

Comment – Tentative Resolution No. R9-2017-0038, Attn: Sarah Mearon

February 21, 2017

Members of the San Diego Regional Water Quality Control Board,

I was hoping to present community concerns over the proposed Lake San Marcos remediation plan at the December Regional Quality Control Board meeting when it was on the agenda. Although the consultants for CDC made their presentation that day, the agenda item for public input was then postponed, first to the end of the meeting that day and, after waiting 7 hours until the end of the meeting, it was tabled again as time ran out and we were assured it would be on the agenda at the next meeting in February. With little more than a weeks notice, those of us that subscribe to the Lyris server were informed that the LSM plan was removed from the February agenda. Several of us went to the February Board meeting anyway to voice our concerns about parts of the proposed plan and the lack of transparency in involving concerned citizens. We were assured by Board Members during the meeting as well as by Julie Chan in an impromptu, informal discussion during the break at the February Board Meeting that community input was important to them and they were solidifying plans for a community meeting on March 1, 2017 to answer questions, and address community concerns over the proposed plan. Shortly after, we received notice of a public meeting to be held at Lake San Marcos on March 1, 2017 as promised.

You can imagine our surprise, then, when not even one week later, we received another notice on Lyris that a resolution to accept the LSM proposed plan was on the agenda for the March 15, 2017 Board meeting and written public comments needed to be submitted by February 27, 2017.....two days BEFORE the public meeting where our questions and concerns are (supposedly) to be addressed. Many of the residents of LSM are frustrated and disappointed in the manner in which this process has and continues to be handled. If public input is important.... as we have repeatedly been told.... it is not evident in the manner in which the CDC consultants, the other parties in this remediation proposal, the Board Staff and the Board Members have handled either the process or the concerns of the residents who are impacted the most by this proposed plan.

Because the written comments must be submitted before the March 1 meeting, and because I have personal travel plans (which were already changed once to attend the February Board meeting), I am unable to attend either the March 1, 2017 public meeting or the March 15, 2017 Water Board Meeting. Therefore, I am including the long list of questions and concerns that I have gathered from concerned citizens of Lake San Marcos with this letter to be included in the public comments about this proposed plan. You will note that many of the questions concern safety, logistics, accountability and timelines since answers to these questions have never been satisfactorily addressed in either the former meetings or the 800+ page report, proposed plan and addendums. While it seems that it would have been much more productive to have a public meeting to address these and any other concerns regarding the latest plan and presentation by CDC consultants BEFORE a resolution to accept the proposed plan was placed on the agenda, it appears that CDC and the Water Board Staff do not think it necessary to seriously address the concerns of the residents of LSM.....a pattern we have consistently seen during this process.

Dr. Adena Boxer-Capitano
boxerca@miamioh.edu

The list of questions gathered from LSM residents about the proposed plan that have not been adequately answered for many concerned citizens include:

Lake San Marcos Clean Up Proposal Questions

1. Cost questions

1. How is the amount of money to be spent on clean up determined?
2. Is there a cap?
3. Has the total amount already been determined?
4. Who is paying for the clean up?
5. If those who are responsible to pay for the clean up are the same people who determine the “best remedial technologies (methods)” of clean up, how and who ensures the proposed methods are best for the lake and not just the least expensive?
6. If the proposed remedies are not effective in meeting the guidelines that have been established, is there money in an account to change or add other remedies in the future?
7. After this proposal is accepted and the costs are assigned, are the parties involved no longer fiscally responsible for any future remedies that might be needed?

2. General Remedial Technology Questions

1. In the proposed plan posted on Lyris on 10-17-16, the proposed remedial actions “retained” included Side Stream Super Saturation, an oxygenation technique that was noted by the consultants as high effectiveness, high implementability and lower cost than Speece cones and shown on table 59-62 as retained. At the Board Presentation on 12-14-16, it does not appear that the consultant included this as a proposed strategy, is that correct? Why?
2. Is it correct that there are now 3 Remedial actions that have been proposed and if approved, all will be utilized?:
 - a. Selective Withdrawal & Diffused Aeration
 - b. Destratification/ Diffused Aeration (at Board presentation, consultant said “as needed” ...who decides that?)
 - c. Flocculation with Alum (at Dec. Board meeting, we had been told Phoslock would be used instead of Alum. Is cost the only reason it was changed back to Alum?)
3. Is it correct the other remedial actions that were considered in the initial feasibility study will no longer be possible because they were excluded (for cost, or other reasons cited) by the consultants who drafted the proposal?
 - a. Dredging
 - b. Oxygenation (side stream super-saturation)
 - c. Biomanipulation
4. Most scientific literature on lake clean up advises that the upstream watershed and nutrient loading must be addressed before internal lake solutions are implemented. The plan seems to tackle the pilot study and implementation of some or all of the remedial technologies in the lake before the upstream watershed nutrient loading is addressed and remediated. If that is correct, doesn't that go against what Best Practices would suggest?
5. What is the role of the RWQCB members, staff and technical staff?

- a. Does the technical staff have the ability/authority to look at BOTH the strategies proposed by the 'responsible parties' and the strategies excluded? Does the staff have the ability/authority to look at other possibilities that may be available that were not included in the proposal at all? Does the staff have the ability/authority to determine what are the best options for the lake/environment strictly from a scientific/technical viewpoint without regard to cost...or is that left to concerned citizens to tackle?
6. What is the process to have excluded actions or technologies reexamined/included if it is believed it is a better solution than those proposed? Is it now too late?

3. Specific remedial action questions

1. Flocculation

- a. The scientific literature is not in agreement that alum application is an effective long term solution (or even how long an application will last), nor are scientists in agreement that alum application is safe to the benthic communities in the lake, and may cause unintended consequences worse than the present eutrophied lake. How can we be sure that it will not make matters worse in the long term and if it does, who will be financially responsible for the unintended problems it may create?

- i. In a study by Nogaro et. al (2013) they concluded that “increased concentrations of dissolved aluminum and sulfate in the surface and pore waters, and altered nitrogen cycling by increasing nitrous oxide concentrations in the surface water of the alum treated bays may potentially feedback to alter the composition and activity of benthic microbial and invertebrate communities.” They further concluded that the results of their study enhanced the understanding of ecological consequences of alum addition in other eutrophic freshwater ecosystems (like Lake San Marcos).

Nogaro, G. g., Burgin, A. J., Schoepfer, V. A., Konkler, M. J., Bowman, K. L., & Hammerschmidt, C. R. (2013). Aluminum sulfate (alum) application interactions with coupled metal and nutrient cycling in a hypereutrophic lake ecosystem. *Environmental Pollution*, 176267-274.

- ii. Other scientists also question the safety and long term effectiveness of alum treatment as a solution to eutrophic lakes including:

Eugene B. Welch & G. Dennis Cooke (1999) Effectiveness and Longevity of Phosphorus Inactivation with Alum, *Lake and Reservoir Management*, 15:1, 5-27, DOI: 10.1080/07438149909353948

To link to this article: <http://dx.doi.org/10.1080/07438149909353948>

Jean M. Jacoby, Harry L. Gibbons, Kevin B. Stoops & Debra D. Bouchard (1994) Response of a Shallow, Polymictic Lake to Buffered Alum Treatment, *Lake and Reservoir Management*, 10:2, 103-112, DOI: 10.1080/07438149409354181

To link to this article: <http://dx.doi.org/10.1080/07438149409354181>

Paul J. Garrison & Douglas R. Knauer (1984) LONG-TERM EVALUATION OF THREE ALUM TREATED LAKES, *Lake and Reservoir Management*, 1:1, 513-517, DOI: 10.1080/07438148409354568

To link to this article: <http://dx.doi.org/10.1080/07438148409354568>

Gensemer, R.W., Playle, R.C., 1999. The bioavailability and toxicity of aluminum in aquatic environments. *Critical Reviews in Environmental Science & Technology* 29, 315e450.

Egemose, S., de Vicente, I., Reitzel, K., Flindt, M.R., Andersen, F.Ø., Lauridsen, T.L., Søndergaard, M., Jeppesen, E., Jensen, H.S., 2011. Changed cycling of P, N, Si, and DOC in Danish Lake Nordborg after aluminum treatment. *Canadian Journal of Fisheries and Aquatic Sciences* 68, 842e856.

Lewandowski, J., Schauser, I., Hupfer, M., 2003. Long term effects of phosphorus precipitations with alum in hypereutrophic Lake Süsser See (Germany). *Water Research* 37, 3194e3204.

- b. We have found literature that supports the use of Alum over Phoslock and Vice Versa when flocculation is adopted. Does your technical staff believe that Alum is a better solution than Phoslock and if so, what is that based on other than:
 - i. Alum has “been used for a long time in many water treatment plans”
 - ii. The cost analysis presented by the consultants that shows Phoslock is more expensive?

2. Dredging

- a. What was the depth of the lake when it was first made and what is it now? What is the average rate of sedimentation over the years the lake has been in existence and what is the expected rate after the upstream watershed has remedies applied to prevent or slow this rate?
- b. Given the answers to above, how long will it take for the lake to become so shallow that recreational activities such as fishing and boating are not possible and eutrophication cannot be controlled by flocculation and selective withdrawal?
- c. The plan originally had a 30 year timeline. Not clear during the consultant’s presentation if that has been changed? But, if, down the line, dredging becomes the only alternative to restoring the lake health, who would pay for it?

3. Side Stream Supersaturation

- a. Why was this alternative retained in the plan posted 10-17-16 but not presented as part of the plan at the December board meeting?
- b. Is there any other reason besides cost that this alternative was eliminated since it was listed as highly effective and moderately able to be implemented?

4. Oversight and Timeline questions

- a. How and by whom will the clean up process be monitored to make sure it is being carried out according to the proposed plan and on time?
- b. What happens if the remedial actions being taken are not adequate?

- c. Can we see a printed timeline of the proposed actions that includes:
 - i. When each remedial action in BOTH the upstream watershed and the lake are going to start and finish
 - ii. The benchmarks that need to be met as a result of each action and the date each of those benchmarks are anticipated
 - iii. When the public can expect to receive the results of the follow up data that verifies each of the benchmarks are being met
- d. How and who is responsible to inform the public in a timely manner about each step of the progress of the plan so that there is time to have input if something is not working as planned?
- e. What should the role of the long-standing LSM Volunteer Lake Quality Water Monitoring team be as the proposed plan goes into affect?
 - i. Despite the fact that this volunteer monitoring team has been collecting weekly data and submitting it to the SDRWQCB technical staff for over 6 years, we have not ever seen any evidence that our efforts and data have been utilized (or needed) either before these consultants started their own monitoring or referenced in this proposed plan. Is this data being used, and if so, how? Is the time and energy of these volunteers better spent in some alternative way that would support the Lake clean up efforts?
 - ii. If we do continue to monitor, how often should we be testing? What parameters should we be testing for that will be useful other than those that we currently test on a weekly basis at two locations on the lake (Dissolved Oxygen, Temp and clarity)?
 - iii. Is there support from the Board for these efforts (equipment, independent lab testing costs, etc.?)

From: [Warren Lydecker](#)
To: Mearon.Sarah@Waterboards
Subject: New Reports for Lake San Marcos Clean-up
Date: Friday, February 24, 2017 11:50:43 AM

Hi Sarah,

This is going only to you as I think your the front line individual for the Water Board and why bother if nothing can be done?

With the special requirement for letters to the board to be received by Feb. 27 when I spent all day at a Water Board Meeting to talk? Then the planned next agenda canceled the Lake issue. Now we have a talk session at the Lake and requirement for questions?

The new Contract Request by Jim Figgins and all the Group Participants in the Lawsuit that approved the Report suggests the public is not part of the solution.

Your questions to the Nick Buhbe were side stepped. Do you agree?

For a year or more at the intersection of Twin Oaks and San Marcos Blvd. a mayor construction complex on the south-west corner is being constructed. For many months last year the area near San Marcos Creek was surcharged with soil to bury the poor creek soil and creek area. In short is the land is to valuable for environmental use?

When I asked Laurie Walsh why the Water Board could not Order an automatic valve at the dam to control the water release, Laurie noted the Board can only order that something should be done but not how. That means the Boards only power is after the fact. Good words will work?

The work of the Monitoring Group was not used and our interests are not addressed. The use of Alum is the only solution, the nitrogen is not to be addressed, and Best Manages Practices are developmental not for review: so why be involved

and spend the money? Is this only a bureaucratic work project for the industry?

What can I do? No words, actions, or letters can move the object of the Participants Group?

Warren, 760 505 7217

From: [Steve Figgins](#)
To: Mearon_Sarah@Waterboards
Subject: Comments on: TENTATIVE RESOLUTION NO. R9-2017-0038
Date: Monday, February 27, 2017 3:07:05 PM

Sarah- We respectfully request that item #8 on page 2, and item #5 on page 3 of Tentative Resolution No. R9-2017-0038 be removed, as Bataquitos Lagoon was not addressed in the Voluntary Agreement with the Public Agency Defense Group (PADs) and CDC. Our focus has been on Lake San Marcos and the Watershed.

If you have any questions, please call me. Thank you- Regards- Steve

Steve Figgins, Principal

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Comments about Tentative Resolution No. R9-2017-0038
regarding Lake San Marcos and San Marcos Creek.
Submitted by Hollandia Dairy, Inc.

Dear Ms. Mearon,

I am counsel for Hollandia Dairy, Inc. (Hollandia). Hollandia submits the following comments regarding the Tentative Resolution No. R9-2017-0038, "A Tentative Resolution Supporting a Path Forward for Nutrient Load Reductions in Lake San Marcos and the San Marcos Creek Watershed" ("Resolution").

EXECUTIVE SUMMARY.

Hollandia recommends to the RWQCB that it defer taking action on the proposed Resolution for the following reasons:

1) CDC's compliance with its State Water License should be determined first before assuming Lake San Marcos ("Lake") can be maintained as is.

2) CDC and the Public Agencies (Escondido, San Marcos, County of San Diego, Vallecitos Water District (collective, the "Parties")) should first respond fully to serious questions raised by Hollandia on November 9, 2016. Sarah Mearon asked them to respond, yet they *refused*. The ignored issues included analysis and discussion of:

- a) lake flushing;
- b) buried sediments that cannot be recycled;
- c) current condition of the Hollandia property;

- d) litigation bias against Hollandia, including how the Parties have downplayed their own contributions; the bias has skewed the assessment and remediation of nutrients in the RI/FS;
- e) the models have not been properly calibrated;
- f) whether nutrients are Superfund “hazardous substances.”

DISCUSSION:

The Resolution reflects an eagerness to move remedial activities forward in line with suggested actions proposed in the Final Remedial Investigation/Feasibility Study by Daniel B. Stephens & Associates, Inc. (“DBS”), dated September 30, 2016 (“RI/FS”). While the goal is laudable, the Parties have avoided certain uncomfortable realities in their rush to a finish line. First is the cloud hanging over CDC’s right to maintain the Lake in light of the apparent noncompliance with its water License.

Second, the RI/FS shows acute litigation bias toward Hollandia by avoiding exculpatory analyses while downplaying the Parties’ key roles in the Lake and San Marcos Creek (“Creek”) nutrient impairment.

The RI/FS acknowledges no current data exists that shows Hollandia is contributing to the watershed and lake problems, despite inflammatory language to the contrary. The Parties ignored analysis and information relevant to these and broader issues. By purposefully avoiding a discussion of exculpatory evidence with regard to Hollandia, however, the Parties have unwittingly avoided critical scientific analyses that are relevant to its ordered identification of sources of nutrients, assessment of downstream impacts, and the impact of its remedial proposals.

Regardless of Hollandia’s criticisms, the RI/FS still avoids factual consideration and analysis of some of the requirements of the Investigative Order R9-2011-0033 (“IO”), which the RWQCB highlighted in its letter dated June 3, 2016, to CDC.

I. THE RI/FS ASSUMES CDC IS COMPLYING WITH ITS WATER LICENSE AND BASES REMEDIES ON SUCH ASSUMPTION. THEY PUT THE CART BEFORE THE HORSE.

The RI/FS authors have continued to uncritically assume that the Lake must be restored to its current condition. Until CDC can prove it is in compliance with its water diversion License No. 7224 (“License”), it is a fundamentally flawed assumption and proposition to start to restore the Lake. (See DBS’ responses 45-46 to Hollandia’s public comments)

It is puzzling that CDC would make an excuse that it has put its request for a modification of its water License on hold since October 2012. The License specifies exactly who can use the water (CDC) and where the water can be used (only part of St. Marks Golf Club). CDC is *improperly* using the water in both ways: St. Mark Golf Course is using water outside of the licensed areas, and CDC claims it does not own

the other golf course (the Executive golf course) for which it plans to use Lake water (that area is not licensed for water use). CDC requested some minor changes in its License in February 2012 that still would not result in compliance with a proposed modified License.

The License is also subject to licensing and Constitutional limitations such as that the water use be reasonable in its allotted location and not create waste. Hollandia would argue that CDC is in violation on multiple counts.

The RI/FS puts the cart before the horse. The RWQCB should request the State Division of Water Rights first assess whether CDC is in compliance before considering this RI/FS. If CDC's water use is illegal, then any time and money spent today to implement Lake remedial measures would be ill-advised and ill-spent.

II. THE PARTIES HAVE FLOUTED RWQCB DIRECTION TO ADDRESS CRITICISMS BY HOLLANDIA.

DBS issued a draft RI/FS in January 2016. Hollandia submitted comments within the specified public comment period, most of which were ignored. DBS avoided responses to numerous comments and questions by Hollandia by claiming a lack of "technical and/or factual support," simply responding "Comments noted," or ignoring some or all of the comments. (See, e.g., their responses 13, 14, 30, 31, 43, 44, 55, 56, 73, 74, 76, 80)

Thereafter, the RWQCB issued various criticisms and requests for additional information, leading to the issuance of the final RI/FS on September 30, 2016. No formal public comment period or time limitation had been set for the final RI/FS. On November 9, 2016, Hollandia submitted criticisms about the final RI/FS, as did the RWQCB on January 3, 2017. The RWQCB requested responses to its criticisms by February 3, 2017 (extended to February 9). *It also instructed DBS to respond to Hollandia's criticisms.*

Remarkably, the Parties flouted the RWQCB and refused to address Hollandia's concerns, saying the public comment period for the *draft RI/FS* had expired. Hollandia has summarized some of the issues raised that are most germane to whether or not to approve the proposed Resolution.

III. CONTRARY TO THE INVESTIGATIVE ORDER, THERE HAS NOT BEEN ANY RANKING OF NUTRIENT LOADING FOR SPECIFIC AREAS OR PARCELS.

The RWQCB ordered CDC, and indirectly, the above public agencies by contract, to identify sources of nutrients within the watershed that are causing impairment to the Creek and Lake. While the RI/FS does a reasonable job of identifying high source regional areas, such as Twin Oaks tributary, there has been no attempt to analyze or rank the relative loads from regions, tributaries, parcels, particular uses, or the like, from the watershed. Despite that major limitation, the RI/FS attempts a "blame

game” and contends Hollandia has nutrients on its property and *may* have been a “significant” source of nutrients in the past. The color-coded mapping in the RI/FS, however, shows the sub-basin in which Hollandia is a small part to be a relatively minor source of nutrients today. (See, e.g., RI/FS, Figures 73-84) In the case of Hollandia, if there were a past contribution of nutrients, where is that now and what impact could possibly remain? The RI/FS presents no ranking or “fate and transport” analysis.

DBS stated its job was to consider “all pertinent sources” in meeting the RI/FS objectives, including apparent sources in Twin Oaks, “sources at Hollandia,” and “other sources.” (Response 6 to public comments) They did not, however, consider “all pertinent sources,” and there is no ranking. The authors conceded, “Apportionment and allocation, which would rely on a finer-scale evaluation within each tributary, was not conducted because it is outside the scope of the RI/FS.” (See also response 73) Further, they stated, “[R]elative contributions were not quantified for individual parties over time.” (Response 12)

DBS only focused on Hollandia while ignoring or minimizing the potential impact of all others, including themselves. For instance, the RI/FS said golf courses are “among the largest contributors of total nitrogen and total phosphorus” per the land use loading analysis. (RI/FS, page 113) The results from the Lake San Marcos golf courses were consistent with that, including in dry weather.

The RI/FS minimized the impact of the avocado groves on the steep surrounding hillsides, yet the fertilizer would go to the lake. There is no discussion of a large sedimentation pond just downstream of the avocado groves, on CDC’s property, and the flushing of that into the Lake during large storms. A mini delta was apparent around the pipe that discharges from the pond prior to the onset of this rainy season. Why has there been no study of these sources?

The RI/FS said lakeside properties contribute 5-10% of the watershed nutrient loading. (RI/FS, page 105) It later downplayed the significance, saying the watershed model used “annual loads (that were) substantially lower than indicated by UAL (unit area loads) analysis for Lakefront properties due to lower overall flux... .” (RI/FS, page 107) The closer the source to the Lake, the bigger the impact of the nutrients. Why the self-serving tinkering for lakeside properties only?

The RI/FS found countless nutrient sources in citrus groves, orchards, and vineyards that were once located in the watershed, but DBS failed to assess any of those specifically, their historic nutrient loading, or the loads that went through the public agencies’ storm drains. The RI/FS stated orchard and vineyard properties peaked in 1965 at 1,855 acres and were among the “highest contributors of TSS, total nitrogen, and total phosphorus in the Watershed.” (RI/FS, page 71-72, 80-81; quote from page 81) Likewise, they reported today’s “agricultural activities are a significant contributor to nutrient loads to the Lake.” (RI/FS, page 202) Yet, DBS made no attempt to rank the relative sources of nutrient impairment to the Creek or

Lake. How can it now propose remedial options without a better grasp of the relative loading sources, while suggesting Hollandia was or is “significant”?

IV. THE RI/FS REFLECTS LITIGATION BIAS, CALLING INTO QUESTION THE SCIENTIFIC QUALITY OF THE RI/FS.

Showing an ongoing lack of objectivity, the RI/FS tried to make hay with some of the past RWQCB records for Hollandia that showed problems, while ignoring the good parts for Hollandia. The authors failed to discuss the various Best Management Practices (BMPs) that were actually employed by Hollandia over the years of operation as reflected in the RWQCB files.

In response 9 to Hollandia’s public comments, the authors again departed from their purported role as objective scientists. Following John Menke’s (former RWQCB manager of the Confined Animal Feedlots) review of the RWQCB files for Hollandia, and after he provided a reasonably detailed description of the practices of Hollandia to manage its cattle wastes, the authors wrote: “Documentation has not been provided by Mr. Menke regarding specific operational information, remediation, discharges, analysis, or conclusions discussed above.” That is patently false.

The authors ignored BMPs documented in the RWQCB file and treated Mr. Menke’s informed observations as if they were based on fiction, reflecting extreme litigation bias and a mischaracterization of Hollandia. The stubborn resistance to all facts favoring Hollandia shows the RI/FS authors are beholden to the Parties in the litigation.

Hollandia removed the last of its cows from its property in 2003. The last discharge of cattle wastes by Hollandia alleged in the RI/FS was in 1998.

Hollandia appreciates that Sarah Mearon has questioned the assertions against Hollandia in the RI/FS. She made several factual findings on June 2, 2016, in favor of Hollandia. The final RI/FS did not present any new or better evidence.

For instance, Ms. Mearon wrote: “The RI portion of the Report does not provide evidence for the statement that, ‘Historical episodic releases from the watershed have also contributed to lake nutrient loading over time, such as at historical former dairy or poultry properties.’ We agree that historical episodic releases likely have added to the nutrient load, but do not see evidence of these contributions from the historical dairy or poultry operations.” (Letter from Sarah Mearon, to Vitti and Thornberry, dated June 2, 2016)

Ms. Mearon also challenged the draft RI/FS conclusion that Hollandia and another dairy and an egg farm contributed “significant quantities of nutrients” to the creek based upon 2015 data with this finding: “This conclusion, however, is not supported by the data. ... Further, the Report states that groundwater contributes limited

nutrients to the creek and lake; therefore, there does not appear to be evidence of a pathway for the soil nutrients to the receiving water (the creek).”

The final RI/FS authors, having no new investigation or evidence to report, slightly modified the following conclusion with terms that could apply to every property in the watershed: “[Hollandia] (and other former dairy and agricultural properties) ... historically contributed nutrients to San Marcos Creek over the course of their former agricultural operations. ... [R]esidual soil nutrients are present in the vicinity of the agricultural properties.” (RI/FS, page 181) To reiterate, there was no new study or information reported in the final RI/FS.

The RI/FS authors’ response 27 and 33 to Hollandia’s public comments even stated, “The RI/FS Report draws no specific conclusions regarding storm drain data and historical sources at Hollandia.”

A look at today’s largely hardscaped Hollandia surface shows a very effective protective seal over areas that remain on its property.



The RI/FS concluded, “Because this dataset is relatively small, only limited conclusions can be drawn regarding the lateral and vertical extent of residual phosphorus in former agricultural property soils and upgradient, background, or downgradient concentrations.” In other words, the results of the investigation were unremarkable, and they cannot draw negative conclusions now about Hollandia.

Hollandia’s experts believe Hollandia contributes essentially 0% nutrients today to the Creek, relative to the watershed, and there is no evidence to the contrary.

In public comment, Hollandia wrote, “There is nothing in the surface water data to suggest that runoff from the former dairy is currently causing elevated nutrient concentrations in the Creek.” The authors agreed: “The RI/FS does not state this conclusion.”

V. THE AUTHORS OF THE RI/FS IGNORED THAT ANY THEORETICAL CONTRIBUTION FROM HOLLANDIA WAS FLUSHED LONG AGO.

The final RI/FS, combined with the response to public comments about the draft RI/FS, indicated the lake is flushed every year roughly three to nine times. But it is far more than that. A better analysis of the flushing is required before the Parties can properly assess the fate and transport of watershed nutrients, impacts to the Lake and downstream of it, and appropriate remedial measures. A fuller analysis also entails the assessment of “ownership” of the interactive nutrients in the Lake.

“Watershed runoff is capable under typical conditions of exchanging the entire Lake volume 2.6 to 5.2 times each winter... . The amount and degree of Lake flushing that occurs is a direct result of the total amount and intensity of the annual precipitation During an El Nino cycle ... [t]he result can be a significant increase in rainfall over the Watershed. ... Even under drought conditions, the Lake could be effectively flushed each winter with the runoff inputs.” (RI/FS, page 174)

The watershed covers about 18,540 acres and the Lake surface covers about 56 acres. (RI/FS, page 173) The ratio of watershed to lake is over 300:1. (RI/FS, page 174)

The Final RI/FS reduced the exchange rate from upwards of 8 and 9 times per winter to 5.2, compared to the draft RI/FS and original Work Plan, without explanation. The reduction is undoubtedly due to using less than an average rain year (i.e., just three recent drought years, 2012-2015 – which “did not include an El Nino period”), not the average rainfall over a more representative period of time. (RI/FS, page 68) Nonetheless, the RI/FS authors, in response 41 to Hollandia’s public comment, in which Hollandia asked for an explanation of the above discrepancies, stated, “The calculation is an approximation, and both or either range of values is correct.” Therefore, the authors acknowledged annual flushing could be as high as 9 times the volume of the lake per year.

Yet, the RI/FS provided sufficient information to calculate that in just the wet year of 2005, there would have been *32 flushings*. Total inflow to the lake was more than 14,000 acre-feet in 2005 according to the RI/FS, App. V, Table 1. Divide that by the estimated lake volume of 437 acre-feet (RI/FS, page 1) to yield *32 flushings* in 2005 alone.

Therefore, it appears the RI/FS has grossly understated the flushing capacity at the Lake, which has skewed its analysis significantly. The current wet season is another major year for flushing and could exceed 2005. How do these flushings affect the health of the Lake and the areas downstream of the Lake? What did they do to historical nutrients? The RI/FS, reflecting the Parties' litigation bias, is unscientifically silent.

Hollandia's experts have concluded the annual flushing at any of the above levels would have removed virtually all of the nutrients that Hollandia theoretically might have contributed to the Creek, if they reached the Lake, in just a few years after the last alleged discharge offsite in 1998 – long, long ago. We had a large El Nino year in 1998, and the RI/FS noted substantial rain in 2005 and 2011. (RI/FS, page 108)

Essentially, the Lake interactive nutrients are almost entirely this past year's runoff and some mixing of the upper 10 centimeters or so of the Lake bottom. It is jaw-dropping that DBS has withheld analysis and discussion of this exculpatory evidence, which also impacts the area downstream of the Lake and its choice of remedies for the Creek and Lake.

VI. THE AUTHORS OF THE RI/FS IGNORED THAT ANY THEORETICAL SEDIMENT CONTRIBUTION FROM HOLLANDIA WAS BURIED LONG AGO.

The Lake bottom sediments are the other part of the significant, ignored equation. "Nutrients are often recycled numerous times before being sequestered in the bottom sediments..." (RI/FS, pages 17, 175) No sediment removal or dredging has been conducted in the lake. Estimated sedimentation rate is 1.8 cm/year. (RI/FS, page 176)

Although the RI/FS mentions there is sequestration of nutrients in the Lake bottom, it then ignored the critical analysis. The reason is simple: a full analysis would again provide exculpatory evidence with regard to Hollandia. Any discharge in 1998, if it reached the Creek and then reached the Lake, was either flushed out of the lake or deposited in the sediment, buried below 34.2 centimeters (19 yrs x 1.8cm/yr = 34.2") of newer sediment.

While the RI/FS did not state the depth at which nutrients in the lake bottom sediment becomes "sequestered," there is a common understanding among lake scientists. In peer reviewed "Modeling of phosphorus dynamics in aquatic sediments: I-model development," Wang, et al., explains that: "The sediment-water

flux study concerns the phosphorus dynamics in an 'active layer' of sediments, which is between the 'deep' sediments and the overlying water. This layer is defined as that depth up to which there is influence of bioturbation, and the potential for flux to the water column. The depth is generally considered to be 10 cm. (citations). This layer of active sediments participates in the exchange of phosphorus between the overlying water and sediments." Wang, Appan and Gulliver (2003), "Modeling of phosphorus dynamics in aquatic sediments: I—model development," *Water Research* 37 : 3928–3938. Hollandia would be happy to provide a copy of the article if desired.

In a second peer-reviewed scientific article, "Role of sediment and internal loading of phosphorus in shallow lakes," Sondergaard, et al., reiterated the observation in Wang that the top 10 centimeters are the interactive area, but that in some instances, that can be up to 20-25 centimeters: "The sediment depth interacting with the lake water is probably lake specific and highly dependent on lake morphology, sediment characteristics and wind exposure. Most often, phosphorus in the upper approximately 10 cm is considered to take part in the whole lake metabolism (Bostrom et al., 1982), but mobility of phosphorus from depths down to 20-25 cm has been seen (Fig. 2, Sondergaard et al., 1999)." <https://www.researchgate.net/publication/226944017> Sondergaard, Jensen, and Jeppeson (2003) "Role of sediment and internal loading of phosphorus in shallow lakes," *Hydrobiologia* 506–509: 135–145, 2003. (Page 138)

Here, by the Parties' own admissions, Hollandia's theoretical discharges are buried at least under 34.2 centimeters. Therefore, even from the most conservative perspective, any speculative nutrients from Hollandia are buried too deeply in the sediment to be consequential to the Parties' response to the IO. Moreover, the Parties propose to spread alum over the lake bottom to prevent the type of interaction that might otherwise allow nutrients in the top 10 centimeters to mix with the water column. The RI/FS explained how that works: "Phosphorus inactivation requires application of a larger dose compared with flocculation/settling so that the alum floc forms a reactive barrier on the sediment surface that intercepts and irreversibly binds phosphorus recycled within the sediments." (RI/FS, page 211)

In the more detailed discussion, the RI/FS explained, "Addition of alum to the water column of lakes achieves a number of benefits, including the flocculation of dissolved and particulate forms of nutrients, removal of these nutrients out of the water column through settling, and inactivation of mobile phosphorus within bottom sediments. ... A large-dose sediment inactivation treatment can achieve theoretical improvements for 10 to 20 years only when external nutrient loading is sufficiently controlled. Because it is difficult if not impossible to control external loading during the extreme runoff events, this alternative refers to a low-dose application strategy that targets dissolved and particulate forms within the water column but can achieve some control of internal loading. ... Conclusion. ... [T]he

flocculation/settling/phosphorus inactivation alternative will be selected as a component of the overall preferred remedy.” (RI/FS, pages 230-231, 232)

It is incumbent that the RI/FS present a scientific and complete analysis of the effects of sequestration on historical nutrients and the level of interactivity between nutrients in the bottom and the Lake, along with the further impact of its proposed alum use. How does that affect discharges downstream of the Lake?

The authors failed to explain how Hollandia could have any responsibility for today’s lake conditions, particularly if sediments above 10 cm are likely the only interactive nutrient recycling zone. The RI/FS should explain at what depth it contends the nutrient recycling stops.

The lake model includes assumptions on bioavailable layers of sediment, which in combination with flushing and sediment accumulations studies, demonstrate that historic loads (such as an alleged discharge from Hollandia nearly twenty years ago) would not contribute to current conditions. Therefore, any impacts caused by theoretical Hollandia-related sediment would be buried.

VII. THE MODELS HAVE NEVER BEEN PROPERLY CALIBRATED.

The watershed and lake models can both be criticized foundationally and for development and evaluation of potential remedies. The data used for calibration of both models 1) were limited (in terms of years and data points), 2) originated from sources that the model documentation indicate were of questionable quality, and 3) make “validation” unsupportable because all available data were used to calibrate. Furthermore, since multiple interpretations could be made to yield similar results, but only of fair quality, the validity of the parameter calibration is questionable. For this reason, particularly in the context of establishing remedy options, a true sensitivity analysis is not only appropriate, but is needed. It does not appear that this was conducted.

In examining the connectivity between the watershed model (LSPC) and lake model (EFDC), the technical approach included the removal of base flows from LSPC output, but prior input into EFDC. While model outputs were compared and found reasonable by the modelers, this specific adjustment was not calibrated.

The watershed has inherent uncertainties and naturally occurring variabilities (and initial model studies had errors that were subsequently corrected by Limnotech). These uncertainties and variabilities are not characterized in the presentation (or the development) of output results; thus confidence levels in model results cannot be quantified.

According to the RI/FS, page 62, “The (lake) model will be calibrated using all available data and not divided into a calibration and validation datasets because of the limited information available on the Lake and its inputs.” Further, “The

calibration results will be compared via a weight of evidence approach to measured values and targeted model performance will fall within ranges established for comparable studies." (page 63).

The limited data produces great uncertainty in the results. The above approach to calibration essentially says they are going to adjust the computer model until they get what they expect. When they do, they will pronounce it correct.

VIII. ARE SUPERFUND "HAZARDOUS SUBSTANCES" REALLY AT ISSUE HERE?

The parties have sued Hollandia for recovery of "response costs" due to "hazardous substances" under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA OR Superfund), and they are preparing the RI/FS to support their CERCLA action. The RI/FS smacks of such bias, which underscores its reliability for purposes of responding in a scientific manner to the IO.

Hollandia would like clarification from the authors of the RI/FS and the RWQCB as to whether they (as opposed to the Parties) contend nutrients are "hazardous substances" under CERCLA. Total Nitrogen, often referred to alternatively as "Ammonia as N" and Total Phosphorus typically phosphates, are the two nutrients of concern to the RWQCB and driving the work to comply with the IO.

The above Parties in the lawsuit have adopted CDC's position that nutrients are hazardous substances under CERCLA. Has the RWQCB ever taken, or is it taking here, a formal position on this issue?

If nutrients are CERCLA "hazardous substances," then expect an explosion of Superfund litigation against public agencies with MS4 stormwater permits and for all bodies of water suffering from eutrophication. Also expect litigation assessing the potential liability of the RWQCB due to its role in choosing and directing how such alleged hazardous substance nutrients are managed.

For the reasons here presented, Hollandia suggests the RWQCB require thorough and scientific analysis of the issues raised before considering approval of the Resolution.

Thank you for your consideration of Hollandia's position as to the aforementioned issues.

Very truly yours,

JOHN H. REAVES, A.P.C.
John H. Reaves, Esq.

cc: Timothy D. Lucas, Esq. and A. Kerry Stack, Esq./ Thomas | Lucas



TO: REGIONAL WATER QUALITY CONTROL BOARD
Regional Water Quality Control Board
2375 Northside Drive, Suite 108
San Diego, California 92108

FROM: NICK BUHBE, M.S
Great Ecology, Agent for Citizens Development Corporation

DATE: FEBRUARY 27, 2017

SUBJECT: COMMENTS ON TENTATIVE RESOLUTION No. R9-2017-0038

On behalf of Citizens Development Corporation (CDC), this communication is to request revisions to the above referenced "Tentative Resolution Supporting a Path Forward For Nutrient Load Reductions in Lake San Marcos and the San Marcos Creek Watershed," which has been established as Agenda Item 11 for the Board's March 15, 2017 meeting.

FINDING #3 (PAGE 1)

The final sentence of this finding suggests that all impairments of San Marcos Creek have affected recreational and habitat beneficial uses of the Lake. The language is contradicted by site specific data presented in the report entitled "Lake San Marcos Investigation, Surficial Sediment Investigation Report," dated January 2016, which was jointly submitted by CDC, Vallecitos Water District, the Cities of San Marcos and Escondido, and the County of San Diego. In that report, sediment toxicological data was presented which shows that several constituents listed for the Creek (e.g., selenium and DDTs) were present in Lake sediments, but that those sediments did not exhibit toxicity.

We recommend that Finding 3 be split into two separate findings, stating the factual impairments for the Lake and Creek separately.

FINDING #4 (PAGE 1)

We disagree with the characterization that the dam traps nutrient rich sediment as an oversimplification. The dam traps sediments which become enriched through complex biogeochemical cycling within the overlying Lake water (i.e. stratification cycle). It is the depth of the Lake near the dam which is conducive to stratification, which in turn results in nutrient rich water at depth.

We recommend this finding be re-written to better reflect eutrophic conditions at Lake San Marcos. For example, to conform to the classic definition of eutrophic state, we would request that the second sentence be revised to: "High levels of nutrients result in excessive biomass generation, including..."

FINDING #8 (PAGES 2 AND 3)

In the first paragraph, the practice of opening the valve in anticipation of and during high-precipitation events has been and continues to be as a safety measure to limit overtopping flows. With regard to the safety inspection opening, the annual opening of the valve demonstrates that the lake is not “clogged with sediments.”

We respectfully request that the last sentence of the first paragraph be deleted.

In the second paragraph, the statement that waters released “is typically anoxic and may contain elevated concentrations of nutrients and suspended solids” is immaterial to the proposed 303(d) listing at Batiquitos Lagoon for sediment toxicity. Anoxic conditions would not be expected to persist between the Lake and the Lagoon regardless of low or high flow conditions, and no data has been presented to even suggest a swath of anoxic conditions stretching for miles downstream of Lake San Marcos. On the contrary, waters flowing either over the dam or out of the valve, and then down through a series of riffles in the canyon below Lake San Marcos, would very rapidly be aerated as a result of extreme hydrodynamic forces.

Nutrients and suspended solids do not affect sediment toxicity. Site specific evidence suggests the contrary: sediments collected from the shallow portion of the Lake (i.e., the aerobic epilimnetic portion) have been shown to be free of toxicity (ibid.). We are unaware of any scientifically-based linkage between any conditions at the Lake and the proposed 303(d) listing for Batiquitos Lagoon.

Finally, regardless of the basis of concern by the Batiquitos Lagoon Foundation and Carlsbad Watershed Network, the remedies proposed for Lake San Marcos and the Upper San Marcos Creek watershed will be a benefit to downstream conditions by reducing anoxia in the lake, decreasing nutrient loading, decreasing sediment loading downstream, and improving the ecology of the Lake and Creek. In short, there is no negative link between the Lake and Lagoon.

We respectfully request that the second and third paragraphs of this finding be deleted in their entirety.

TENTATIVE RESOLUTION #5 (PAGE 3)

As stated above and taken in their entirety, findings of fact do not support a linkage between Lake conditions and sediment toxicity at Batiquitos Lagoon, or other conditions downstream of the Lake.

We request that Resolution Item 5 be removed.



February 27, 2017

Mr. David W. Gibson
Executive Officer
San Diego Regional Water Quality Control Board
2375 Northside Drive, Suite 100
San Diego, California 92108
E-Mail: sandiego@waterboards.ca.gov

Re: Comment - Tentative Resolution No. R9-2017-0038, Attn: Sarah Mearon

Dear Mr. Gibson:

The City of San Marcos appreciates the opportunity to provide comments on Tentative Resolution No. R9-2017-0038, *Tentative Resolution Supporting a Path Forward for Nutrient Load Reductions in Lake San Marcos and the San Marcos Creek Watershed* (the "Tentative Resolution"). A Final Remedial Investigation and Feasibility Study Report ("RI/FS") for Lake San Marcos and San Marcos Creek was submitted to the Regional Board on behalf of Citizens Development Corporation, the County of San Diego, Vallecitos Water District, the City of Escondido and the City of San Marcos (the "Parties"). The RI/FS recommended three remedial alternatives for Lake San Marcos – diffused aeration, flocculation/settling/phosphorus inactivation and selective withdrawal – and two remedial alternatives for the San Marcos Creek Watershed – supplementary agricultural best management practices and stream restoration.

Pursuant to the Regional Board's request, the Parties submitted estimated project schedules for the remedial alternatives recommended by the RI/FS. The City of San Marcos supports the remedial alternatives recommended by the RI/FS and respectfully requests that the dates in recital 5 of the Tentative Resolution be modified to conform to the estimated project schedules submitted by the Parties.

In addition, recital 8 of the Tentative Resolution discusses Citizens Development Corporation's releases of lake water through the valve in the bottom of San Marcos Dam. The City of San Marcos has no control over San Marcos Dam or the releases of lake water through the valve in the bottom of the dam. Therefore, the City of San Marcos is not responsible for investigation or remediation of the potential effects of any such releases. The City of San Marcos respectfully requests that the third paragraph of recital 8 be modified as follows to clarify that the City of San Marcos is not responsible for investigation of releases through the valve in the bottom of the dam:

The effects of water releases through the valve ~~from Lake San Marcos~~ on the quality and beneficial uses of downstream water bodies must be better understood to ensure that the Corrective Action Plans put forward by CDC ~~the Parties~~ address water quality impacts, if any, of water releases through the valve ~~from the lake~~. The list of activities recommended by CDC ~~the Parties~~, however, does not include an investigation of these potential effects.



Thank you for consideration of our comments. If you have any questions or require additional information, please do not hesitate to contact me.

Respectfully submitted,

Matt Little
City of San Marcos
Public Works Director/Deputy City Manager