Stuber, Robyn

From: McNaughton, Eugenia
Sent: Monday, March 17, 2014 1:15 PM
To: Stuber, Robyn; Smith, DavidW
Cc: Denton, Debra
Subject: RE: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

Thanks, Robyn, that reduces the load! Apparently, I am too fixated on the process to remember the content!

From: Stuber, Robyn
Sent: Monday, March 17, 2014 1:13 PM
To: McNaughton, Eugenia; Smith, DavidW
Cc: Denton, Debra
Subject: RE: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

Hi Eugenia. The pdf letter was fine; it was the transmittal email that made the distinction, which should be corrected. Thanks!

From: McNaughton, Eugenia
Sent: Monday, March 17, 2014 1:11 PM
To: Stuber, Robyn; Smith, DavidW
Cc: Denton, Debra
Subject: RE: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

I will call Renee and tell I'm sending a new letter without the qualifier.

From: Stuber, Robyn
Sent: Monday, March 17, 2014 12:36 PM
To: Smith, DavidW; McNaughton, Eugenia
Cc: Denton, Debra
Subject: RE: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

Yes, can the transmittal email be clarified. It will show up in an appeal of an Ocean Plan permit at some point.

From: Smith, DavidW
Sent: Monday, March 17, 2014 12:35 PM
To: Stuber, Robyn; McNaughton, Eugenia
Cc: Denton, Debra
Subject: RE: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

I read the letter to apply to all NPDES discharges in the state.

David Smith
Manager
NPDES Permits Office (WTR-5)
U.S. EPA Region 9
75 Hawthorne Street

San Francisco, CA 94602
(415) 972-3464 (office)
(415) 972-947-3545 (fax)

From: Stuber, Robyn
Sent: Monday, March 17, 2014 12:35 PM
To: McNaughton, Eugenia
Cc: Smith, DavidW; Denton, Debra
Subject: RE: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

I have a question. Our approval letter doesn't distinguish between ocean and non-ocean dischargers, but the transmittal email does. Does the ATP only apply to non-ocean discharges regulated under NPDES? Ocean discharges are needing to use the TST, also. Does the transmittal email need to clarify that the ATP applies to both non-ocean and ocean discharges regulated under NPDES?

From: McNaughton, Eugenia
Sent: Monday, March 17, 2014 8:43 AM
To: Spears, Renee@Waterboards
Cc: Denton, Debra; Smith, DavidW; Stuber, Robyn; Sakamoto, Roseanne; Remaley, Steve
Subject: RE: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

Hi Renee
Here is our response to your request for a California-wide ATP to use the TST to evaluate toxicity tests in compliance with NPDES permits for all non-oceanic surface waters. I am assuming that you will inform the appropriate offices and regional boards.
Best to you,
Eugenia

From: Spears, Renee@Waterboards [mailto:renee.spears@waterboards.ca.gov]
Sent: Thursday, February 13, 2014 9:19 AM
To: McNaughton, Eugenia
Cc: Bishop, Jonathan@Waterboards; Whitney, Vicky@Waterboards; Crader, Phillip@Waterboards; Breuer, Rich@Waterboards; Rasmussen, Rik@Waterboards; Ogg, Brian@Waterboards
Subject: Alternative Test Procedure Request for Use of Two-Concentration Test Design When Using Test of Significant Toxicity Hypothesis Testing Approach

February 12, 2014

Eugenia McNaughton, Ph.D., Chief
Quality Assurance Office
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

Dear Dr. McNaughton:

Pursuant to Code of Federal Regulations, title 40, section 136.4, the State Water Resources Control Board (State Water Board) is submitting this application for US EPA Region 9 review and approval of the statewide Alternate Test Procedure use of a two-concentration test design when using the Test of Significant Toxicity (TST) hypothesis testin approach.

State Water Board staff is developing an amendment to the Water Quality Control Plan for Enclosed Bays and Estuaries of California that will standardize the regulation of aquatic toxicity for all non-oceanic surface waters. The United States Environmental Protection Agency's (US EPA) TST hypothesis testing approach (US EPA 2010) is an essential component of this proposed toxicity amendment as it forms the basis for the numeric water quality objectiv and acts as the primary means of determining compliance with the effluent limitations.

Toxicity tests are vital tools used to measure the aggregate effects of pollutants, detect unknown toxicants, and asse their bioavailability in a more effective manner than that of pollutant-specific tests and bioassessments. Test metho developed for both freshwater and marine organisms, are divided between acute and chronic endpoints. Acute toxic tests measure lethality, while chronic toxicity tests focus on sub-lethal effects, such as reductions in growth and reproduction. Currently, toxicity tests are used to determine compliance with the narrative objectives for toxicity established in the Regional Water Quality Control Plans (Basin Plans). Section 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Polic or SIP) establishes minimum chronic toxicity requirements for implementing these narrative water quality objectives toxicity. However, discrepancies persist among the toxicity requirements included in National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements (WDR). The draft toxicity amendment se to create a uniform regulatory framework to address these inconsistencies through the required use of the TST for a NPDES wastewater and point source WDR dischargers in California.

Use of the TST does not alter the test procedures used to produce the biological endpoints of US EPA's toxicity test methods (e.g. organism age, food, temperature, exposure length); it merely alters the minimum number of test concentrations required for toxicity testing.

The benefits of the TST approach have been lauded by numerous academicians. The five peer reviewers selected i blind fashion for US EPA's peer review process agreed that the TST's bioequivalence approach is sound and that th results of TST analyses are reasonable and defensible. The State Water Board also initiated a peer review focusing the use of the TST approach in the draft Policy for Toxicity Assessment and Control (the previous iteration of the toxicity amendment). The two researchers, Dr. Gerald A. Le Blanc and Dr. Michael C. Newman, concluded that the TST is a "…major advance from the currently compromised No Observed Effects Concentration (NOEC) approach," and "…is statistically sound, reduces burden associated with the assays, and, by structuring the assay around a hypothesis of significant toxicity, provides incentive for precision in assay performance." In addition, four individual articles examining the TST approach have been published in two respected, peer-reviewed toxicological journals (Denton et al. 2011, Diamond et al. 2011, Zheng et al. 2012, Diamond et al. 2013), while the State Water Board published a report (State Water Board 2011-please see attachment) comparatively analyzing the results of over 3,0 toxicity tests using both the TST and traditional hypothesis approaches. Although this "test drive" analysis showed t the results of the NOEC and TST are generally the same, it is important to note that the TST correctly identified truly non-toxic samples more often than the NOEC did. Moreover, the NOEC failed to identify more truly toxic samples th the TST approach.

The TST approach is currently being used to implement Tribal and Territory NPDES permits issued by US EPA Reg 9, as well as the US EPA Region 9 offshore oil and gas general permit (No. CAG280000). The State Water Board h included provisions requiring the use of the TST approach in the Caltrans general permit for storm water discharges (Order No. 2012-0011-DWQ), the NPDES permit issued to the US Department of the Navy's San Diego Naval base (Order No. R9-2013-0064), the San Diego Regional Water Quality Control Board's general permit for discharges fro boatyards and boat maintenance and repair facilities (Order No. R9-2013-0026), and the NPDES permit issued to th US Department of the Navy's San Diego Naval base (Order No. R9-2013-0064). The TST approach has also been incorporated into several NPDES permits in Hawaii.

The State Water Board is confident that the use of the TST will strengthen toxicity regulation throughout California. Apart from improving the statistical power of toxicity test methods, the TST is simpler to use than either traditional

hypothesis test methods or point estimates. In addition, the two-concentration test design will reduce the cost of tox monitoring for most wastewater dischargers in California. For these, and the other reasons discussed previously in t letter, the State Water Board requests that US EPA Region 9 review and approve the use of a two-concentration tes design for TST-based analyses of the whole effluent toxicity testing methods promulgated in Code of Federal Regulations, title 40, section 136.3.

Sincerely,

Renee Spears
Quality Assurance Officer

cc: (via e-mail)

Jonathan Bishop, Chief Deputy Director
State Water Resources Control Board

Victoria Whitney, Deputy Director
Division of Water Quality
State Water Resources Control Board

Phillip Crader, Assistant Deputy Director Division of Water Quality
State Water Resources Control Board

Rich Breuer, Assistant Deputy Director
Office of Information Management
State Water Resources Control Board

Rik Rasmussen, Section Chief
TMDL Section
State Water Resources Control Board

Brian Ogg, Environmental Scientist
Inland Planning Standards and Implementation Unit
State Water Resources Control Board

References:

Denton DL, Diamond JM, Zheng L. 2011. Test of Significant Toxicity: A Statistical Application for Assessing Whethe Effluent or Site Water is Truly Toxic. *Environmental Toxicology and Chemistry.* DOI: 10.1002/etc.493. http://onlinelibrary.wiley.com/doi/10.1002/etc.493/full

Diamond JM, Denton DL, Roberts Jr. JW, Zheng L. 2013. Evaluation of the Test of Significant Toxicity for Determini the Toxicity of Effluents and Ambient Water Samples. *Environmental Toxicology and Chemistry.* DOI: 10.1002/etc.2166.

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Diamond J, Denton D, Anderson B, Phillips B. 2011. It is time for changes in the analysis of whole effluent toxicity data. *Integrated Environmental Assessment and Management.* DOI: 10.1002/ieam.278.
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Regional Water Quality Control Board, San Diego Region. 2013. General Waste Discharge Requirements for Discharges from Boatyards and Boat Maintenance and Repair Facilities Adjacent to Surface Waters within the San Diego Region. Order No. R9-2013-0026.
http://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2013/R9-2013-0026.pdf

Regional Water Quality Control Board, San Diego Region. 2013. Waste Discharge Requirements for the United Stat Department of the Navy Naval Base, San Diego Complex, San Diego County. Order No. R9-2013-0064.
http://www.waterboards.ca.gov/sandiego/board_decisions/adopted_orders/2013/R9-2013-0064.pdf

State Water Resources Control Board. 2011. *Effluent, Stormwater, and Ambient Toxicity Test Drive Analysis of the T of Significant Toxicity (TST).*
http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/final_testdrive.pdf

State Water Resources Control Board. 2012a. Policy for Toxicity Assessment and Control, Public Review Draft.
http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/draft_tox_policy_0612.pdf

State Water Resources Control Board. 2012b. National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRS) for State of California Department of Transportation. Order No. 2012-0011-DWQ.
http://www.swrcb.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0011_dwq.pdf

State Water Resources Control Board peer review:

Gerald A. LeBlanc, PhD
http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/gerald_leblanc_review.pd

Michael C. Newman, PhD
http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/michael_newman_review

U.S. Environmental Protection Agency. 2010. National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document. EPA 833-R-10-004.
http://www.epa.gov/npdespub/pubs/tst-techdoc.pdf

U.S. Environmental Protection Agency. 2012. Authorization to Discharge Under The National Pollutant Discharge Elimination System for Oil and Gas Exploration, Development, and Production Facilitie General Permit No. CAG280000.
http://www.epa.gov/region9/water/npdes/pdf/ocs-general-permit2012.pdf

U.S. Environmental Protection Agency peer review:
http://www.waterboards.ca.gov/water_issues/programs/state_implementation_policy/docs/tst_peerreview.pdf

Zheng L, Diamond JM, Denton DL. 2012. Evaluation of whole effluent toxicity data characteristics and use of Welch' test in the Test of Significant Toxicity analysis.
http://www.ncbi.nlm.nih.gov/pubmed/23172744

********** ATTACHMENT NOT DELIVERED **********

This Email message contained an attachment named
  image001.jpg
which may be a computer program. This attached computer program could contain a computer virus which could cause harm to EPA's computers, network, and data. The attachment has been deleted.

This was done to limit the distribution of computer viruses introduced into the EPA network. EPA is deleting all computer program attachments sent from the Internet into the agency via Email.

If the message sender is known and the attachment was legitimate, you should contact the sender and request that they rename the file name extension and resend the Email with the renamed attachment. After receiving the revised Email, containing the renamed attachment, you can rename the file extension to its correct name.

For further information, please contact the EPA Call Center at (866) 411-4EPA (4372). The TDD number is (866) 489-4900.

********** ATTACHMENT NOT DELIVERED **********