ASBS Ocean Plan Exception Process,
Pre-Exception monitoring
FAQ's

SAMPLE COLLECTION PROCEDURES: REPRESENTATIVE SAMPLES

Q: What is meant by a "representative sample"? Does this refer to how the sample is collected? Such as, choosing between flow-weighted composite sampling, time-weighted composite sampling or grab sampling. Is there a preferred method?

A: The Ocean Plan (Section II, A, 3) states that samples should be collected at stations representative of the areas within the waste field where initial dilution is completed. For storm water runoff, this is seaward of the surf zone. If safety is an issue when sampling from shore, you may collect the sample from the shore generally adjacent to the point where the runoff meets the ocean (receiving water).

The 1972 Ocean Plan monitoring Guidance says (p. 36) that sampling stations should be "selected to take account of the location of the area of most probable impact of the discharge as determined by ocean current or other information and the distribution of habitat types within the monitored region."

You need only collect a grab sample. At each location a grab sample technique may be used for bacteria, chemistry and toxicity analyses. If you would instead like to perform flow-weighted or time-weighted composite sampling, then that is also acceptable, and in fact would likely provide better information. Multiple manual grab samples collected over time from a single discharge or station may be either appropriately composited (as long as flow and sample times are provided), or may be analyzed as individual grabs.

Regardless of whether collecting grab or composite samples, care must be taken to prevent contamination or biasing of the sample. Never touch or otherwise contaminate the inside of the sample container or lid. Make sure foreign objects do not enter the sample container. Always collect grab samples upstream of your position.

One method for which grab sample may be collected is using the Surface Water Ambient Monitoring Program (SWAMP) "clean hands" technique. This method is especially preferable when there is the potential for contamination of the sample when analyzed for trace levels of certain pollutants (e.g., mercury). Clean hands sampling is a grab sample technique. Special double-bagged "clean hands" sampling containers may be obtained from an approved analytical laboratory prior to sampling activities. This technique requires two people to be present to conduct the sampling activities, one person is designated "clean hands" and the second person is designated "dirty hands." Both individuals wear disposable, powderless, nitrile gloves during the entire sampling process.

MARINE LAB POINT SOURCE SAMPLING

Q: One marine lab/aquarium point source discharger asked the following question: "Our previous data for our seawater discharge is based on 24-hour composite sampling (subsamples collected every 30 minutes). In addition, we have analyzed a flow-weighted composite of our four ocean discharges, which are very close together. So, we collect 24-hour composite samples from each discharge and then mix these samples in proportion to the average flow at each discharge. Is this the correct approach or should we collect or analyze seawater discharge samples differently (i.e., grab samples or individual analysis)?"

A: This would be a correct approach for this type of discharge, a marine lab point source, and as in this case, the discharges are located so close together.

NUMBER OF SAMPLES FOR STORMWATER

Q: One storm water discharger asked the following question: "In Point 5 of the letter, a representative sample should be collected for every ten discharge points. My question is this; if the discharger has greater than ten and less than twenty discharge points, does that require two effluent

***and* two corresponding mixing zone stations to be sampled *in addition to* an ambient sampling point within the ASBS?"**

A: Yes. If there are greater than ten but less than twenty discharges points, then you should obtain samples from two of the effluents discharges (end of pipe) and an accompanying receiving water sample for each of the sampled effluent points. The receiving water sampling station should be immediately adjacent to the outfall, and within the runoff "plume." Preferably, that sample would take place immediately outside the surf zone. However, if a vessel is not available, or if vessel safety is an issue, you may collect the sample from the shore generally adjacent to the point where the runoff meets the ocean (receiving water).

TYPES OF MARINE WATER SAMPLES

Q: What type of receiving water samples must be collected?

A: You must also collect samples in the receiving water immediately adjacent to your outfall. That sampling should take place within the runoff plume. Preferably that sampling would take place immediately outside the surf zone. However, if a vessel is not available, or if vessel safety is an issue, you may collect the sample from the shore generally adjacent to the point where the runoff meets the ocean.

REFERENCE SAMPLE COLLECTION

Q: Because of the Pre-Exception monitoring requirement for obtaining samples of stormwater discharges in bad weather, is it a correct assumption that the ambient sampling may be completed at a different time?

A: The ambient (reference) sample should be taken during the same storm event if possible, because some natural background constituents may be higher during storm conditions. Natural storm runoff contributes natural levels of certain constituents to the ocean (receiving water). It the ambient sample were obtained during non-storm conditions, this may not be a good comparison.

SAMPLING DURATION

Q: For what duration should the pre-exception monitoring be completed?

A: The monitoring in question is pre-exception monitoring, intended to be used in considering an exception. When appropriate data was not available during the previous two storm seasons, the sampling may have been initiated possibly as early as the latter part of 2005 (beginning in August 2005, when the letters were mailed to the dischargers). All storm water and nonpoint source related pre-exception monitoring must be completed by the end of this (2005-06) rainy season and the data submitted prior to May 31, 2006.

SAMPLING FREQUENCY

Q: What is the required frequency for the sampling?

A: You need only sample one storm per site this year (2005-06). Samples must be collected during a storm event that is greater than 0.1 inch and at least 72 hours from the previously measurable storm event. Where feasible, the variance in the duration of the event and the total rainfall of the event should not exceed 50 percent from the average or median rainfall event for that site. However, if you would like to sample during more than one storm event, that is acceptable as long as each storm event meets the same criteria described above.

TYPES OF EFFULENT SAMPLES

Q: What type of runoff/effluent samples must be collected?

A: For sampling runoff discharges, only direct discharges (e.g., draining a parking lot, road or highway into the ASBS receiving water) should be sampled. For purposes of the pre-exception sampling program, it is acceptable if you do not sample discharges that infiltrate prior to reaching the ocean.

It is at the discharger's discretion if you sample those discharges that contain co-mingled flows from entities not under your control (run-on). In some cases the pre-exception monitoring may be performed on a cooperative basis by two or more dischargers. If the sample contains co-mingled flows then we recommend that you document that (parties responsible, to the best of your knowledge, for the co-mingled runoff) when you submit the results. Regardless, this does not address the issue of run-on in terms of your responsibility to control such discharges as they leave your right-of-way.

MS4s AND UPSTREAM CUT-OFF POINTS

Q: Most of the "policy" seems to focus more on MS4's. If a small coastal creek that discharges to an ASBS has MS4 discharge points upstream, do those discharges need to be sampled as well?

A: Staff intention for pre-exception monitoring is to only address points of discharge that drain directly to the ASBS (ocean). We have sometimes struggled with "where is a good cut-off point within a stream", and "whether or not it is a discharge to an ASBS or to the stream itself?" One example of this is the Irvine Coast ASBS. Here, the Pacific Coast Highway was used historically as the boundary. If a discharge drained to a creek mouth (a recognized and named creek) downstream of Pacific Coast Highway then it was considered an ASBS discharge. Another approach would be to only count discharge points within the "line of site" of the beach, usually within 100 meters of the observer's positions. This method was used in the collection of the original discharge location data.

SAMPLE LABELING AND CHAIN OF CUSTODY

Q: How should the samples be labeled?

A: We suggest you clearly label your samples, whether storm effluent (fresh water) or ASBS receiving water (salt or brackish water) in order to alert the lab. This is especially critical when the lab performs metals analysis using ICP-MS, since salt (sodium) in the sample must be addressed when prepping the samples. Furthermore, make sure to follow proper chain of custody procedures/documentation. You should ask the lab who will be performing the analysis for additional labeling and chain of custody instructions.

SAND IN SAMPLES

Q: For chemistry purposes, and possible issues with toxicity in the future, we have had problems with resuspended sand (beach sampling) in a mixing zone sample. What is your opinion on how to address this?

A: The Ocean Plan requires "total metals" and not dissolved, so any adjustments to deal with excessive beach sand must consider that. More specifically, and in order of preference; 1. Adjust the sampling technique or location to avoid sand particles in the sample. 2. If sand and settleable grit is present in the sample, agitate the sample then allow 1-2 minutes for settling, then decant the liquid portion of the sample prior to analysis. 3. If decanting is not feasible, filter the sample trough a coarse screen (approx. 1 mm). It is not recommended to filter the sample with small pore filter paper because this may substantially reduce the concentration of many chemicals that are bound to colloids, silts, or clays.

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ACCREDITED LABS

Q: Is there a listing of accredited labs which are acceptable to the Board?

A: A list of the accredited labs can be found at http://www.dhs.ca.gov/ps/ls/ELAP/html/lablist.htm

METAL ANALYSES

Q: What metals must be analyzed? Do I have to sample for selenium, antimony and thallium?

A: These metals are analyzed as part of the EPA approved methods for ICP-MS, which is the method that will provide the necessary detection limits relative to the Ocean Plan Table B objectives. In other words, any sample run via ICP-MS will have a full suite of metals scanned, which will include these three metals along with the other Ocean Plan metals. This should result in no extra cost to you.

AMMONIA

Q: What about Ammonia N, is this really necessary?

A: Yes, you must sample and measure ammonia N.

TOXICITY TESTING

Q: A consultant asked: "When samples are collected for performing the acute and chronic toxicity tests, and at a stream or other type of outfall, the mixing zone is likely to be in the surf zone and safety will tell where we sample. But, because there would be no real dilution zone, the samples for acute and chronic toxicity can be taken in that same place. Is this correct?"

A: Collect the acute/chronic samples at the same location.

ACUTE AND CHRONIC TOXICITY TESTS

Q: Does the Board have any preferences, or are there any precedents in regards to which marine species to use in the acute and chronic toxicity tests, which are required from dischargers seeking an exception? The laboratory I am in contact with can do the following, all in a seawater matrix:

a. Chronic Tests (critical life stage)

S.purpuratus	**(EPA/600/R-95/136) Urchin fertilization**
S.purpuratus	**(EPA/600/R-95/136) Urchin development**
H. rufescens	**(EPA/600/R-95/136) Abalone development**
M. galloprovincialis	**(EPA/600/R-95/136) Bivalve development**
M. pyrifera	**(EPA/600/R-95/136) Kelp germination & growth**
A. affinis	**(EPA/600/R-95/136) Fish survival & growth**
H. costata	**(EPA/600/R-95/136) Mysid survival & growth**

b. Acute Tests

P. promelas	**(EPA-821-R-02-012) Fish survival**
C. dubia	**(EPA-821-R-02-012) Water Flea survival**
H. costata	**(EPA-821-R-02-012) Mysid survival**

A: The guidelines are available online on our website. Look at the California Ocean Plan 2001 version. Approved Tests for Marine Chronic Toxicity are listed in Appendix III, Table III-1 that would be page 34. For marine chronic tests, three species would be selected from the list. Only marine species must be used, and only marine species are allowed under the Ocean Plan. The Water Flea (*C. dubia*) survival test is for fresh water, and is therefore not acceptable. www.swrcb.ca.gov/plnspols/oplans/asbs.html

The approved species that are listed in Table III-1 of the California Ocean Plan, are summarized as follows:
a. Chronic test
Fish - topsmelt, silverside (topsmelt preferred)
Invertebrate - red abalone, mussel and oyster, urchin or sand dollar, or mysid (your choice)
Plant - giant kelp
b. Acute test
Fish - topsmelt, silverside (topsmelt preferred)
Invertebrate - Pacific mysid

Q: How many species should be tested for acute and chronic toxicity?

A: One marine species should be tested for acute toxicity. Three species should be tested for the chronic toxicity analyses.

Q: Should we perform toxicity testing on storm water discharge collected at end-of pipe?

A: Yes. The end-of pipe discharge would be collected. Label the sample accordingly (i.e., that it is a fresh water runoff sample). The laboratory will adjust the sample for salinity prior to testing.

Q: Do all samples except the reference (ambient) sample need to be tested for acute and chronic toxicity? That would mean toxicity analyses be performed for the storm water discharge, the any waste seawater effluent (from marine lab point sources), and receiving water?

A: Yes. That is correct. The reference (ambient) sample does not need to be tested for chronic or acute toxicity. So you would be having the storm water discharge, the waste seawater effluent (if applicable), and receiving water tested for toxicity.

TOXICITY TESTING – SPIKING FRESHWATER

Q: What about toxicity testing and spiking of freshwater samples altering the analyses?

A: You must test for acute and chronic (critical life stage) toxicity as described in the Ocean Plan. Any concerns about the "spiking" of fresh water samples to increase salinity are unnecessary. Both storm water and treated sewage effluent are comparable in salinity, and relatively low in salinity compared to seawater. Laboratories using Ocean Plan and EPA approved toxicity testing for marine organisms regularly adjust the salinity prior to exposing the test organisms. US EPA has confirmed that this is not an issue for concern.

SAMPLE VOLUME – TOXICITY

Q: What is the volume needed for toxicity assays?

A: One limiting factor in performing the toxicity assay is sample volume. Toxicity tests need at least 7.5 gallons for the three species. You should discuss this with the lab. The lab you select should be able to provide you with a clean sample container of the proper size.

MARINE LIFE DESCRIPTION

Q: How and why do you want the marine life described?

A: It is entirely appropriate and even essential that you provide information about the status of marine life in the ASBS. The ASBS beneficial use, and these areas "require protection of species or biological communities to the extent that alteration of natural water quality is undesirable." Therefore, you must submit a representative, quantitative description of marine life from at least one location within each ASBS

near the discharges and, if available, at a reference location away from the discharges. Depending on your location, there are some options available for obtaining existing data (for example, literature research or from MARINe intertidal researchers), thereby avoiding the need for more field work and related costs. Contact State Board staff, Connie Anderson, at csanderson@waterboards.ca.gov for more details.

INFORMATION TO BE SUBMITTED

Q: What other associated data needs to be submitted with our reports?

A: For sampling and analyses, please include your metadata, QA information, and a map of sampling locations. For marine life information, please include the appropriate sources/references.

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