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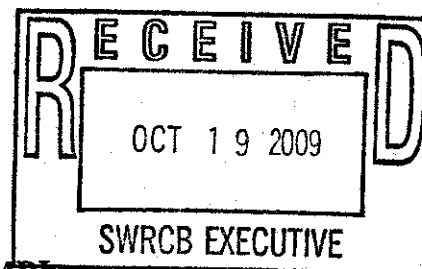
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October 19, 2009

Via E-mail (commentletters@waterboards.ca.gov) and U.S. Mail

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814



**RE: Comment Letter – Guadalupe River Watershed Mercury TMDLs
Submitted on behalf of Guadalupe Rubbish Disposal Company, Inc.**

Dear Ms. Townsend and Members of the Board:

We submit these comments on behalf of the Guadalupe Rubbish Disposal Company, Inc. (“GRDC”). We appreciate this opportunity to review and comment on the revised Proposed Basin Plan Amendment (the “BPA”) and Staff Report (the “Report”), dated September 2008 and prepared by the Regional Water Quality Control Board in connection with the *Guadalupe River Watershed: Mercury Total Maximum Daily Load (TMDL) Project* (the “project” and/or the “TMDL”). GRDC owns and operates the Guadalupe Landfill, located on a portion of the land formerly used for Guadalupe Mine’s operations, and is therefore very interested in the development of an appropriate, scientifically-based mercury TMDL for the Guadalupe Watershed. We also appreciate the significant amount of work that the State and Regional Boards have committed to both the project and to working with various stakeholders in the Watershed, including GRDC.

After reviewing the revised BPA and Report, we respectfully note that there continue to be significant problems and several critical defects in the overall TMDL, and a number of areas where there is inadequate technical or scientific basis for the conclusions reached or recommendations offered. Also, the Regional Board has failed to address or has inadequately addressed our prior written and oral comments. Consequently, GRDC renews the comments it submitted previously to the Regional Board (“Prior GRDC Comments”) below and incorporates those comments here by reference (a copy of the Prior GRDC Comments is also attached here as Exhibit A).

While GRDC is critical of and questions much of the revised BPA and the Report, we are supportive of the TMDL’s objectives and generally supportive – assuming that we correctly understand it – of the implementation strategy for historical mining areas downstream of the impoundments, including the portions of GRDC’s land that were mined by prior landowners decades and even well over a century ago. Based on the revised BPA and Report, we understand the proposed implementation strategy is similar to existing stormwater strategies, including implementation of best management practices for controlling stormwater runoff.

We hope the State Board will consider our comments and address them before deciding whether to adopt the Regional Board's proposed TMDL.

GRDC's COMMENTS

A. The Deadlines in the BPA Must Be Extended Because Many Have Already Passed or Will Pass Before the BPA or TMDL is Finally Approved

When adopted over one year ago, the BPA and Staff Report included a number of implementation deadlines, many of which have passed since the Regional Board approved the BPA and others that will pass before the BPA or TMDL is ever finalized. All dates within the BPA and TMDL must be extended by at least 18 months to allow parties sufficient time to meet them. For example, even though the BPA has yet to be approved by the State Board or EPA, it states, "The Guadalupe River watershed mercury TMDLs implementation plan will proceed in two phases, beginning January 1, 2009. . . ." BPA at 12 (emphasis added). The BPA also envisioned that the Regional Board would be ordering landowners to submit either individual or coordinated monitoring plans by October 15, 2009. No such orders were ever issued and the deadline has now passed.

The BPA should be amended to extend these deadlines by at least 18 months to account for the 12 month period since its adoption in late 2008, the time necessary for the State Board to review, revise and respond to comments on the BPA, and the time EPA will need to review and either approve or disapprove the TMDL. Not only should the BPA be amended to extend the deadlines that have passed, it should extend all deadlines by at least 18 months in order to retain the same time periods envisioned in the BPA when finalized last year.

B. The TMDL Does Not Satisfy The Clean Water Act's Requirement That TMDLs Be Based on a Daily Limit (Prior GRDC Comment Nos. 1 & 14)

A significant threshold problem with the TMDL is that, despite the changes made by the Regional Board in response to comments by GRDC and others, it remains a concentration-based standard focused on mercury content in soil and mining waste, rather than a load-based standard focused on the "total maximum daily load" of mercury that can enter the waterbodies in the Guadalupe Watershed. This process is part of the Clean Water Act, which requires States to establish a "total maximum daily load" or "TMDL" for pollutants entering waterbodies – this is the language of the statute, and it is not optional or discretionary. 33 U.S.C. § 1313(d)(1)(c) (emphasis added). A U.S. Court of Appeals decision highlighted this fact by ruling that the Clean Water Act unambiguously requires TMDLs to be based on daily, and not seasonal or annual, loads. "Daily means daily, nothing else." *Friends of the Earth, Inc. v. EPA*, 446 F.3d 140, 142 (D.C. Cir. 2006).

Following the *Friends of the Earth* decision, EPA's own guidance materials now recognize the need to express TMDLs in terms of daily loads. In a November 15, 2006 memorandum by Ben Grumbles, Assistant Administrator, Office of Water, USEPA issued guidance related to the court decision that supports daily time increments in TMDLs. In the memorandum, "EPA recommends that all future TMDLs and associated load allocations and wasteload allocations be expressed in terms of

daily time increments.”¹ This requirement even applies to TMDLs that are under development, such as the Guadalupe River Watershed TMDL:

For TMDLs under development that have not yet been adopted by States or established by EPA, EPA recommends that such TMDLs and allocations be revised, if feasible, to be consistent with this memorandum prior to their adoption or establishment. If States adopt and submit TMDLs expressed solely in non-daily terms, EPA expects to ask the submitting State to provide written documentation regarding how the submitted TMDLs and allocations would be expressed in daily terms.

Id.

The Regional Board’s response to this criticism was to add daily load limitations to the TMDL, but changed nothing more. See Regional Board’s Response to Prior GRDC Comment (“Regional Board Response”) No. 1. Consequently, the TMDL remains designed to regulate the concentration of mercury in soil and mining waste, and, contrary to the plain language of the statute, does not implement a “total maximum daily load” mercury limit for the waterbodies of the Guadalupe Watershed. The Regional Board fully acknowledges this design on several occasions in the Report, and after restating its technical justifications for not assigning daily or average daily load limits, states: “we intend to implement the concentration-based TMDLs and allocations. . . .” Report at 8-15 (emphasis added).

To simply include a perfunctory daily load limitation in a TMDL, but to afford it no significance or import, and then proceed with a concentration-based limitation that totally ignores the daily load limitation, violates the language and intent of the Clean Water Act. The Report asserts that “it would be impractical to regulate on [sic] annual or daily mass loads of total mercury.” Report at 8-3. While the Regional Board may feel that it is justified as a matter of policy to conclude that “a daily or average daily TMDL is not appropriate” or “practical”, doing so will violate the Clean Water Act. *Friends of the Earth*, 446 F.3d at 145 (“EPA may not avoid the Congressional intent clearly expressed in the text simply by asserting that its preferred approach would be better policy. [. . .] Nor can we set aside a statute’s plain language simply because the agency thinks it leads to undesirable consequences in some applications.”).²

To further illustrate this point, both the statute itself and EPA guidance materials acknowledge the challenges presented by seasonal variability and imperfect data to connect pollutant sources with their impacts on water quality. But, in both cases, the end result is clearly intended to be a limitation implemented as a “total maximum daily load.” For example, the Clean Water Act itself states that “total maximum daily load[s] . . . shall be established at a level necessary to implement the applicable water quality standards *with seasonal variations*. . . .” 33 U.S.C. § 1313(d)(1)(c) (emphasis added).

¹ See <http://www.epa.gov/owow/tmdl/dailyloadsguidance.html>.

² While the Regional Board apparently does not feel bound by the *Friends of the Earth* decision, it has offered no explanation why the D.C. Circuit’s reasoning is not persuasive, especially the court’s irrefutable statement that “daily means daily.”

Additionally, a recent draft EPA guidance document notes that while it “might continue to be appropriate and necessary to identify non-daily allocations in TMDL development,” it goes on to provide seven examples of TMDLs in which complex long-term load factors (*i.e.* non-daily) were converted into daily loads for implementation purposes. EPA Office of Wetlands, Oceans & Watersheds, *Options for Expressing Daily Loads in TMDLs* at vii & Appendix A (June 22, 2007).

In sum, the plain language of the Clean Water Act, as well as interpretations of that language by the courts and the EPA itself, indicate that the TMDL process is intended to culminate with the expression of daily loads used to implement the TMDL and achieve the water quality objectives. Here, the TMDL superficially contains daily load limitations for mercury, but those limitations are brushed aside in favor of the Regional Board’s preferred approach to use concentration-based limitations. The Regional Board does not possess this level of discretion. As currently drafted, the TMDL violates the Clean Water Act, and thus, should not – indeed cannot – be approved.

C. **A TMDL Based on Mercury Concentration in “Erodible” Mining Waste and Sediment Is Legally Improper and Practically Unworkable** (Prior GRDC Comment Nos. 2-5)

The Regional Board’s responses to comments concerning the “erodible” mining waste and sediment basis of the TMDL were merely token responses that did not address the substantive issue. Specifically, the Regional Board’s responses focus on justifying the explanation that the initial source of mercury in the Guadalupe Watershed is mercury in soil that is then transported via stormwater runoff. While that may be an accurate conclusion, the Regional Board must still perform a thorough load and discharge analysis to link the rate of mercury transport from soil on land into the waterways of the Guadalupe Watershed via such stormwater runoff.

As noted in the Prior GRDC Comments, a TMDL is a “daily load” or a quantity of material that can be discharged into navigable waters on a daily basis, typically expressed as units per day. The BPA and the Report establish a TMDL based not on a daily discharge rate, but rather on a static concentration of mercury in soil, regardless of what total quantity of mercury actually discharges to navigable waters. As such, the 0.2 mg/kg erodible mining waste and 0.2 mg/kg erodible sediment standards are not allowable bases for establishing waste load allocations under the Clean Water Act, and the TMDL as revised remains fundamentally flawed. EPA Region 9’s guidance on TMDLs states that “a maximum allowable pollutant load must be estimated to address the site-specific nature of the impairment. The loading capacity reflects the maximum amount of a pollutant that may be delivered to the waterbody and still achieve water quality standards.” EPA Region 9, *Guidance for Developing TMDLs in California* at 4 (Jan. 7, 2000) (“EPA Region 9 Guidance”). In stark contrast to this directive from EPA, the Report previously admitted:

[T]he Guadalupe Linkage Analysis (see Section 7.1) for inorganic mercury is qualitative, so it does not provide a scientific basis for a mass load in the Guadalupe River watershed.

Report (February 2008 version) at 8-4 (emphasis added).

Subsequently, in response to the Prior GRDC Comments, the Regional Board deleted this statement from the revised/final Report. But unfortunately, the observation remains true. The linkage analysis referenced in Section 7.1 of the Report lacks the same information it lacked previously, and thus, still fails to provide the scientific basis that is required – a quantifiable link between mercury content in soil and mercury content in waterbodies. As stated by EPA in its EPA Region 9 Guidance: a TMDL must provide “an understanding of pollutant loading sources and the amounts and timing of pollutant discharges [that] is vital to the development of effective TMDLs.” EPA Region 9 Guidance at 4.

Moreover, erodible mining waste and sediment standards simply will not and cannot serve to determine “the maximum amount of a pollutant that may be delivered to the waterbody and still achieve water quality standards.” The “maximum amount” must be determined based on how much mercury is discharged into the system, and cannot be based on the concentration of mercury in the soil, *i.e.*, one cubic yard of heavily contaminated erodible soil may result in a lower total mercury discharge than a million cubic yards of lightly contaminated soil. Similarly, two identical quantities and concentrations of erodible soil may have far different impacts on in-stream mercury levels because of how erodible each might be.

Similarly, even if a TMDL based on mercury concentrations in erodible soils were lawful, the standard is unworkable as a practical matter. The Report defines “erodible” as “material readily available for transport by stormwater runoff to surface waters.” Report at 8-2. How does one determine which soils are “erodible”? Is there a test for “erodibility” or a well-known standard? At what point is “erodibility” so minimal that it is not considered “readily available for transport”? All soils are erodible to some degree, which results in the imposition of a vague standard on landowners who must determine whether certain soils are “erodible” or not, under the threat of enforcement action. Conversely, if all soils are – in theory – erodible, then the 0.2 mg/kg standards become *de facto* cleanup standards. The majority of natural soils throughout the Guadalupe Watershed would likely exceed this excessively stringent standard, thereby requiring removal or some other form of remediation to ensure that the soils would never become “erodible.” The Regional Board’s response to Prior GRDC Comment No. 4 states that “the only permissible discharge from mine property is that naturally generated by erosion of undisturbed soil.” But basing the TMDL and related enforcement actions on vague determinations such as what constitutes a “naturally generated” discharge and “undisturbed soil” makes the TMDL even more subjective, vague, and uncertain.

GRDC commented previously that by using a concentration-based regulatory approach, compounded by the practical difficulty in distinguishing what soil areas are “erodible” from those that are not, the TMDL imposes *de facto* soil cleanup standards that are two to three orders of magnitude more stringent than cleanup standards developed and typically applied by EPA and the State of California for cleanup of mercury contamination of soils. In its response to these comments, the Regional Board simply inserted a footnote to the BPA that says: “Allocations to mercury mining waste and mercury-laden sediment are not cleanup standards.” BPA Table 7-B, fn. a.

Thus, it appears that GRDC and the Regional Board are in agreement that the TMDL’s mining waste allocations should not be cleanup standards. Nonetheless, while the Regional Board’s edits to the text of the BPA disclaim that it is imposing a soil cleanup standard, such is the real-life effect of the

TMDL's two 0.2 mg/kg concentration-based standards on regulated entities that must comply or risk enforcement actions. This is what makes the new standards *de facto* soil cleanup standards. Moreover, by responding in this manner, the Regional Board failed to address the substantive issue and did not offer an explanation for:

- (i) why the TMDL's 0.2 mg/kg standards are so much more stringent than other soil standards;
- (ii) why the 0.2 mg/kg erodible soil standard, which was based on the San Francisco Bay Mercury TMDL, a marine mercury sediment standard, is appropriate for a freshwater erodible soil standard; or
- (iii) the lack of any kind of scientific evaluation of the purported "cleanup standards" other than adopting a background concentration of 0.1 mg/kg from purported "background" sediment concentrations in the Lexington Reservoir.

D. Even the Perfunctory and Unsupported Methylmercury Daily Load Does Not Justify Imposing Load Limitations on Downstream Sources³

As discussed above, the Regional Board responded to criticism of the lack of a daily load by inserting a perfunctory methylmercury load limit into the TMDL. That daily load is based on a 1.5 ng/L concentration limit in the lakes and reservoirs and a 120-day per year methylmercury production period. This entire discussion in the Report – *i.e.*, the entire basis for the methylmercury TMDL itself – covers a mere ¾ of one page. The scant discussion is rife with assumptions concerning facts that should be easily determined, such as the volume of Lake Almaden. It is a wholly inadequate basis for establishing a TMDL that will have significant, expensive and long-term impacts. It is especially inadequate as a basis for the TMDL as applied to sources downstream of the lakes and reservoirs, since the TMDL is based on methylmercury generation in the lakes and reservoirs, not in areas downstream.

E. The Mercury TMDL is Based Entirely on the San Francisco Bay Mercury TMDL and Not on the Site-Specific Nature of the Mercury Impairment in the Guadalupe Watershed

Likewise, the after-the-fact "daily" TMDL now included in the BPA is unsupported and legally defective. The basis for the "daily" load for mercury is not a site-specific consideration of the Guadalupe Watershed, rather it is based on the San Francisco Bay Mercury TMDL ("SF Bay TMDL"). Report at 8-16. This approach is contrary to EPA Region 9's directive that TMDLs must be based on site-specific considerations of the watershed at issue, not some other watershed: "[A] maximum allowable pollutant load must be estimated to address the site-specific nature of the impairment. The loading capacity reflects the maximum amount of a pollutant that may be delivered to the waterbody and still achieve water quality standards." EPA Region 9 Guidance at 4.

³ The daily load TMDL was not included in the draft Report previously subject to public comment (February 2008 version).

F. **The Use of Lexington Reservoir as a Background Reference Is Inappropriate and Produces Unrealistic Source Reduction Allocations** (Prior GRDC Comment Nos. 6, 12 & 15)

The Regional Board's decision to use Lexington Reservoir sediments to represent background sediment concentrations is neither justified nor logical. Moreover, the Regional Board's response to criticism of this decision – that a reservoir in the Guadalupe Watershed in mineralized soil but not influenced by mining would be a "better" reference site, but that no such reservoir exists – is simply inadequate. Regional Board Response No. 6.

The New Almaden Mining District was one of the largest mercury-producing areas in the world, and it was so for a reason: The large amount of naturally-occurring mercury deposits in the hills throughout the District. As such, an appropriate reference site should be one that is mineralized, but not impacted by mining operations. Such a site would provide an accurate reference by reflecting the relatively high levels of naturally-occurring mercury in the indigenous soils, thereby making it possible to discern the additional impact that mercury mining had on the region. As the Report points out, "scientists use reference sites, not affected by the particular influence being studied, to compare to affected sites. In this case, we compare a reference reservoir [*i.e.* Lexington Reservoir] that is not affected by mercury mining to reservoirs affected by mercury mining." Report at 3-5.

However, the Report also states that, other than a small silica deposit, "there were no other potential mercury deposits identified in the Lexington Reservoir watershed." Report at 3-14 (emphasis added). Obviously, mining only occurs in mineralized areas; conversely, mining does not occur where there are no naturally-occurring minerals. (By analogy, one would not determine the background salinity of San Francisco Bay by testing salinity levels in an alpine lake.) So by using Lexington Reservoir sediments to represent background sediment concentrations, the Report creates an artificially wide delta between unaffected and affected reservoirs, which in turn results in the establishment of a TMDL with unrealistic source reduction allocations. The Report cannot justify using the Lexington Reservoir – or the areas draining into it – as representative of background conditions in the New Almaden Mining District due to the absence of naturally existing cinnabar concentrations in the soil that would otherwise support mining activities. The Regional Board subsequently attempted to justify this approach using the theory that "bottom sediments in Lexington Reservoir resulted from the natural erosion of upstream hillsides," but this theory appears to be unsupported by actual data or other evidence, especially if those hillsides were not mineralized. Regional Board Response No. A2.

Additionally, the BPA's attainment strategies focus almost exclusively on sediment load reduction assumed to contain mercury that, in turn, is assumed to cause fish tissue impacts. But in doing so, the BPA and the Report fail to distinguish methylmercury impacts from mining waste (either from actively eroding mine waste piles or legacy mine waste in creeks and reservoirs), on the one hand, from the impacts of: (i) erosion of natural bedrock terrain containing disseminated mercury; (ii) natural sediment in creeks and reservoirs; or (iii) air deposition. Without distinguishing natural mercury-bearing sediments from sediments derived from mine waste piles, the BPA can not properly assume that fish tissue methylmercury levels are not natural for the Guadalupe Watershed.

In fact, the Report notes that the Guadalupe Watershed is the site of rich mercury-bearing ore bodies. See Report at 3-14–3-16. These ore bodies occur in natural bedrock formations that contain

numerous non-ore grade mercury bearing zones and relatively low concentration of disseminated mercury mineralization. The formations are exposed as rock outcroppings to natural processes of weathering and erosion in over approximately 19 square miles of the watershed. At the same time, mapped former mine waste piles are estimated to cover less than a few hundred acres of the watershed. In short, mercury from natural bedrock exposures has been migrating into the watershed for millions of years. The TMDL provides no detailed studies to show that the mine waste piles are eroding any faster than natural bedrock, or at all. The failure to distinguish between natural mercury-bearing sediments from sediments containing mercury from mining waste renders suspect the TMDL's methodology and resulting mercury reduction allocations.

G. The TMDL's Mercury Reduction Allocations Are Inequitable (Prior GRDC Comment Nos. 7-11)

Among the Prior GRDC Comments were those addressing the mercury reduction allocations for upstream sources as compared to downstream sources, with the dividing line being the reservoirs and lakes that are impoundments within which mercury methylation is maximized. The TMDL admits that the reduction of mercury and methylmercury in these reservoirs and upstream mining areas is the key to meeting the water quality objectives. Both the previous (February 2008) and revised (September 2008) version of the Report state:

Although there may be sites for methylation in the stream and river channels . . . , their total contribution to methylmercury production is much smaller than the exports from the reservoirs and Lake Almaden during the dry season. This suggests that that reducing methylmercury production to attain TMDL targets in impoundments in the mining district and Almaden Lake will likely also attain targets in downstream waters.

Report at 7-14 (emphasis added).

Thus, the Report itself acknowledges that allocations are not necessary for downstream sources in order to meet the TMDL targets. Indeed, the purported daily methylmercury load is based exclusively on discharges to lakes and reservoirs. There is no justification for requiring downstream mining sources to implement load reduction strategies to meet the TMDL target.

Moreover, because successful upstream methylmercury control actions will not instantly reduce fish tissue concentrations downstream, the 10-year plan to attain targets upstream in the lakes and reservoirs must be completed and assessed before the level of appropriate downstream reduction measures, if any, can be determined. Therefore, it would be inappropriate and unnecessary to impose additional requirements on downstream sources, if in fact the upstream reductions will eventually result in achieving the goals of the TMDL.

In its responses, the Regional Board "agree[s] that reductions of mercury loads from sources downstream of reservoirs and lakes may not be needed to obtain fish targets within the watershed. This TMDL project anticipates that methylmercury controls in reservoirs and lakes will be effective in attaining these downstream targets." Regional Board Response Nos. 8, 10 & 11. But the Regional

Board's responses then explain that reductions of mercury loads from downstream sources are still needed to meet three different aspects of the SF Bay TMDL": (i) the mercury allocation assigned by the SF Bay TMDL to the Guadalupe Watershed; (ii) the SF Bay TMDL's sediment target of 0.2 mg/kg; and (iii) protection of the South Bay Salt Ponds Restoration Project. *Id.*

However, the TMDL's imposition of extraneous requirements on downstream sources within the Guadalupe Watershed to meet requirements of a separate and distinct TMDL project – the SF Bay TMDL – is improper. As stated in the Clean Water Act, the "total maximum daily load . . . shall be established at a level necessary to implement *the applicable water quality standards. . .*" 33 U.S.C. § 1313(d)(1)(C) (emphasis added). These water quality standards "serve the dual purposes of establishing the water quality goals for a specific water body and serving as the regulatory basis for establishment of water quality-based treatment controls and strategies. . . ." 40 C.F.R. § 130.3 (emphasis added). Here, the "specific water bod[ies]" to which the TMDL's water quality standards apply are described as follows:

- "The proposed TMDL and implementation plan are designed to resolve mercury impairment in waters downstream of mercury mines *in the Guadalupe River.*" Report at 1-3 (emphasis added);
- "The water quality standards for *waters in the Guadalupe River watershed* include beneficial uses, narrative water quality objectives, numeric water quality objectives, and antidegradation provisions." *Id.* at 2-10 (emphasis added); and
- "The waters addressed by this TMDL are downstream of mercury mines and/or receive urban runoff—*the waters of the Guadalupe River watershed* except Los Gatos Creek and its tributaries upstream of Vasona Dam, including Vasona Lake, Lexington Reservoir, and Lake Elsmán. . . ." *Id.* at 2-11 (emphasis added).

In sum, the TMDL's water quality standards apply to waters within the Guadalupe Watershed and not to waters within San Francisco Bay, and the reverse is also true. While it may be appropriate to coordinate the TMDL for the Guadalupe Watershed with other TMDL's such as the SF Bay TMDL, it is improper to impose additional requirements on sources within the Guadalupe Watershed that are not necessary to meet the water quality standards applicable to that watershed.

H. The Regional Board Cannot Unilaterally Establish a TMDL for Methylmercury, As Opposed to Elemental Mercury (Prior GRDC Comment No. 17)

Under the Clean Water Act § 303(d), the Guadalupe River and the Guadalupe Creek are listed as impaired for elemental mercury, not methylmercury. The BPA and the Report ignore this fact and improperly establish a TMDL for methylmercury (1.5 ng of methylmercury per liter of water). See BPA at 9 & 10; Report at 8-12, 8-19 & 8-20. Moreover, it is inappropriate for the Board to establish a TMDL for a pollutant which was not identified in the Clean Water Act § 303(d) list as causing or expected to cause violations of the applicable water quality standards.

Although the Regional Board's conclusion that "[m]ethylmercury is what we need to focus on in reservoirs and lakes to address the impairment" in the Guadalupe Watershed may be accurate, such actions are not currently authorized by the Clean Water Act. Regional Board Response No. 17. To the extent the Regional Board desires to establish a TMDL for methylmercury, two things must happen first: (i) methylmercury must be listed in the Clean Water Act § 303(d) list; and (ii) the waterbodies within the Guadalupe Watershed must be listed as impaired for methylmercury.

I. The TMDL Repeatedly Fails to Support its Findings and Conclusions with Data and Its Implementation Actions for Mine Sites Have Significant Uncertainties (Prior GRDC Comment Nos. 18, 20, 21 & 22, A1-A6, B-E)

In many of its responses to GRDC's various comments concerning the TMDL's data gaps, unsupported conclusions and uncertain application, the Regional Board appears to have adopted the following theme: While the TMDL does contain uncertainties, some amount of uncertainty is acceptable, and thus, the TMDL is good enough. In the Regional Board's words: "Environmental science inherently includes data gaps and uncertainties." Regional Board Response No. 22. For example, in response to GRDC's comment concerning the admitted lack of upper watershed load estimates, the Regional Board said: "We realize that there is some uncertainty associated with mercury loads in the wet season, however, we are confident that our estimates are adequate for TMDL purposes." Regional Board Response No. 18. Other examples are the Regional Board's responses to GRDC's comments concerning the lack of data and the corresponding inability to calibrate the SWAT model and Monte Carlo simulation used in the TMDL, where the Regional Board stated: "All measurements have some uncertainty. . . ." (Regional Board Response No. A3) and "All measurements and estimates have some uncertainty. . . ." (Regional Board Response No. A5).

The Regional Board also attempts to compensate for the TMDL's lack of data, including data to quantify mercury loads and support the TMDL's linkage analysis, by claiming that the TMDL has been reviewed and affirmed by "Peer Reviewers." Regional Board Response Nos. 18, 22 & D. Even if this claim were true, the fact that some Peer Reviewer's comments support the TMDL as currently drafted cannot solve the TMDL's data or legal insufficiencies. And, even the Peer Reviewer's statement quoted by the Regional Board is equivocal:

The identification of sources, linkage analysis and allocations are based upon data collected recently by [Tetra Tech]. Although the heterogeneity of the system and its complex hydrology make it difficult to estimate some of the values accurately, the staff has attempted to apply best professional judgment in a way that allows for cleanup to begin soon. In my opinion, the adaptive management approach advocated by the staff is superior to spending more time quantifying loadings and sources.

Quote from Prof. Sedlak cited in the Regional Board's Response No. 18 (emphasis added).

In the same sentence, this quote both acknowledges the difficulty in estimating certain values and then agrees that the Regional Board's "adaptive management approach" allows for cleanup to begin

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quickly. But the complexity of the watershed's hydrology does not excuse regulators like the Regional Board from first doing its homework, fully and accurately, before imposing onerous restrictions on landowners in the watershed. Nor does difficulty in establishing a technically sound TMDL excuse the Regional Board from proposing a TMDL that does not meet the legal requirements of the Clean Water Act.

As a consequence of its failure to set forth thorough and complete data and corresponding analysis up front, the TMDL leaves a great deal undecided. These open matters are left to be determined later by the Regional Board, using its discretion and enforcement authority, both of which will become even more considerable if the TMDL is adopted. For instance, after acknowledging that no post-remediation samples were taken in Almaden Quicksilver County Park, the Regional Board stated: "The data gap will be filled during the first step of implementation for mercury mines. . . ." Regional Board's Response No. A1. Another example is Regional Board's Response No. D, which references a "special study" that will need to be conducted if the TMDL's load allocations fail to attain the desired fish tissue concentrations. The Regional Board notes that: "At the time we review the sampling plan, we will take into consideration appropriate metrics. . . ." Regional Board's Response No. D. Thus, it is apparent that many important details concerning the TMDL's implementation are still unclear, and will only become so after the TMDL has been approved and further data has been collected. The order of this process should be reversed.

In sum, the TMDL is being rushed through the approval process before it is complete and ready for consideration. The TMDL in its current form contains too many data gaps, uncertainties and contingencies, which the Regional Board intends to fill in later via additional studies and investigation imposed upon landowners in the watershed (*i.e.* the "adaptive management approach"). This process reversal renders the TMDL too much a policy document and exempts the actual actions to be imposed on individual landowners from review. Not only does this make the TMDL vague and uncertain in its application, it deprives the affected landowners of the opportunity to evaluate and comment now, before the TMDL is approved and takes effect, at which point it will be too late.



Due to the issues discussed in this letter, GRDC remains extremely concerned with the adequacy of the proposed BPA and the Report. We believe that these documents will require substantial revision before they are legally adequate and technically or scientifically supportable.

Very truly yours,

Todd O. Maiden
Reed Smith LLP

Exhibit (1)

cc: Eddie Pettit (via e-mail)

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April 21, 2008

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**Comments on Proposed Basin Plan Amendment and Staff Report of Guadalupe River Watershed:
Mercury Total Maximum Daily Load (TMDL) Project (February 2008)**

Dear Ms. Austin:

On behalf of the Guadalupe Rubbish Disposal Company, Inc. ("GRDC"), we appreciate the opportunity to review and comment on the February 2008 Proposed Basin Plan Amendment (the "BPA") and Staff Report (the "Report") of the Regional Water Quality Control Board's *Guadalupe River Watershed: Mercury Total Maximum Daily Load (TMDL) Project* (the "project"). GRDC owns and operates the Guadalupe Landfill on a portion of the former Guadalupe Mine operations¹ and is therefore very interested in the development of an appropriate, scientifically-based TMDL for the Guadalupe Watershed. We also appreciate the significant amount of work that you and others at the Water Board have committed to both the project and to working with various stakeholders in the Watershed, including GRDC.

After reviewing the BPA and the Report, we respectfully note there are significant problems and several critical defects to the overall TMDL, and a number of areas where there is not an adequate technical or scientific basis for the conclusions reached or recommendations offered. For example, one significant threshold problem with the TMDL is that it does not in fact establish a "total maximum daily

¹ Guadalupe Mine operations also occurred on land currently owned by the Midpeninsula Open Space District.

loading” or “allocations” as required by the federal Clean Water Act. Nowhere does the Report establish a total “daily loading” of allowable mercury to the watershed, and nowhere does it establish daily load allocations. Rather, it establishes certain concentration-based “allocations” in some areas, and annual mass-based loading rates in other areas.

While GRDC is critical of and questions much of the BPA and the Report, we are supportive of TMDL objectives and generally supportive – assuming that we correctly understand it – of the implementation strategy for historical mining areas downstream of the impoundments, including the Guadalupe Landfill. Based on the BPA and the Report, we understand the proposed implementation strategy is similar to existing stormwater strategies, including implementation of best management practices for controlling stormwater run-off.

We hope the Water Board will consider our comments and address them before finalizing the TMDL project.

GENERAL COMMENTS

1. The TMDL Does Not Satisfy The Clean Water Act’s Requirement That TMDLs Must Be Based on a Daily Limit.

The Report states, “A TMDL need not be stated as a daily load (Code of Federal Regulations, Title 40, §130.2[i]). Other measures are allowed if more appropriate.” Report at 8-1. The Board then proposes an approach that adopts seasonal, annual, and concentration-based load allocations, but no daily loads. While GRDC generally favors the Board’s preference for adopting TMDLs based on other appropriate and more flexible considerations, the Board’s approach directly contradicts a 2006 U.S. Court of Appeals decision in *Friends of the Earth, Inc. v. EPA*, 446 F.3d 140 (D.C. Cir. Apr. 25, 2006). In the decision, the D.C. Circuit held that TMDLs under the Clean Water Act unambiguously require TMDLs must be based on daily, and not seasonal or annual, loads. “Daily means daily, nothing else.” 446 F.3d at 142. As a result, EPA may not be able to approve the proposed TMDL because it is not stated as a “daily load.”

EPA itself now recognizes the need to address the court’s decision in future TMDLs. In a November 15, 2006 memorandum by Ben Grumbles, Assistant Administrator, Office of Water, USEPA issued guidance related to the court decision that supports daily time increments in TMDLs. In the

memorandum, "EPA recommends that all future TMDLs and associated load allocations and wasteload allocations be expressed in terms of daily time increments."² This requirement even applies to TMDLs that are under development, such as the Guadalupe TMDL:

For TMDLs under development that have not yet been adopted by States or established by EPA, EPA recommends that such TMDLs and allocations be revised, if feasible, to be consistent with this memorandum prior to their adoption or establishment. If States adopt and submit TMDLs expressed solely in non-daily terms, EPA expects to ask the submitting State to provide written documentation regarding how the submitted TMDLs and allocations would be expressed in daily terms.

See id.

The Board should revise the proposed TMDL to be consistent with the *Friends of the Earth* decision and EPA guidance.

2. A TMDL Cannot Be Based on Mercury Concentration in "Erodable Soil."

Fundamentally, a TMDL is a "daily load" or a quantity of material that can be discharged into navigable waters on a daily basis, typically expressed as units per day. The BPA and the Report establish a TMDL based not on a daily discharge rate, but rather on a static concentration of mercury in soil, regardless of what total quantity of mercury actually discharges to navigable waters. As such, the 0.1 parts per million ("ppm") and 0.2 ppm "erodable soil fines" standards are not allowable bases for establishing waste load allocations under the Clean Water Act. EPA Region 9's guidance on TMDLs states that "a maximum allowable pollutant load must be estimated to address the site-specific nature of the impairment. The loading capacity reflects the maximum amount of a pollutant that may be delivered to the waterbody and still achieve water quality standards." EPA Region 9, *Guidance for Developing TMDLs in California* at 4 (Jan. 7, 2000) ("EPA Region 9 Guidance"). In stark contrast to this directive from EPA, the Report admits:

² See <http://www.epa.gov/owow/tmdl/dailyloadsguidance.html>.

[T]he Guadalupe Linkage Analysis (see Section 7.1) for inorganic mercury is qualitative, so it does not provide a scientific basis for a mass load in the Guadalupe River watershed. Report at 8-4 (emphasis added).

This admission is tantamount to conceding that the TMDL does not provide the very information that it is required to provide, namely “an understanding of pollutant loading sources and the amounts and timing of pollutant discharges [that] is vital to the development of effective TMDLs.” EPA Region 9 Guidance at 4. Moreover, an “erodible soil fines” standard simply will not and cannot serve to determine “the maximum amount of a pollutant that may be delivered to the waterbody and still achieve water quality standards.” The “maximum amount” must be determined based on how much mercury is discharged to the system, and cannot be based on the concentration of mercury in the soil, *i.e.*, one cubic yard of heavily contaminated erodible soil may result in a lower total discharge of mercury than a millions of cubic yards of lightly contaminated soil.

3. An “Erodible Soil” Standard of 0.1 ppm or 0.2 ppm is Excessively Stringent Because It Fails to Account for Dilution.

In addition to disagreeing with the proposed TMDL’s use of concentration-based limits, we also believe that the proposed TMDL’s approach fails to consider the dilutive effect of uncontaminated sediments from entering into the watershed. If the concentration-based approach is accepted, then the erodible fines standard needs to be derived using the same method for water-based TMDLs, *i.e.*, the erodible fines standard should be raised to include the dilutive effect of clean sediments. As proposed, the erodible fines requirements of 0.1 ppm and 0.2 ppm are excessively stringent and not consistent with the Clean Water Act.

4. A Standard Based on “Erodible Soils” Is Vague and Unworkable.

Even if a TMDL based on mercury concentrations in erodible soils were lawful, the standard is unworkable as a practical matter. How does one determine which soils are “erodible?” Aren’t all soils erodible to some degree? The Report defines “erodible soil” as “soil that is transported by storm runoff to receiving waters.” Report at 8-17. Thus, for a landowner to know whether certain soils are “erodible soils” those soils must have already been transported by stormwater runoff to receiving waters, making *post hoc* control of those discharges impossible. Conversely, if all soils are – in theory – erodible, then the 0.1 ppm and 0.2 ppm standards become *de facto* cleanup standards. The majority of natural soils

throughout the Guadalupe Watershed would likely exceed this excessively stringent standard, thereby requiring removal or some other form of remediation to ensure that the soils would never become "erodable."

5. An "Erodable Soil" Standard of 0.1 ppm or 0.2 ppm Is a *De Facto* Soil Cleanup Standard That Is Excessively Stringent.

As drafted, the proposed TMDL imposes *de facto* soil cleanup standards that are two to three orders of magnitude more stringent than cleanup standards developed and typically applied by EPA and the State of California for cleanup of mercury contamination of soils. For example, EPA Region 9 has developed "preliminary remediation goals" or "PRGs" for mercury concentrations in residential and industrial soils. These PRGs are not cleanup standards *per se*; rather, they are "tools for evaluating and cleaning up contaminated sites" and "risk-based concentrations that are intended to assist risk assessors and others in initial screening-level evaluations of environmental measurements." For mercury, EPA has set the PRGs at 23 mg/kg for residential soils and 310 mg/kg for industrial soils. Similarly, the California Human Health Screening Levels sets screening levels of 180 mg/kg for commercial/industrial properties and 18 mg/kg for residential properties.³

While the BPA and the Report lack any valid basis for setting the erodable soil standard at 0.1 mg/kg, it explains that the 0.2 mg/kg erodable standard is based on the San Francisco Bay Mercury TMDL. Yet, there is no explanation in the Report as to why a marine mercury sediment standard is appropriate for a freshwater "erodable soil" standard, especially given that the locations are substantially different in terms of potential to methylate mercury. Further, a review of the San Francisco Bay TMDL reveals that there is little data and no rational basis for defining any quantitative value, let alone serve as the standard in the Guadalupe Watershed TMDL.

In other words, a substantial amount of scientific investigation and evaluation has been undertaken to derive appropriate screening and cleanup levels for soils contaminated with mercury. In contrast, the BPA and the Report admit that it has not undertaken any kind of scientific evaluation of the purported "cleanup standards" other than adopting a background concentration of 0.1 ppm from "background" sediment concentrations in the Lexington Reservoir.

³ See <http://www.epa.gov/region09/waste/sfund/prg/files/04prgtable.pdf> at 9.

6. Lexington Reservoir Is Not an Appropriate Background Reference Because It Is Not Mineralized.

The Report's decision to use Lexington Reservoir sediments to represent background sediment concentrations is neither justified nor logical. An appropriate reference site should be a site that is mineralized but not impacted by mining operations. In the proposed TMDL, the Report states that, other than a small silica deposit, "there were no other potential mercury deposits identified in the Lexington Reservoir watershed." Report at 3-14 (emphasis added). The Report cannot justify using the Lexington Reservoir – or the areas draining into it – as representative of background conditions in the New Almaden Mining District due to the absence of naturally existing cinnabar concentrations in the soil that would otherwise support mining activities.

7. The TMDL Does Not Provide Evidence That Downstream Mining Wastes from GRDC Are Impacting the Guadalupe Creek.

The BPA and the Report do not provide evidence that there are downstream mining wastes or mercury discharges from the former Guadalupe Mine area impacting the Guadalupe Creek. BPA at 5; Report at 7-1 and 7-7. Although the BPA and the Report assume that there are discharges from the former Guadalupe Mine area, it does not support this assumption with sampling data or other evidence.

8. The Report Confirms That There Is No Need to Assign Allocations to Mining Sources Downstream of the Reservoirs.

The TMDL admits that the reduction of mercury and methylmercury in the reservoirs and upstream mining areas is the key to meeting the water quality objectives. The Report states:

Although there may be sites for methylation in the stream and river channels ..., their total contribution to methylmercury production is much smaller than the exports from the reservoirs and Lake Almaden during the dry season. This suggests that that reducing methylmercury production to attain TMDL targets in impoundments in the mining district and Almaden Lake will likely also attain targets in downstream waters. Report at 7-14 (emphasis added).

Thus, the Report itself acknowledges that allocations are not necessary for downstream sources in order to meet the TMDL targets. There is no justification for requiring downstream mining sources to implement load reduction strategies to meet the TMDL target.

9. The Guadalupe Mines Are Improperly Included in the New Almaden Mining District.

The BPA and the Report state that mining waste is the largest source of mercury in the Guadalupe watershed and it is located in three general areas. BPA at 5; Report at 7-7. For one of these three areas, it creates a category, the "New Almaden Mining District," and includes the Guadalupe Mine in the category. Report at 3-18. This is arbitrary and improper as the Guadalupe Mine area is distinctly separated in size and location from the extensive mining operations of the New Almaden Mining District.

The BPA and the Report fail to explain the technical basis for creating the "New Almaden Mining District" or provide justification for including the Guadalupe Mine. In fact, mineralized zones mined at the Guadalupe Mines are completely separated from the mines located at Mine Hill and from other mines located along Capitancillos Ridge. Not even the calcsilicate or serpentinite rock formations have any continuity with bedrock formations in the New Almaden Mine

The BPA arbitrarily lumps the Guadalupe Mines with other mines to suggest that the extremely high mercury found in other areas is present near the Guadalupe Mines. No data is provided to support this conclusion. In addition, the Report describes mining practices (*e.g.*, dumping mining waste rock away from the mine and into creeks) in the New Almaden Mining District that resulted in extensive mercury disposal into Alamitos Creek.

There is no evidence that similar practices occurred at the Guadalupe Mines. To the contrary, mine waste rock as mapped by the USGS was kept close to the mine openings. Also, a 500-foot long U-shaped concrete channel that was constructed to prevent waters from infiltrating into sub-surface mines has the ancillary benefit of preventing mine waste from entering Guadalupe Creek.

Further, the Report provides support for excluding the Guadalupe Mine from this arbitrary category "New Almaden Mining District." It indicates that sites located downstream from the reservoir, such as the Guadalupe Mine, appear not to be the cause of elevated methylmercury levels. Report at 7-9. Also, much of the Lower Guadalupe Creek has been restored by the Santa Clara Valley Water District by the removal of sediments.

10. It Will Not Be Necessary to Impose Additional Requirements on Downstream Sources If the Upstream Reductions Achieve the Objectives of the TMDL.

The BPA appropriately focuses on the upstream control of mercury, requiring special studies over a 10 year period to examine issues upstream. BPA at 14 and 15. For example, one downstream study is only triggered "if the fish targets are not attained downstream by methylmercury controls in the reservoirs and lakes." BPA at 15. This properly puts the burden on improving the upstream controls in the upstream areas where extensive mining operations occurred. Even if the upstream controls are implemented within the next ten years and prove effective, the methylmercury concentrations caused by upstream sources may take an additional number of years to show reductions in the downstream fish.

Successful methylmercury control actions will not instantly result in reductions in fish tissue concentrations downstream. As a result, the 10-year plan to attain targets upstream in the lakes and reservoirs would need to be completed and assessed before appropriate downstream reduction measures could be effectively implemented. Thus, it would not be appropriate or necessary to impose additional requirements on downstream sources if in fact the upstream reductions will eventually result in achieving the goals of the TMDL.

11. The Allocation for Mining Waste Discharges from Areas Below the Reservoirs Should Be Increased Substantially.

Even if the Report continues to assign allocations to downstream mining sources, those "erodable soil" concentrations should be increased substantially. For facilities located in mining areas downstream of the reservoirs (such as the Guadalupe Landfill), the Report arbitrarily selects an erodable soils standard of 0.2 ppm mercury. Indeed, the Report admits that it has little basis for this number, other than the fact that the proposed San Francisco Bay TMDL uses a 0.2 ppm standard. The Report admits that, for the mining areas that do not drain to impoundments, "The Linkage Analysis (Section 7) does not provide a quantitative linkage for this segment of the watershed." Report at 8-5 (emphasis added). At most, the Report concludes that those areas downstream of impoundments contribute far less to the production of methylmercury than what the reservoirs contribute:

Although there may be sites for methylation in the stream and river channels, it appears that their total contribution to methylmercury production and bioaccumulation is much smaller than the reservoir exports during the dry season. Report at 7-9 (emphasis added).

[T]he methylmercury discharged from the deep impoundments is much greater than the in-stream production (Section 7.3). Report at 8-5 (emphasis added).

Thus, the 0.2 ppm erodable soils standard is arbitrary and unnecessarily stringent for these limited downstream areas.

12. The Derivation of the 0.1 ppm/0.2 ppm Standards is Arbitrary and Logically Flawed.

The Report's target mercury concentrations in "erodable soil" are based on flawed logic. It reasons that: (1) fish in the Lexington Reservoir have acceptable mercury levels; (2) average mercury levels in the Lexington Reservoir sediments are less than 0.1 ppm; therefore (3) locations where sediment mercury concentrations exceed 0.1 ppm or even 0.2 ppm will result in fish with unacceptably high mercury concentrations. Report at 7-2 and 8-4. This logical progression is invalid. One cannot reason that if fish with acceptable mercury burdens live in a reservoir with average mercury concentrations of 0.1 mg/kg, then locations where mercury concentrations exceed 0.1 mg/kg will result in fish with unacceptably high mercury burdens. The Report does not provide any basis or evidence to conclude that fish in areas with sediment mercury concentrations higher than 0.1 ppm or 0.2 ppm will necessarily have mercury concentrations above the fish tissue targets.

13. The TMDL is Improperly Limited to Sediment Load Reduction to Attain Water Quality Objectives for Methylmercury in Fish Tissue.

In proposing water quality objectives for methylmercury in fish tissue, the BPA's attainment strategies focus almost exclusively on sediment load reduction assumed to contain mercury that, in turn, is assumed to cause fish tissue impacts. In doing so, the BPA and the Report fail to justify these assumptions because they do not distinguish methylmercury impacts derived from the erosion of natural bedrock terrain containing disseminated mercury, from legacy natural sediment in creeks and reservoirs, from legacy mine waste in creeks and reservoirs, from actively eroding mine waste piles near former mercury mines, or from air deposition. In other words, the BPA and the Report make two wrong assumptions: (1) all mercury in the system is from former mines; and (2) control of mine wastes will reduce fish tissue methylmercury levels.

As indicated in the Report, the Guadalupe Watershed is the site of rich mercury-bearing ore bodies. See Report at 3-14. These ore bodies occur in natural bedrock formations that contain numerous non-ore grade mercury bearing zones and relatively low concentration of disseminated mercury mineralization. The formations are exposed as rock outcroppings to natural processes of weathering and erosion in over approximately 19 square miles of the watershed. At the same time, mapped former mine waste piles are estimated to cover less than a few hundred acres of the watershed. In short, mercury from natural bedrock exposures has been migrating into the watershed for millions of years. The TMDL provides no detailed studies to show that the mine waste piles are eroding any faster or at all. Without distinguishing natural mercury bearing sediments from sediments derived from mine waste piles, the BPA can not properly assume that fish tissue methylmercury levels are not natural for this watershed.

14. The TMDL Will Punish Dischargers Who Reduce Sediment Loading.

A significant problem with the proposed TMDL is that it establishes an erodable soil concentration limit without considering the amount of sediment being discharged. High concentrations of mercury in erodable soils will have *de minimis* impacts on mercury loading into the Guadalupe Watershed if the quantity of erodable soils discharged is negligible. Conversely, large quantity discharges of sediment to the Watershed could substantially increase overall mercury loads to the Watershed even if the mercury concentration in those erodable soils is low.

For example, Table 4.2 of the Report summarizes particulate mercury data. A comparison of North Los Capitancillos Creek Sample E1-9B with Randol Creek Sample E2-16 highlights the perverse results if the TMDL is based on an erodable soil concentration. Sample E1-9B has the lowest concentration of mercury, yet one of the highest total suspended solids ("TSS") concentrations. Conversely, Sample E2-16 has a higher mercury concentration, yet a substantially lower TSS concentration. When judged on the basis of total quantity of mercury in soil, the first sample fares substantially better than the second. However, when compared based on the actual mercury concentrations per liter of discharged water, the second sample contains one-tenth the mercury loading of the first sample. Thus, even though the second discharge is one-tenth the quantity of the first, the second discharge will likely require greater remediation efforts than the first under the current Report. In other words, it is fundamentally unfair to regulate discharges of mercury based on only the concentration of mercury in erodable soil without any consideration of the actual TSS discharges.

15. Fish in Lexington Reservoir – the Purported Background Reservoir – Do Not Appear To Meet the 0.3 ppm Target.

It is unclear why the Board has concluded that the fish from the purported background reservoir meet the 0.3 ppm mercury average in “fish consumed by humans.” As noted, TL4 fish are the larger species – *e.g.*, largemouth bass – that are typically consumed by humans; therefore, the 0.3 ppm mercury standard would presumably apply to these TL4 fish. If that is the target, then the 0.3 ppm mercury fish concentration would be virtually impossible to achieve in the Guadalupe basin given that this standard cannot even be achieved in the purported background reservoir.

16. The TMDL Should Use the USFDA’s 1.0 ppm Mercury Action Level for Fish, Not the 0.3 ppm Target.

The Report notes that the Basin Plan’s numeric water quality objective for mercury is derived from the US Food and Drug Administration’s action level for mercury of 1.0 ppm,⁴ yet nonetheless uses the more stringent value of 0.3 ppm as the target based on EPA’s criteria, which has not been adopted for California. Because the water quality objective is based on USFDA’s number, this TMDL should use the 1.0 ppm number as its TMDL target.

17. The Board Cannot Unilaterally Establish a TMDL for Methylmercury.

Under the Clean Water Act § 303(d), the Guadalupe River and the Guadalupe Creek are listed as impaired for elemental mercury, not methylmercury. The BPA and the Report ignore this fact and improperly establish a TMDL for methylmercury. It is inappropriate for the Board to establish a TMDL for a pollutant which was not identified in the Clean Water Act § 303(d) list as causing or expected to cause violations of the applicable water quality standards. Further, to the extent the Board desires to establish a TMDL for methylmercury, it must first be listed under the Clean Water Act.

18. The Report Fails To Adequately Quantify Loading From Wet Weather Storm Events in the Upper Watershed.

One glaring – and admitted – defect in the Report is the lack of upper watershed load estimates, particularly during wet weather when increased flows result in higher sediment transport and therefore higher mercury transport. Without this kind of information, it is not possible to develop a defensible

⁴ See, *e.g.*, <http://www.cfsan.fda.gov/~lrd/fdaact.html#merc>.

TMDL. Indeed, even the consultant assisting in the preparation of the Report "strongly recommended" further study:

Although approximate, this calculation highlights the significance of the storm event loads in the upper watershed, and indicates a major source of uncertainty in the estimated loads presented here: the contribution of large winter storms. Based on this assessment, it appears that the calculated loads presented here are more likely to be underestimates than to be overestimates. . . . Tetra Tech strongly recommended further quantification of the upper watershed loads through additional wet weather data collection in future stages of this project. Tetra Tech also noted that the numerical values of the loads presented in this section are best considered only as estimates useful in comparing the relative magnitudes of different sources in the watershed. Report at 4-19 (emphasis added).

The problems associated with the limited wet season sampling provide an unreliable basis for establishing a proper TMDL. The wet season data was collected during only one wet season making it difficult to understand long-term temporal variability in pollutant loading and stream flows. Furthermore, the data collected is dispersed over the whole watershed and provides at best a snap shot of mercury concentrations at one point in time. Even for the samples collected, it is unclear why flow rates and suspended sediment values were not also collected. Understanding flow rates and sediment loading is critical to understanding the mercury loadings into the watershed.

19. GRDC's Operations Are Fully Regulated.

The Report mentions that GRDC operations are subject to a General Industrial NPDES Stormwater Permit but fails to mention the proper scope of the permit. Report at 4-27. Discharges from the entire operations are covered by the General Permit and are addressed by the Storm Water Pollution Prevention Plan.

20. The TMDL Repeatedly Fails to Support Statement with Data.

In many instances, the BPA and the Report merely alleges findings without evidence. For example, the table on load and wasteload allocations (Table 7-B) indicates that the Guadalupe Creek is a source of mercury because of "mercury-laden sediment discharged from depositional areas in Guadalupe Creek". BPA at 8. There is no data in the BPA or the Report to support this statement. Although the BPA mentions that "[a]ctions are required to control mercury mining waste" (BPA at 10), there is no

data in the BPA or the Report to support this proposal. In fact, the Report mentions that Santa Clara County has already conducted extensive control of mining waste in the New Almaden Mining District and there is no evidence to suggest that controls are needed near the former Guadalupe Mine.

Despite the lack of supporting data, the BPA requires both control and cleanup of mercury mining waste discharges. BPA at 11. This is contradictory. If control of mercury mining waste discharges is needed (*see* Item 2), then it is uncertain why cleanup and abatement of discharges required as well (*see* Item 3). At the same time, if cleanup and abatement is going to occur, it is unclear what control would be needed and why.

21. The Implementation Actions for Mines Has Significant Uncertainties.

The BPA mentions that responsible parties will be required to cleanup mercury mining waste (BPA at 11, no. 3) but fails to define the term "cleanup"; natural background levels; and the contribution linkage of mine wastes not located in creeks and reservoirs.. The BPA discusses the possibility of a study to examine methylmercury production and bioaccumulation in downstream creeks and rivers by "responsible parties." BPA at 15. It is neither reasonable nor practical to expect that all "responsible parties" can coordinate and perform the possible study. How is "responsible party" defined, who makes the determination and how will free-riders be prevented?

22. The BPA and the Report Have Numerous Data Gaps and Uncertainties.

A. Fundamental to the development of a technically and scientifically supportable TMDL is developing a sound understanding of the sources of pollutant discharges, the amounts of those discharges, and the timing of those discharges. EPA Region 9 writes,

An understanding of pollutant loading sources and the amounts and timing of pollutant discharges is vital to the development of effective TMDLs. The TMDL document must provide estimates of the amounts of pollutants entering the receiving water of concern or, in some cases, the amount of pollutant that is bioavailable based on historic loadings stored in the aquatic environment. These pollutant sources or causes of the problem need to be documented based on studies, literature reviews or other sources of information. Because the source analysis provides the key basis for determining the levels of pollutant reductions needed to meet water quality standards, and the allowable assimilative

capacity, TMDL, wasteload allocations, and load allocations, quantified source analyses are required. EPA Region 9 Guidance at 4 (emphasis added).

While the Report includes discussion and some analysis of pollutant loading sources, we do not believe that the amount of information or analysis is sufficient for purposes of developing a TMDL. The proposed TMDL contains numerous data gaps, contradictions, and significant uncertainties. Examples include:

- (1) Following remediation in the Almaden Quicksilver County Park, the Santa Clara County did not take post-remediation samples. Report at 3-22. This is an important and significant data gap, especially in light of the proposed 0.1 ppm standard. Will the TMDL essentially re-open the relevant consent decrees and/or cleanup orders?
- (2) The BPA and the Report fail to identify background soil concentrations of mercury to be used as a comparison with the 0.1 ppm erodible soils standard.
- (3) The Report concedes that, because of the absence of flow gauge information at any of the subwatersheds modeled, the SWAT model could not be calibrated, and this is a source of uncertainty (see Section 4.3). Report at 4-4.
- (4) The Report admits that the lack of high flow sample data may lead to an underestimation of the load, thus creating another source of uncertainty. Report at 4-5.
- (5) The Report recognizes that, like the Monte Carlo simulation for one year, the Monte Carlo simulation for 1960 – 2001 wet seasons (Figure 4.6) is also biased low due to lack of data for high flow events, when the greatest loads occur. Report at 4-22.
- (6) The TMDL admits that the linkage analysis is inadequate: “However, the Guadalupe Linkage Analysis (see Section 7.1) for inorganic mercury is qualitative, so it does not provide a scientific basis for a mass load in the Guadalupe River watershed.” Report at 8-4.

B. A critical element of any TMDL is to determine the mass loading into the waterbody.

“The loading capacity reflects the maximum amount of a pollutant that may be delivered to the

waterbody and still achieve water quality standards." EPA Region 9 Guidance at 4. Yet, the TMDL admits:

Mass loads were estimated in the Final Conceptual Model Report (Tetra Tech 2005c) with low precision (a high precision monitoring program was cost-prohibitive and unnecessary for the conceptual model). We do not propose to examine mass loads further due to the low precision of the estimate. In contrast, a statistically robust set of impoundment bottom sediment samples were collected (see Figure 7.2) and provide a qualitative linkage from sources to targets (Section 7.1). Report at 7-25.

C. The Report contains other statements reflecting the significant uncertainties infusing the entire TMDL calculations:

The 2003-04 wet season loads exiting the Guadalupe River to San Francisco Bay (10,000 g) are far higher than the total loads entering the river from all its tributary creeks and from its watershed (800 g). This is a strong indication of uncertainties in the upstream contributing loads, in loads from the highly urbanized area, and in the mobilization of internal sediment loads. Report at 4-11. This lack of calibration adds to the uncertainty, and there is insufficient information to determine whether it might contribute to under- or overestimating the load. Report at 4-18.

In Figure 4.4, most dissolved mercury loads include a "background" input; however, the Guadalupe Creek load downstream of the reservoir does not include any background load. Report at 4-16. Rather, it attributes 3.9 grams to "mines" without any evidence or sampling to prove this load amount and its source(s). This discrepancy seems especially significant because the other purported background loads are of the same magnitude or greater than the assumed mine load downstream of the reservoir. If a similar background load were attributed to Guadalupe Creek, then presumably the alleged concentration from the mines would be reduced.

Carrie M. Austin, P.E.
April 21, 2008
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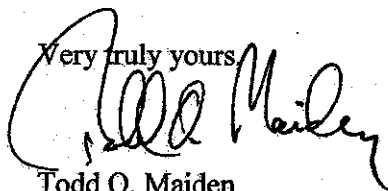
D. More fundamentally, we believe that there is a significant lack of information in the TMDL for assessing temporal and spatial contributions of mercury to the watershed. For example, fish tissue information provides very little information as to what sources are contributing to mercury loads and when those discharges occur. This is especially problematic for sources downstream of the reservoirs where fish tissue concentrations would fail to distinguish between methylmercury generation in the upstream impoundments and generation in the downstream segments.

E. As another example, the TMDL sweeps huge areas of the watershed into the "Mining District" without describing or mapping in more detail the locations of mining areas, mining waste, mining impacts, soil types, background mercury concentrations in soil, and mercury bearing rocks.

* * *

Due to the issues discussed in this letter, GRDC is extremely concerned with the adequacy of the proposed BPA and the Report. We believe that it will require a substantial revision before it is legally adequate and technically or scientifically supportable.

Very truly yours,



Todd O. Maiden

TOM:mm

cc: E. Pettit (via electronic mail)