Thank you for your cooperation with the Monterey Bay National Marine Sanctuary.

Sincerely



Paul Michel  
Superintendent

