

Central Valley Regional Water Quality Control Board
27/28 March 2014 Board Meeting

RESPONSE TO COMMENTS

AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR
THE SACRAMENTO AND SAN JOAQUIN RIVER BASINS TO
PROVIDE A GROUNDWATER REGULATORY FRAMEWORK TOWARDS
CLOSURE OF THE ROYAL MOUNTAIN KING MINE SITE
CALAVERAS COUNTY

An initial version (October 2012) of the draft Staff Report and Proposed Amendment was circulated for peer review in November 2012. One peer reviewer rejected the Board's technical rationale for de-designating groundwater that did not meet the 3,000 mg/L TDS criterion in the *Sources of Drinking Water Policy*, which caused Board staff to revise the draft Staff Report and the Proposed Amendment.

These documents now incorporate a policy rationale for de-designating pockets of groundwater that do not meet the 3,000 mg/L TDS criterion. This policy rationale supplements the Board's earlier proposed rationale, which was also revised. The revisions are reflected in a November 2013 draft Staff Report and Proposed Amendment.

The Board released the November 2013 draft Staff Report and Proposed Amendment for public review on 8 November 2013 and set a comment deadline of 10 January 2014. Notice was sent by email to all interested parties who had subscribed to the State Water Board's email notification service for the project. In addition, notice was mailed via the U.S. Postal Service to interested parties who previously had requested project notifications by that route. One comment letter was received during the public comment period from the following individual:

- Victor Izzo, a concerned citizen who was formerly employed as the Chief of the Title 27 & Mining Unit at the Board until December 2013, when he retired from state service.

While employed by the Board, Mr. Izzo had worked on the regulation and permitting for the Royal Mountain King Mine. Mr. Izzo's comments are summarized below, each followed by a response prepared by Board staff. Based on comments that Board staff considered pertinent, the draft Staff Report was revised, as indicated in the responses to the comments. Staff also made some changes to the draft Staff Report to correct typographical errors, to remove references that were not cited, to improve clarity, and to provide a more robust discussion of the No Action Alternatives and how the Proposed Amendment is consistent with the *Anti-degradation Policy*.

Mr. Izzo's Comments

Mr. Izzo provided four documents – a signed comment letter dated 9 January 2013, a copy of the November 2013 draft Staff Report in which he has overlain annotations onto highlighted portions of the text, an email from Roux Inc. (see Response to Comment 8), and Yamana Gold Form 40-F from the United States Securities and Exchange Commission (see Response to Comment 9).

Mr. Izzo also requested twenty minutes to speak at the Board Hearing in March 2014.

Mr. Izzo's comment letter has seven numbered comments and two sections of other information (summarized and addressed as Responses to Comments 1 through 9, below). Comments 10 through 58 are from Mr. Izzo's annotations to the draft Staff Report.

Comment 1: Mr. Izzo states that much of the area that will be de-designated cannot be de-designated based on the available groundwater data. Mr. Izzo contends that the draft Staff Report contains statements in support of the de-designation that have no factual or scientific support. Mr. Izzo cites, as an example, Draft Document Section 2.1.2.2, which states, "Though data are not available to definitively delineate all groundwater pockets with TDS levels greater than 3,000 mg/L, such pockets likely exist." Mr. Izzo then cites the fact that monitoring wells in the vicinity of the Flotation Tailing Reservoir exhibit water quality better than 3,000 mg/L TDS concentration.

Response: Mr. Izzo's comments assume that the Board, when it de-designates the MUN beneficial use in groundwater, must strictly adhere to the criteria in the *Sources of Drinking Water Policy*. However, as described in the draft Staff Report, the de-designation area is based only in part on the criterion in the *Sources of Drinking Water Policy*; the draft Staff Report contains a policy-based justification for de-designating those areas underlying and immediately downgradient of the unclosed waste management units, including the Flotation Tailings Reservoir (FTR). The Board will request that the State Water Board make a minor site-specific modification to the *Sources of Drinking Water Policy* to address the inconsistency that would result from this de-designation.

Comment 2: Mr. Izzo comments that the Board should put more effort into differentiating between mining-related water quality impacts and naturally occurring salinity. Mr. Izzo suggests that Stiff diagrams, tri-linear plots, and changes in concentrations should be used to identify areas that have been specifically degraded by mining, and that much of this evaluation has already been done, but was disregarded. Mr. Izzo also suggests using USEPA (EPA/600/R-99/007) report "Characterization of Mine Leachates and the Development of a Ground-Water Monitoring Strategy for Mine Sites" as guidance in evaluating degradation of groundwater and surface water from RMKM.

Response: The Proposed Amendment lays out a policy proposal that does not require the level of differentiation that Mr. Izzo suggests is required. Board staff believes that it would be unproductive to expend limited resources to thoroughly catalogue the exact extent of mining-relating groundwater impacts within the areas that are proposed for de-designation when the *RMKM Remand Order* directed the Board to explore alternative compliance strategies, and when the Board has already developed a strategy that does not require this type of analysis.

Comment 3: Mr. Izzo states that since the de-designation area is not based on the site data, the Draft Report should be rewritten to clearly state that the de-designation is based on the location of the mining waste units not on monitoring data. All conjecture on where the pollution may be located should be removed. Mr. Izzo states that, except for the areas where the peer reviewer (Dr. Steven Gorelick) agreed that TDS was greater than 3,000 mg/L, the Board should state that de-designation is not based on any of the monitoring data but instead is based on the fact that mining units exist in these areas.

Response: The initial draft of the Proposed Amendment relied solely on the 3,000 mg/L TDS criterion in the *Sources of Drinking Water Policy* as justification for the proposed de-designation area. Though the initial draft made technically-based assumptions that supported a de-designation area that would extend further than just the area where the Board has monitoring well results showing concentrations greater than 3,000 mg/L, Board staff determined that an alternate approach that de-designates areas underlying, and immediately downgradient of, the

WMUs is reasonable on policy grounds. Some discussion of the groundwater quality that underlies these areas is reasonable, in order for the Board to make an informed decision. Although some of this water does not meet the *Sources of Drinking Water Policy's* 3,000 mg/L TDS criterion, Board staff is of the opinion that the Proposed Amendment furthers overall efforts towards closure of the Site and provides reasonable protection of groundwater beneficial uses. See also Response to Comment 1.

Comment 4: The Draft Report in Section 1.2.5 states, “*Meridian has submitted information to show that the current groundwater management strategy is sufficient to contain impacts associated with Meridian’s mining activities within the proposed de-designation area ...*” Mr. Izzo contends that Meridian has made extremely optimistic assumptions, and that all mining-related groundwater impacts will not be contained within the present groundwater plume boundary and that the NPDES permit does not encompass all impacted surface water discharges. In Mr. Izzo’s opinion, the problem is that too much water is entering Skyrocket Pit Lake, which means that Meridian will not be able to discharge enough water under its NPDES permit. This would ultimately mean that Meridian will be unable to contain groundwater impacts.

Mr. Izzo alleges that this lack of containment is illustrated by flows from both Love Spring (adjacent to the FTR Overburden Disposal Site) and spring flows into Turtle Pond. Mr. Izzo states that the Proposed Amendment must resolve these issues, and states that the peer reviewer agrees with this perspective. Mr. Izzo states that groundwater should not be considered to be “contained” until all surface water discharges from springs are fully addressed.

Response: This comment seems to overlook the fact that this Proposed Amendment is just one aspect of the overall effort towards closure of the Site. Though the Proposed Amendment will de-designate groundwater beneficial uses at a portion of the RMKM Site, the Board will continue to protect all existing surface water beneficial uses and all groundwater beneficial uses in areas that are not de-designated. The draft Staff Report has been edited to clarify that the Proposed Amendment is strictly focused on groundwater beneficial uses.

The intent of the Proposed Amendment is to allow Meridian to move the Site towards closure without requiring groundwater remediation and to focus their efforts on complying with the current NPDES permit and preventing the impacts to groundwater from spreading. However, if Mr. Izzo’s allegations are true (i.e., if the site is causing unregulated surface water discharges), then the appropriate forum to address these concerns is when the Closure WDRs are revised, as the Closure WDRs (in tandem with the NPDES Permit) must ensure that the existing surface water beneficial uses are fully protected.

Comment 5: Mr. Izzo alleges that the Proposed Amendment does not comply with the Remand Order because it does not acknowledge and address alleged discharges of leachate to surface waters from the mine waste units. Mr. Izzo points out that the Title 27 classifications consider both potential surface water impacts and groundwater impacts, and that a Group C designation cannot be applied when mining waste units pose a threat to surface waters.

Mr. Izzo states that the Proposed Amendment does not describe or appear to understand the water mounding that has allegedly occurred at Skyrocket Pit, that there are water balance issues, and that there are discharges from the Skyrocket Pit Lake through seeps and springs to surface waters. Mr. Izzo contends that the Proposed Amendment does not comply with the Remand Order because it does not deal with the mounding in the Pit Lake, and suggests that the language should be changed to state that Skyrocket Pit Lake must be maintained as groundwater sink, which would prevent seeps and springs.

Mr. Izzo takes the position that the Remand Order contemplates three possible regulatory scenarios for closure: compliance with Title 27 using an engineered alternative, an amendment to the Basin Plan to de-designate beneficial uses of surface water and groundwater; or the establishment of a groundwater containment zone as a partial regulatory solution. Mr. Izzo believes that an engineered alternative is the State Water Board's preferred alternative.

Response: Contrary to Mr. Izzo's allegation, the *RMKM Remand Order* did not specify a preferred alternative. The Proposed Amendment was chosen to combine two of the *RMKM Remand Order's* suggested approaches: de-designation and a regulated surface water discharge. As mentioned previously, if Mr. Izzo's allegations regarding unregulated surface water discharges are true, then the appropriate forum to address these concerns is when the Closure WDRs are revised.

Comment 6: Mr. Izzo states that the discussion regarding conformance with law and regulation appear to be in error due to scientific and technical inaccuracies. Mr. Izzo states that the Board is not complying with State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Anti-Degradation Policy*) because the Proposed Amendment ignores several springs containing mining waste that are directly downgradient of several mine waste units. Mr. Izzo contends that these springs are degrading surface water. In addition, Mr. Izzo states that the Board is not complying with the *Sources of Drinking Water Policy* because the Board is proposing to de-designate groundwater where TDS concentrations are lower than 3,000 mg/L.

Response: As mentioned above, all potential surface water impacts, including potential degradation, must be dealt with when the Board revises the Closure WDRs, because the Proposed Amendment itself does not actually authorize any degradation. However, because the Proposed Amendment could ultimately allow the Board to issue WDRs that would authorize degradation that would currently be impermissible, the *State Anti-Degradation Policy* discussion in the draft Staff Report has been expanded.

Comment 7: Mr. Izzo contends that neither the Board staff nor Meridian has complied with the Remand Order. Mr. Izzo contends that the Remand Order is clear that enhanced wetlands are needed to deal with the water issues at this Site, and that Meridian has not prepared a plan to develop an expanded and enhanced wetland, even though they investigated this option in a laboratory bench-scale study 1999 and in pilot study in 2005-2006. Mr. Izzo states that it is time to prevent further discharges of high TDS, sulfate, and metals to surface waters.

Response: See Responses to Comments 5 and 8.

Comment 8: Possible Solution that Complies with Remand Order: Mr. Izzo's comments include a plan "for development of engineered wetlands downgradient of RMKM mining waste units in order to promote remediation of elevated levels of TDS, sulfate, and heavy metals." Mr. Izzo refers to an email from an environmental consultant (Roux Inc.), included in his comment package. The consultant conceptualized a "natural media filter" (wetland) design for removing sulfate and arsenic from surface water.

Response: As described in the previous responses, the Proposed Amendment addresses only groundwater beneficial uses at the Site. Potential impacts to surface waters that could occur due to discharges of mining wastes, if they actually exist, would need to be addressed in the updated Closure WDRs and the NPDES permit for the RMKM Site. If Meridian finds that engineered

wetlands are a cost-effective way to protect beneficial uses in surface waters, this solution could certainly become a component of the Closure WDRs and/or the NPDES Permit.

Comment 9: Other Considerations: Mr. Izzo's comments include a discussion of Yamana Gold Form 40-F, which identifies Meridian Gold Company as "Agent for Service in the United States" for Yamana Gold Inc. Based on his interpretation of the information in the form, Mr. Izzo contends that "Yamana Gold now retains the liability coverage" and, along with several other companies he names as responsible parties, "[a]ll of the companies mentioned above have the resources to remediate this site."

Response: The intent of the Proposed Amendment is to allow Meridian to move toward closure and does not invoke a need to identify additional responsible parties.

Comment 9(a): Mr. Izzo contends that the present mining regulations (Title 27) have sufficient flexibility to allow Meridian to propose practical solutions to the remedial problems and to protect surface water and contain the groundwater. Mr. Izzo states that the larger question is why does Meridian receive a pass on the mining regulations and why would other mine sites not request the same benefits after they pollute the groundwater and surface water.

Response: Board staff agrees with Mr. Izzo that the Title 27 regulations provide flexibility to address potential surface water and groundwater problems. However, the Proposed Amendment was developed because the mining regulations primarily deal with prospectively addressing waste discharges; the unique regulatory history of this Site along with its site-specific groundwater conditions merit special treatment. In adopting the Proposed Amendment, the Board is not setting a precedent for how all mining sites will be addressed in the future.

[Comments Nos. 10 - 58 are annotations Mr. Izzo made onto highlighted portions of the draft Staff Report. Report section headings and page numbers are provided to indicate where the annotations occur within the report.]

Comment 10: [from the Executive Summary]: Mr. Izzo states, "This is a very generic statement and it infers that strict compliance with the regulations is not appropriate. The SWRCB Order only remanded the Title 27 cover. The preferred alternative in SWRCB Order is an engineered alternative to Title 27 prescriptive cover."

Response: The *RMKM Remand Order* did more than just remand the Board's cover requirements that were initially mandated in the Closure WDRs; it also instructed the Board to explore alternative closure options. Furthermore, the *RMKM Remand Order* did not specify a preferred alternative.

Comment 11: [from the Executive Summary]: Mr. Izzo states, "I concur that anywhere the data shows a TDS greater than 3,000 mg/L should be de-designated. But not appropriate to designate large areas that data does not support the de-designation."

Response: De-designating only those areas where TDS is greater than 3,000 mg/L would not further the expeditious closure of the RMKM Site. The Proposed Amendment finds that it is reasonable to de-designate areas where TDS is lower than 3,000 mg/L in order to allow a strategy where Meridian will focus on preventing mining impacts from spreading.

Comment 12: [from the **Executive Summary**]: Mr. Izzo states, “The proposed Basin Plan Amendment does not do what this statement states. It allows groundwater to discharge to surface water spreading the groundwater pollution. There is no containment of groundwater.”

Response: Mr. Izzo is concerned with the fact that mine waste may be interacting with surfacing springs, which may in turn be impacting surface waters. However, Mr. Izzo has not presented evidence that this is actually occurring. If this is indeed the case, then those impacts would appropriately be addressed when the Board revises the Closure WDRs for the RMKM Site.

Comment 13: [from **1 Introduction and Overview**, page 5]: Mr. Izzo states, “This proposed Amendment cover areas that are not underlain by poor quality water i.e. above 3,000 mg/L TDS. Please explain the justification for this.”

Response: As explained in the draft Staff Report, the Proposed Amendment contains a policy rationale for de-designating certain areas of the RMKM Site where groundwater does not meet the TDS criterion in the *Sources of Drinking Water Policy*.

Comment 14: [from page 5]: Mr. Izzo states, “Please explain how discharges of mine leachate to surface water from FTR ODS at Love Spring is consistent with SWRCB Resolution 68-16. Also explain how de-designating areas with TDS less than 3000 mg/L is consistent with SWRCB Resolution 88-63. It appears proposed Amendment is inconsistent with both.”

Response: Again, if mine waste is interacting with surfacing springs, which are impacting surface waters (the Board has no evidence that this is the case), then this would need to be addressed when the Board revises the Closure WDRs. If the Closure WDRs allow the degradation of surface waters, then the Closure WDRs would need to meet the requirements of the *State Anti-Degradation Policy*.

Comment 15: [from **1.2.3 Groundwater Conditions**, page 8]: Mr. Izzo states, “These are two different types of processes going on here one is an exothermic reaction caused by crushing of mineralized rock releasing metals and a primarily the salt sulfate. The other is salts dissolving into solution from water running through the rock with the major salts being sodium and chloride. This sentence should be removed.”

Response: Board staff agrees with Mr. Izzo. The statement has been revised.

Comment 16: [from **1.2.4 Regulatory History of Royal Mountain King Mine Site**, page 10]: Mr. Izzo states, “This is totally false. The Remand Order stated capping of ODS was not feasible and alternative remedial closure that improves water quality is required. This proposed Basin Plan Amendment still allows uncontrolled mine waste surface water discharges in violation of the Remand Order.”

Response: The *RMKM Remand Order* does not require improvement to water quality. It specifically states that, “[t]his order ... concludes that the requirements in the Revised CDO are not reasonable in view of background water quality conditions in the area, the high cost of compliance with the Revised CDO and the existing mine Closure WDRs, the probability that compliance with the Revised CDO and mine Closure WDRs would not significantly improve water quality, and the existence of more cost-effective remedies which would provide a higher degree of water quality protection than what is required by the Regional Board.” The only other area where the *RMKM Remand Order* mentions “improving” water quality is where the *RMKM Remand Order*

instructs the Board staff to place a “high priority” on investigating the use of engineered wetlands as a measure that could improve water quality. If Meridian must implement additional measures to meet permit requirements, the adoption of the Proposed Amendment would not preclude the use of engineered wetlands to improve surface water quality, if this proves to be an effective way of addressing potential impacts. However, Board staff does not have any indication that such measures are needed.

Comment 17: [from 1.2.5 Need and Justification for a Basin Plan Amendment, page 10]: Mr. Izzo states, “If this is the case, why is the Board de-designated areas that meet MUN and AGR water goals and allowing degradation of these water in both surface water and groundwater? Since the proposed Basin Plan Amendment does not meet this goal the Staff Report should be rejected.”

Response: As mentioned previously, the Proposed Amendment does not de-designate any beneficial uses in surface waters. The Board’s intent is to protect these uses by requiring Meridian to implement measures to prevent any mining waste from causing impacts to surface waters or groundwater outside of the de-designation area.

Comment 18: [from page 10]: Mr. Izzo states, “These sentences should be followed in regulating this site. SWRCB Res. 88-63 already states the actual area that exceeds 3,000 mg/L does not have the beneficial use of MUN. WDRs should be adopted with water quality objectives to close this site with engineered alternatives to the prescriptive standards of Title 27. Staff Report should be rejected on this bases [sic].”

Response: As stated in the text, water quality objectives are to be achieved primarily through the adoption of waste discharge requirements and cleanup and abatement orders. While the Proposed Amendment alters the beneficial uses in groundwater at the RMKM Site, any WDRs or NPDES permit issued to regulate water quality at the RMKM Site must be fully protective of all of the remaining groundwater beneficial uses and all of the currently-existing surface water beneficial uses.

Comment 19: [from page 11]: Mr. Izzo states, “I concur with this statement. All areas that exceed 3,000 mg/L TDS can be de-designated. This de-designated area should be based on the data and not conjecture.”

Response: The Proposed Amendment intends to base the de-designation of certain areas that do not meet the 3,000 mg/L TDS criterion not on conjecture, but on the policy justification that is outlined in the draft Staff Report.

Comment 20: [from page 11]: Mr. Izzo states, “The current groundwater management strategy is failing. The current strategy is causing groundwater to mound at Skyrocket Pit Lake and upgradient causing uncontrolled discharges of groundwater to surface water that contains mining waste leachate. Therefore, the strategy is not sufficient to contain impacts and this statement needs changed or removed.”

Response: The draft Staff Report has been changed to reflect that the groundwater management strategy is to prevent further degradation of groundwater outside the area of de-designation. If mine waste is interacting with surfacing springs, which are impacting surface waters, then this would need to be addressed when the Board revises the Closure WDRs. Board staff made edits

to the draft Staff Report to clarify that, whenever impacts associated with the groundwater management strategy were discussed, the Board was specifically talking of *groundwater* impacts.

Comment 21: [from 2 CHANGES TO GROUNDWATER BENEFICIAL USES AT THE RMKM SITE, page 12]: Mr. Izzo states, “I could not find any support to this statement anywhere in the Remand Order. The Remand Order did state there is naturally occurring poor quality water at the site and inferred this is one reason why the Remand Order required Regional Board to consider a different closure strategy. Therefore, this statement is factually in error and should be removed.”

Response: The *RMKM Remand Order* states that, “Another alternative approach that Petitioners previously raised in Petition A-1369 would be to amend the Basin Plan to de-designate beneficial uses of surface water and groundwater in the immediate vicinity of RMKM, upstream of Flowers Reservoir, in order to allow for amendment of the WDRs... Naturally occurring salts degrade groundwater in this area, and water quality objectives would not be met at many locations even if all contributions from the Petitioners were removed.”

Comment 22: [from page 12]: Mr. Izzo states, “The first part of this sentence is factually in error. It infers the whole site does not support some beneficial uses. It should be changed to **a portion of the groundwater does not support all of the designated beneficial uses.**” [Emphasis in the original]

Response: Board staff concurs; “portion” has been inserted into this sentence to make it more accurate.

Comment 23: [from page 12]: Mr. Izzo states, “This statement is not true. The Proposed Amendment also de-designates a large area that has historically supported all beneficial uses. It should be stated clearly that the Regional Board is proposing to de-designate of a large area even though it majority of the area supports all beneficial uses to give the RMKM Site needed regulatory resolution.”

Response: This statement in the draft Staff Report was intended to convey that the Board should not de-designate beneficial uses where individuals have actually utilized groundwater for these purposes. The Board staff will switch the word “utilized” for “supported” to clarify this ambiguity.

Comment 24: [from 2.1 DE-DESIGNATION OF MUNICIPAL AND DOMESTIC SUPPLY (MUN), page 12]: Mr. Izzo states, “This is false statement. Most of the site supports municipal or domestic water supply beneficial use and this beneficial use is used by landowner all around RMKM. Onsite this beneficial use was not used not because of low quality of the groundwater but because it is a mine site with no domestic land users. This statement should be changed to be factually correct and state a decision has been made not to support present and future beneficial uses in the de-designation area.”

Response: The distinction here is between “used” or “utilized” on one hand, and “supported” on the other. While pockets of relatively high quality water at the RMKM Site could theoretically “support” a use before being exhausted, the historic record does not indicate that there was any actual utilization of the groundwater within the proposed de-designation area at the RMKM Site for these purposes.

Comment 25: [from page 13]: Mr. Izzo states, “There should be reference to Figure 4 so the the [sic] reader can look at the extent of this poor quality water.”

Response: Board staff concurs, and reference to Figure 4 has been added.

Comment 26: [from 2.1.1 Sources of Drinking Water Policy, page 13]: Mr. Izzo states, “This policy already defines what is or is not municipal or domestic water supply and there is no need to de-designate the groundwater. Therefore Regional Board should define the area, based on the data, that exceeds 3,000 mg/L and not protect the MUN use in those areas.”

Response: As a part of this effort, the Board will propose that the *Sources of Drinking Water Policy* be amended to clarify that the RMKM Site is specifically exempted from the existing criteria for policy reasons, as has been done for Old Alamo Creek.

Comment 27: [from page 13]: Mr. Izzo states, “This is not supported under most of the mine waste units. Under most of the units the groundwater quality supports MUN use.”

Response: This statement means to convey that the Board either finds that the groundwater quality is too poor to support the MUN use, or that the placement of the waste management units precludes the use of this groundwater for MUN purposes.

Comment 28: [from page 13]: Mr. Izzo states, “Overburden is stored in 3 of the 8 units. What about the other units.”

Response: Board staff concurs, and “overburden” has been changed to “mine waste” to include the three overburden disposal sites, the FTR, and Skyrocket Pit.

Comment 29: [from 2.1.2 Alternatives for De-designation of the MUN Use, page 13]: Mr. Izzo states, “If the Regional Board needs to de-designate the groundwater exceeding water quality criteria for MUN, it should be defined and only that area exceeding that criteria should be designated. An areas the data do not support it and Board staff believes it does exist additional data should be collected. To de-designate because today you believe in future someone will not use it is inappropriate.”

Response: When establishing water quality objectives, the Board is required to consider, “Past, present, and probable future beneficial uses of water.” (Wat. Code, §13241.) In developing the Proposed Amendment, it is reasonable to consider this as well.

Comment 30: [from 2.1.2.1 Alternative 1: No Action, page 14]: Mr. Izzo states, “This is true. However, this whole exercise [sic] is about WDRs __, the Remand Order and closer of the mine site. As stated in the Remand Order, this can be done by using the flexibility already in the regulations. Regional Board should close the site under the regulations instead doing convoluted Basin Plan Amendment and bending evaluation of the data to suite the means.”

Response: The *RMKM Remand Order* specifically states, “Other alternative approaches that may be an appropriate part of long-term resolution of water quality problems in the RMKM area include de-designation of beneficial uses...” Board staff has extensively explored other options and has found that de-designation is an appropriate tool to move the RMKM Site towards closure.

Comment 31: [from page 14]: Mr. Izzo states, “This statement is false. In the Remand Order it explains the regulatory flexibility that can be used in the Title 27 regulation and based Remand Order Conclusions and Order sections is the preferred alternative.”

Response: Board staff respectfully disagrees; the *RMKM Remand Order* does not opine as to a “preferred alternative.”

Comment 32: [from page 14]: Mr. Izzo states, “This is ridiculous and it is unclear what is trying to be said. The Regional Board staff or the discharger has not proposed this because it is infeasible and containment with treatment with proven technology of engineered wetlands was remedial alternative suggested by in SWRCB Remand Order.”

Response: Existing regulations state that, even where groundwater is naturally poor, a discharger must treat their discharge to at least background conditions, and sometimes to the water quality objectives, before the discharge is released to groundwater. The *RMKM Remand Order* states this principle, “[r]emoving salt from the underlying groundwater could require Petitioners to pump and treat the extracted water with reverse osmosis, an expensive, energy-intensive remedial measure that would generate a waste brine that may be three to ten times saltier than the extracted groundwater. The resultant brine would then have to be disposed of without adversely affecting water quality. In addition, previous data on groundwater quality in the RMKM area show that the type of large-scale pumping that would be required for groundwater cleanup purposes has the potential to draw poor quality water into areas of better quality groundwater which would exacerbate pollution problems.”

Comment 33: [from page 14]: Mr. Izzo states, “Why was this technology chosen? Was it because it very expensive technology with inherent problems and this would justify the proposed Basin Plan Amendment. Several technologies should be looked at if this analysis is to be done and complete.”

Response: This technology was investigated because it was specifically mentioned in the Remand Order.

Comment 34: [from page 14]: Mr. Izzo states, “In the past per Title 27 the Board staff has determined that pump and treat is technically infeasible and other means should be implemented. At present Meridian is capturing most of the groundwater as it surfaces and discharging it Skyrocket Pit Lake for subsequent disposal under a NPDES Permit.”

Response: Board staff agrees with Mr. Izzo.

Comment 35: [from 2.1.2.2 *Alternative 2: De-designate MUN Use where TDS Levels Currently Exceed 3,000 mg/L*, page 15]: Mr. Izzo states, “This is conjecture without much support by the data that does exist. Are these pockets in the greenstone, in the fault zone or in the phyllites? For example, the four monitoring wells to the west and east of the FTR are in the range of 300 mg/L and the downgradient well is 800 mg/L. The downgradient well is the indicator well if any area exist above 3,000 mg/L TDS. This language should be removed because it is not supported by any of the data except for at Western ODS and possibly Gold Knoll.”

Response: The cited statement, which is a reasonable technical conclusion, will not be changed. See also Response to Comment 1.

Comment 36: [from page 15]: Mr. Izzo states, “This data does not support the statement “since the leachate and upwelling spring water adjacent to most WMUs is above 3,000 mg/L.” Even though it is unclear what is meant by upwelling, the FTR, FTR ODS and Skyrocket Pit water quality are all below 3,000 mg/l. A statement also can be made that the majority of the water surrounding these units are below 3,000 mg/l.”

Response: Board staff concurs—this example is not essential to the Proposed Amendment and has been removed from the report.

Comment 37: [from page 15]: Mr. Izzo states, “What happens if someone wants to put a well adjacent to the unit in high quality groundwater? Based on the data we currently have the water quality under the FTR would meet MUN standards. Also, based on this statement any time you have a waste management unit it would have likelihood to have poor quality water under it and therefore you can de-designate groundwater below it. Under this scenario there would be no Group B waste mining units.”

Response: The Closure WDRs will impose the obligation on Meridian to contain waste impacts within the de-designation area at the RMKM Site. This particular de-designation is based on several site-specific factors and the unique regulatory history of the RMKM Site. Group B waste units will still exist wherever mining waste consists of or contains hazardous wastes that qualify for a variance or where mining waste consists of or contains nonhazardous soluble pollutants of concentrations which exceed water quality objectives or could cause degradation of waters of the state.

Comment 38: [from page 15]: Mr. Izzo states, “True, but well designed well with the appropriate seals would not impact the physical integrity of WMU or doing some slant drilling under the unit.”

Response: The Proposed Amendment finds that it is unreasonable to expect individuals to drill through the waste management units to find a reliable source of groundwater to be used for MUN purposes, and that slant drilling under the unit is also unreasonable.

Comment 39: [from 2.1.2.3 *Alternative 3: De-designate MUN Use within Entire RMKM Site*, page 15]: Mr. Izzo states, “Where is the evidence to support this statement. If i would extrapolate the data below FTR, FTR ODS, SkyRocket Pit, Heap Leach Facility on North End of LCRF and Process Water Pond the TDS levels would be significantly below 3,000 mg/L.”

Response: Board staff concurs, and the text has been revised.

Comment 40: [from page 15]: Mr. Izzo states, “Another generalization that is not supported by the data. I believe there is substantial data in the file to support a reliable source of drinking water.”

Response: See Responses to Comments 14 and 15.

Comment 41: [from page 15]: Mr. Izzo states, “Another generalization that majority of the site has poor quality water. Based on the MUN standard in SWRCB Order #88-63 the majority of the site (approximately 80%) is sufficient quality to support MUN.”

Response: This statement supports a more limited de-designation area, so it is unclear what point Mr. Izzo is trying to make.

Comment 42: [from 2.1.2.4 *Alternative 4: De-designate the MUN Use in Limited Portions of the Site (the Area Delineated in Figure 5)*, page 16]: Mr. Izzo states, “Again, this is not supported by monitoring well data at the majority of the waste management units. The only areas that should should [sic] possibly be de-designated is areas "D" and "F" described in Dr. Steven Gorelick basin plan amendment review.”

Response: As described on page 15 of the draft Staff Report, “[s]trictly limiting de-designation areas fails to recognize that groundwater beneath the WMUs at the Site is not, and likely will not, be used for MUN. *This is due, in part, to the potential for leachate to impact the quality of groundwater beneath the WMUs. Furthermore, Title 27 requirements direct that no land uses are to be permitted on WMUs that might impair their physical integrity. This requirement will practically exclude any well installation beneath the WMUs [emphasis added].*”

Comment 43: [from page 16]: Mr. Izzo states, “Does the Remand Order require that the whole site be designated? In the findings of the Remand Order it mentions as possible partial potential alternatives and does not discuss the scale of the area to be designated. In the hereby order section of Remand Order no discussion of the Basin Plan is mentioned. Also in Remand Order it is clear the preferred alternative is compliance under Title 27 and and WDRs.”

Response: The *RMKM Remand Order* neither required that the whole site be de-designated (which is not what the Proposed Amendment does, either), nor does it express a preferred alternative.

Comment 44: [from 2.1.3 Recommended Alternative for De-designation of the MUN Use, page 16]: Mr. Izzo states, “This De-designation relieves responsible parties from cleaning up environmental damage they have done and allows continued degradation of surface water.”

Response: Though the proposed de-designation area relieves a Discharger from rectifying all of the environmental impacts that their mining activities have caused, the *RMKM Remand Order* determined that it would be imprudent to expend limited resources to remediate these groundwater impacts, and that time, money, and effort would be better spent on investigating other alternatives. As stated earlier, the Proposed Amendment does not address surface water and does not allow for any degradation of surface waters.

Comment 45: [from 2.2 DE-DESIGNATION OF AGRICULTURAL SUPPLY (AGR), page 17]: Mr. Izzo states, “This is not supported by any data or agronomist review.”

Response: Board staff agrees with Mr. Izzo and has revised the draft Staff Report to reflect that certain AGR uses, such as growing salt-sensitive crops, cannot be sustained by groundwater “at all portions of the Site.”

Comment 46: [from 2.2.1.4 Alternative 4: De-designate AGR Use in Area Delineated in Figure 5, page 19]: Mr. Izzo states, “See the comments above for the MUN de-designation. Only a small portion of the site exceeds 3,000 mg/L as indicate by the review Dr. Gorelick Basin Plan Amendment Review.”

Response: See Response to Comment 42.

Comment 47: [from 2.2.2 Recommended Alternative for De-designation of the AGR Use, page 20]: Mr. Izzo states, “All the comments for MUN de-designation apply for the AGR de-designation.”

Response: Board staff believes the MUN comments have been addressed. See *also* Response to Comment 42.

Comment 48: [from 3.2 ACTIONS NECESSARY TO ACHIEVE WATER QUALITY OBJECTIVES, page 24]: Mr. Izzo states, “This statement needs to be more specific. What does practicable mean?”

One foot from the top of the spillway, which would cause additional spring flow to Littlejohns Diversion Creek, which would further degrading surface water. A level should be set that establishes Skyrocket Pit Lake as a groundwater sink so no discharges of the pit water occurs except at the NPDES discharge point or simply state that Skyrocket Pit Lake must be maintain as a groundwater sink.”

Response: The specifics of the Proposed Amendment will be implemented in the Closure WDRs. While the Basin Plan itself provides the blueprint for how the Board will regulate the Basin, it need not enumerate technical details with the specificity asked for by Mr. Izzo. Furthermore, operating Skyrocket Pit as a groundwater “sink” is not necessarily required. Instead, the Proposed Amendment will ultimately require Meridian to demonstrate that impacts are not spreading.

Comment 49: [from page 24]: Mr. Izzo states, “Has a working water balance model with Peer review been done to show that the pit water can be contained without surface water discharges as springs at other location? As long as groundwater mounding continue, springs will continue.”

Response: Meridian has developed a water balance model, which may be used in association with the development of revised Closure WDRs. Regulation of surface water discharges has been addressed in earlier comments and responses.

Comment 50: [from page 25]: Mr. Izzo states, “This is because groundwater is discharging to surface water. Therefore, the groundwater is not contained.”

Response: This statement does not speak to containment. The Proposed Amendment does not require groundwater to be fully contained, as it will be collected and discharged to surface waters under an NPDES permit. Board staff edited the draft Staff Report to clarify the intent of this statement.

Comment 51: [from page 25]: Mr. Izzo states, “Since Title 27 is regulations are designed to protect both groundwater and surface water the classification should not be changed because of the impacts to surface water east of the fault.”

Response: This statement was removed to allow for waste classification to be determined during the adoption of the Closure WDRs.

Comment 52: [from 4 PROPOSED BASIN PLAN AMENDMENT LANGUAGE, page 26]: Mr. Izzo states, “Shouldn't the word "groundwater" be removed, which would require no water downgradient, both surface water and groundwater, shall be degraded based on this Basin Plan Amendment.”

Response: This provision is specific to the groundwater management strategy, so the change proposed by Mr. Izzo has not been made.

Comment 53: [from page 26]: Mr. Izzo states, “Shouldn't it be state here that all water degraded by mining shall be captured and discharged to Skyrocket Pit Lake. This would include springs directly downgradient of the FTR ODS and Skyrocket Pit Lake.”

Response: The proposed language is intended to ensure that all discharges from the Site are regulated by permits issued by the Board. The change proposed by Mr. Izzo has not been made.

Comment 54: [from 5.1.1 Antidegradation Policy, page 29]: Mr. Izzo states, “This evaluation has not been done.”

Response: See Response to Comment 6.

Comment 55: [from page 30]: Mr. Izzo states, “Not true - It allows the management of mine waste units in such a way that could further degrade groundwater and surface water below and downgradient of these units.”

Response: See Response to Comment 6.

Comment 56: [from page 30]: Mr. Izzo states, “In 1968 the water quality in the fault zone area and east of the fault had water quality that supported MUN and AGR.”

Response: Board staff does not believe that this statement is contradictory.

Comment 57: [from page 30]: Not true - a large portion of the area proposed for de-designation does support MUN and AGR.”

Response: The draft Staff Report was revised to reiterate that the Board is also de-designating groundwater MUN and AGR uses beneath, and immediately downgradient of, the unclosed WMUs based on a site-specific policy rationale. See *also* Responses to Comments 1 and 3.

Comment 58: [from 5.1.2 Sources of Drinking Water Policy, page 30]: Mr. Izzo states, “Based on the data, the majority of the area being de-designated is below 3000 mg/L TDS. Therefore, the de-designated area needs to be reduced.”

Response: The Proposed Amendment will de-designate the groundwater MUN use where TDS levels exceed of 3,000 mg/L, consistent with the *Sources of Drinking Water Policy's* exception criterion for TDS. In addition, the Proposed Amendment will de-designate the groundwater MUN use beneath, and immediately downgradient of, the WMUs that have not been closed based on a site-specific policy rationale. See *also* Responses to Comments 1 and 3.