



SFPP, L.P.
Operating Partnership

May 20, 2015

Mr. Ben Neill, P.E.
Water Resource Control Engineer
Core Regulatory Unit
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, California 92123-4340

Subject: Written Comments to Tentative Order No. R9-2015-0013, issued April 20, 2015

Dear Mr. Neill:

ARCADIS U.S., Inc. (ARCADIS), on behalf of SFPP, L.P., operating partnership of Kinder Morgan Energy Partners, L.P. (Kinder Morgan), has prepared the enclosed written comments to Tentative Order R9-2015-0013, issuing waste discharge requirements (NPDES No. CAG919003), General Permit for Groundwater Extraction Discharges. The comments center on clarification of effluent limits specific to the Mission San Diego Hydrographic Subarea, and on proposed new whole effluent toxicity (WET) testing protocols.

If you have any questions or wish to discuss these comments further please contact Marcelo Garbiero (ARCADIS) at 562.496.3023 or you may contact me at (714) 560-4775.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Scott E. Martin', is written over a white background.

Scott E. Martin, P.G.
Manager – EHS/Remediation



Mr. Scott Martin, P.G.
Kinder Morgan Energy Partners, L.P.
1100 Town and Country Road
Orange, California 92868

Subject:

Written Comments to Tentative Order No. R9-2015-0013, issued April 20, 2015
Mission Valley Terminal, 9950 and 9966 San Diego Mission Road,
San Diego, California

Dear Mr. Martin:

ARCADIS U.S., Inc. (ARCADIS), on behalf of SFPP, L.P., an operating partnership of Kinder Morgan Energy Partners, L.P. (Kinder Morgan), has reviewed the tentative order made available for public comment by the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board). Tentative Order No. R9-2015-0013 (Tentative Order), issuing Waste Discharge Requirements (NPDES No. CAG919003), General Permit for Groundwater Extraction Discharges and recommends submitting the following comments. These comments center on clarification of effluent limits specific to the Mission San Diego Hydrographic Subarea, and on proposed new whole effluent toxicity (WET) testing protocols. Due to the specialized nature of toxicity testing science and the expertise required to interpret related issues, we consulted Tim Moore of Risk Sciences for an evaluation of the WET testing protocols presented in the Tentative Order. Mr. Moore's input is incorporated in the comments below.

Comment 1: Effluent Limitations for Iron and Manganese Should Include Higher Values for Hydrologic Subareas 7.11 and 7.12 (Table 6, p.16)

Table 6 (Effluent Limitations for Discharges to Freshwater Inland Surface Waters without MUN Beneficial Use) includes instantaneous maximum effluent limits for total recoverable iron and manganese of 0.3 and 0.05 milligrams per liter (mg/L), respectively. The Tentative Order should be revised to add different effluent limits for Hydrographic Subareas 7.11 and 7.12, to match the Basin Plan's specific water quality objectives of 1.0 mg/L for iron and 1.00 mg/l for manganese for those waters. The Table 6 values are derived from Table 3-2 (page 3-14) of the Basin Plan, which

Imagine the result

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Date:

May 20, 2015

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Our ref:

CM010143.0181

lists these specific water quality objectives for iron and manganese while Tentative Order does not.

The specific water quality objectives for Subareas 7.11 and 7.12 were accommodated in effluent limitations in a previous version of this general permit, R9-2001-0096, which included a footnote stating in part,

“For the Mission San Diego (7.11) and Sycamore Canyon (7.12) Hydrographic Subareas, the effluent limitation for iron shall be 1.0 mg/L and the effluent limitation for manganese shall be 1.0 mg/L.”

This footnote was not carried forward to the next general permit, R9-2008-0002, but discussion with San Diego Water Board staff at the time of that permit's adoption confirmed that failure to carry forward the footnote was not intentional and simply an oversight.

The Tentative Order should be revised to add this footnote to Table 6 or other clear language setting effluent limitations of 1.0 mg/l for iron and 1.00 mg/l for manganese, for discharges to hydrologic subareas 7.11 and 7.12.

Comment 2: Revisions Needed to Whole Effluent Toxicity Testing Requirements (Table 6, page 16; Section IV of Attachment E)

The Tentative Order requires WET tests to be analyzed using the Test for Significant Toxicity (TST) which relies on data from only two concentrations (a control group and an effluent-exposed group). This is not an approved Alternate Test Procedure (ATP) to be used in lieu of methods listed in Table IA of 40 CFR Part 136.5. While the United States Environmental Protection Agency (EPA) initially approved the use of the TST method in their letter dated March 17, 2014¹, this approval was recently withdrawn in their letter dated February 11, 2015.²

The Tentative Order also states that dischargers "shall follow the methods for chronic toxicity tests as established in Code of Federal Regulations, title 40, section 136.3.

¹ U.S. EPA. (Eugenia McNaughton, Ph.D.) United States Environmental Protection Agency Region IX, March 17, 2004.

² U.S. EPA. (Eugenia McNaughton, Ph.D.) United States Environmental Protection Agency Region IX, February 11, 2015.

The EPA method manuals referenced in section 136.3 include *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA-821-R-02-013).³ According to EPA, "if EPA has approved (i.e. promulgated through rulemaking) standardized test procedures for a given pollutant, the NPDES permitting authority must specify one of the approved testing procedures or an EPA-approved alternate test procedure for the measurements required under the permit."⁴ The Tentative Order's requirements for WET testing should be revised accordingly.

In light of EPA's decision, federal regulations require the discharger to evaluate compliance using one of the procedures described in the above referenced method manuals.⁵ This does not prevent a discharger from simultaneously reporting results from the TST procedure, or from using the TST results to trigger appropriate follow-up actions. However, the unapproved TST procedure cannot be used in lieu of an approved method to certify that a permit violation has or has not occurred. This is especially true where results from the unapproved TST procedure support a different conclusion regarding the presence or absence of toxicity than results derived from one of the EPA-recommended statistical procedures identified when the WET test methods were originally promulgated under 40 CFR Part 136.

Additional Comments related to using EPA's concentration-response guidance with the TST:

The Fact Sheet for the Tentative Order states that the "San Diego Water Board will not consider a concentration-response pattern as sufficient basis to determine that a TST t-test result for a toxicity test is anything other than valid, absent other evidence."⁶ This statement should be deleted.

Assuming that the test is correct even in the absence of a valid dose-response relationship, unless the lack of a dose-response relationship is also corroborated by other evidence, is contrary to the clear directives given in the promulgated method manuals for NPDES-related WET testing.

³ Tentative Order R9-2015-0013, Attachment E, (see III-A-1-b on pg. E-24)

⁴ 67 FR 223, 69952 (Nov. 19, 2002)

⁵ 40 CFR 122.44(i); 40 CFR 122.41(j)(4); 40 CFR 122.21(j)(5)(viii)

⁶ Tentative Order R9-2015-0013, Attachment F, (see IV-C-7 on pg. F-33)

This statement is contrary to EPA guidance as follows:

"The agency [EPA] is concerned that single concentration, pass/fail, toxicity tests do not provide sufficient concentration-response information on effluent toxicity to determine compliance. It is the Agency's policy that all effluent toxicity tests include a minimum of five effluent concentrations and a control."⁷ (*emphasis added*)

... the use of pass/fail tests consisting of single effluent concentration (e.g. receiving water concentration or RWC) and a control is not recommended.⁸ (*emphasis in original*)

In the Fact Sheet, the Regional Board indicates that EPA's (2000) guidance on interpreting concentration-responses "does not apply to the statistical assumptions on which the TST is based." This statement is not explained and is inconsistent with EPA guidance. Guidance authored by Dr. Mount and Dr. Norberg-King, the two EPA scientists primarily responsible for developing the WET test methods in widespread use today, states as follows:

"A predictable dose response curve is one of the mandatory requirements for a valid toxicity test. We would never accept analytical results from an instrument producing an abnormal standard curve. The predictable dose response curve, that is increasing toxicity with increasing concentration, is the analogue of the analytical standard curve and is of equal importance in toxicity testing."⁹ (*emphasis added*)

"The dose response curve is the basis for the validity of a toxicity test. The control serves as the starting point from which the dose response is

⁷ U.S. EPA. Whole Effluent Toxicity: Guidelines Establishing Test Procedures for the Analysis of Pollutants Supplementary Information Document (SID) Oct. 2, 1995 @ pg. 28.

⁸ U.S. EPA. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms - 4th Ed. Oct., 2002. EPA-821-R-02-013. See §2.2.2 and §2.2.3 @ pg. 5. See, for example, Item #18 in Table 1 on pg. 76 and Item #17 in Table 3 on pg. 165

⁹ U.S. EPA (Dr. Donald Mount). National Effluent Toxicity Assessment Center, EPA Environmental Research Laboratory in Duluth, MN; NETA Communique, January, 1990.

evaluated. If a dose response is not obtained, then toxicity cannot be inferred."¹⁰ (*emphasis added*)

The fact that the promulgated method mandates a multi-concentration test, and the Tentative Order retains this requirement, proves that a valid dose-response relationship is an essential element of all toxicity testing irrespective of which statistical technique is employed to evaluate the data.¹¹

"A corollary of the concentration-response concept is that every toxicant should exhibit a concentration-response relationship, given that the appropriate response is measured and given that the concentration range evaluated is appropriate. Use of this concept can be helpful in determining whether an effluent possesses toxicity and in identifying anomalous test results. The concentration-response relationship for each multi-concentration test must be reviewed to ensure that calculated test results are interpreted correctly ... All WET test results (from multi-concentration tests) reported under the NPDES program should be reviewed and reported according to USEPA guidance on the evaluation of concentration-response relationships."¹²

We disagree with the Regional Board's statement that application of EPA's 2000 guidance on concentration-response patterns "will not improve appropriate interpretation of TST results." In 2000, EPA relied heavily on such analysis to identify and reduce the number of false positives during their large-scale Interlaboratory Study of WET Variability.¹³ Reanalysis of this same data using the

¹⁰ Dr. Teresa J. Norberg-King, EPA Environmental Research Laboratory; Permit Review Memorandum to EPA Region-X; June 5, 1989

¹¹ U.S. EPA. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms - 4th Ed. Oct., 2002. EPA-821-R-02-013. See §10.2.6.1 @ pg. 50: "The concept of a concentration-response or, more classically a dose-response relationship, is the most fundamental and pervasive one in toxicology..." [citing Casarett & Doull, 1975]

¹² U.S. EPA. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms - 4th Ed. Oct., 2002. EPA-821-R-02-013. See §10.2.6 @ pg. 50 [referring to U.S. EPA. Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136). EPA-821-B-00-004. (July, 2000)].

¹³ U.S. EPA. Final Report: Interlaboratory Study of EPA Short-term Chronic and Acute Whole Effluent Toxicity Test Methods. EPA-821-B-01-004. September, 2001.

TST procedure, without consideration of the underlying dose-response relationship, shows that this technique nearly quadruples the rate of false positives (e.g. blank samples mistakenly identified as "toxic").^{14,15} This is not surprising given the fact that the TST procedure uses an initial assumption (aka "null hypothesis") that the sample is toxic and requires a high level of statistical certainty to reject that presumption. Under the circumstances, observing a valid dose-response relationship becomes more important, not less relevant.

We agree that the absence of a valid dose-response relationship should not automatically "invalidate" the test. However, such an occurrence remains a well-established indication that the test data should be carefully interpreted before validating and certifying the results. The statement made in the Tentative Order that the San Diego Water Board's will assume the test is correct even in the absence of a valid dose-response relationship, unless the lack of a dose-response relationship is also corroborated by other evidence, is contrary to the clear directives given in the promulgated method manuals for NPDES-related WET testing,¹⁶ and should be deleted.

This issue is of practical and legal importance to permittees. We concur with the Regional Board's statement that "unexpected concentration-response patterns should not occur with any regular frequency." However, in our experience, ionic imbalance can cause significant and consistent test interference. Careful evaluation of the dose-response relationship is an essential tool that helps to distinguish true toxicity from ionic interference when interpreting test results.

¹⁴ Western States Petroleum Association. Policy for Toxicity Assessment and Control. January 21, 2011. See §2.B at pg. A-4.

¹⁵ Multiple Public Wastewater Agencies (CASA, BACWA, CVCWA, RCRC, SCAP, Tri-TAC). Comment Letter: Draft Policy for Toxicity Assessment and Control. Submitted to SWRCB August 20, 2012.

¹⁶ U.S. EPA. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms - 4th Ed. Oct., 2002. EPA-821-R-02-013. See §10.2.6.2 @ pg. 50

If you have any questions please contact me at 562.496.3023.

Sincerely,

ARCADIS U.S., Inc.

A handwritten signature in blue ink, consisting of stylized initials 'MG' followed by a long horizontal flourish.

Marcelo A. Garbiero, P.E.
Principal Civil Engineer

Copies:

Scott Martin, Kinder Morgan
Nancy Van Burgel, Kinder Morgan
Sean McClain, RWQCB
Heather Stroud, City of San Diego

Attachments: