

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
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San Luis Obispo, Ca 93402-7906**

PUBLIC COMMENTS AND STAFF RESPONSE

Water Board staff received public comments from the Santa Clara/San Benito County Farm Bureaus and the Central Coast Agricultural Water Quality Coalition, the University of California, Santa Cruz, the County of Santa Cruz, the California Department of Parks and Recreation, and U.S. Environmental Protection Agency. Staff organized the comments and responses for each agency into key issues. These are presented below.

Comments and Responses-Santa Clara/San Benito Count Farm Bureaus and Central Coast Agricultural Water Quality Coalition

The following are staff's responses to comments made in a joint letter submitted by the Santa Clara/San Benito Count Farm Bureaus and Central Coast Agricultural Water Quality Coalition, dated October 10, 2005.

Comment-1: We appreciate that your initial projections may be overly conservative, given the high levels of natural turbidity due to the geomorphology of the area. We urge you to continue studies to determine the natural levels of turbidity so that everyone can spend an appropriate level of resources necessary to control the problem but not waste resources that could be used resolving other issues by being over-protective.

Staff response: Adequacy and accuracy of the proposed targets will be determined as part of TMDL monitoring and the targets may be adjusted accordingly. This will occur over a long period of time due to the dynamic nature of sediment regimes within this large watershed. It is important to note that the TMDL proposes targets for suspended sediment concentration and duration, as well as streambed characteristics, and does not establish targets for turbidity. The monitoring plan will be completed in five years, and staff anticipates that suspended sediment concentration and duration, as well as turbidity and stream discharge will be measured. The Implementation Plan calls for responsible parties to carry out activities to control sediment discharges to meet the targets.

Comment-2: As much as possible, we would prefer to use the existing cooperative monitoring program(s) rather than building a competing bureaucracy. This will maximize the sharing of data and analysis of trends while minimizing overhead costs. Additionally, it is imperative that the monitoring results be fed back to the problem area as quickly as possible so that the problem can be identified and steps taken to resolve it. Even preliminary results provide valuable feedback as to the effectiveness of

management practices and quick feedback is more likely to result in recognition of the cause of the exceedence and permanent resolution of the problem.

Staff Response: It is up to each responsible discharger to decide whether or not they want to operate as part of a cooperative monitoring program or independently. Water Board staff proposes five years to develop an appropriate monitoring program so this will allow time to work with responsible parties if they want to participate in a cooperative monitoring program. The existing cooperative monitoring program for the Conditional Waiver for Discharges from Irrigated Agricultural Lands does not include many of the parameters necessary to evaluate attainment of the sediment TMDL numeric targets.

Comment-3: We appreciate that you have identified a broad spectrum of likely sources of sedimentation. However, many of the listed sources are either currently unregulated (rangeland/grazing, rural residential, streambank erosion, unpaved roads, etc.) or are severely underfunded (City/County MS4 Non-Point Source programs, State/County Park systems, etc.). We question whether there is funding in place now or in the near future to do the education and outreach necessary to make this program effective. We urge that sufficient funding be identified to develop capacity and build and deliver effective local outreach and education. That has proven to be much more effective than enforcement alone in reducing problematic behavior and the resultant pollution. Also, funding to implement best management practices is not sufficient if it is not accompanied with funding for education, outreach and one-on-one assessment and follow-up.

Staff Response: Staff acknowledges the importance of funding, outreach, and education in a successful implementation, monitoring, and tracking strategy. To address these concerns, staff purposefully proposed an adequate amount of time for responsible parties to explore funding for implementation, to develop plans to implement management measures, monitor and report, and for staff to conduct outreach and education. Water Board staff will facilitate or provide assistance for implementation program development.

Comment-4: We appreciate that the Regional Board is willing to adopt duration and intensity targets that more accurately reflect the impact on the fisheries rather than oversimplifying the target. However, given that it is a complex evaluation, we urge that you develop a variety of clear educational material to facilitate compliance. If people can't understand what is being measured, they are unlikely to be able to develop appropriate control measures.

Staff Response: See response to comment 3.

Comment-5: The analysis of the cost of implementation should be increased to include the value of the time spent by the growers on education, developing an individual Farm Plan, assessing the monitoring results and, as appropriate, implementing additional management measures, and the value of the loss of the use of the land set aside for buffer strips and other management measures.

Staff Response: Establishing an appropriate value for the time spent by each individual grower is challenging because of the inherent variability associated with the amount of time each individual may need. The time spent by one individual may be considerably more or less than another individual, depending upon several factors, such as the type and size of their activity, as well as site-specific conditions that need to be addressed. Staff believes that the costs contained in Table 7-2, Estimated Costs for Nonpoint Source Implementation Program Plans and Assessment Plans, are appropriate because the time spent on education and the time spent on development of an individual plan has been included in the cost analysis. Management measures on the other hand will be unique to each property and may not involve “across-the-board” installation of buffer strips or land set asides, therefore the value of land lost was not included in the cost analysis. The cost of implementing management practices such as buffer strips was accounted for in Table 7-3, Basis for Calculating Cost of BMP Implementation.

Comment-6: The effective date timeline for implementation of the new regulations cannot be met effectively without active outreach to the targeted sectors. We urge that you develop a plan for outreach that includes the various stakeholder groups and that outreach begin earlier rather than later. Also, based on our experience in assisting growers to meet the initial effective date for the Irrigated Ag Waivers, we strongly urge that your initial date be in the middle of the year – **not** December or another such holiday period.

Staff response: See response to comment 3. Staff will work with dischargers as soon as possible to assist with implementation program development. The date to comply is unknown at this time, as it depends on the date the final TMDL is approved by the California Office of Administrative Law. However, staff will note the suggestion for compliance dates to be in the middle of the year.

Comment-7: We urge that you develop model formats for the reporting, particularly for the timelines and implementation plans. We would be very happy to work with Board staff to test the formats for clarity and usability before they are officially adopted.

Staff response: See response to comment 3. Staff anticipates working with dischargers or their representatives to develop a reporting format as part of the technical assistance and facilitation necessary to implement this TMDL.

Comments and Responses-University of California, Santa Cruz

Marc Los Huertos of the University of California, Santa Cruz submitted comments in a letter dated October 10, 2005. The following are staff’s response.

Comment-8: The sediment thresholds selected do not appear to have strong scientific justification. According to the work cited Newcombe and MacDonald (1991), selecting a threshold of SEV level 8 seems to have limited protective value. According to the Staff report, “suspended sediment concentrations associated with the SEV-8 level may

periodically induce some form of ill effects (stress) upon fish.” This level of protection does not appear adequate. Staff acknowledges ecological systems are highly variable and may naturally subject fish to stress, but local fish may be adapted to these stresses. I agree with these assertions, but these assertions disqualify the selection of SEV-8. In my mind, the selection of SEV-8 appears arbitrary.

Staff response: Staff acknowledges that the SEV-8 threshold is the upper range of sublethal affects to salmonids. The factors that staff considered for the basis of the numeric targets are discussed in length in the Project Report (pages 13 and 14) and are not arbitrary, but instead are based on protecting salmonids from the lethal effects of suspended sediment exposure within the context of a watershed with relatively high sediment production. A margin of safety (MOS) is built into the TMDL to ensure the beneficial uses are protective. As more information becomes available, specifically suspended sediment concentration and duration, as well as Pajaro River salmonid data pertaining to habitat conditions, the SEV threshold will be adjusted if appropriate.

Comment-9: Based on data we have collected, the impairment listing lacks strong justification. Using the SEV-8 threshold, the Llagas and Uvas Creek do not have sediment concentrations above the thresholds for long enough periods of time to suggest fish stress. Surprisingly, there is also no strong trend of increasing sediment concentrations at the downstream locations, which include more anthropogenic activities. In contrast to these northern creeks, the San Benito River is characterized with high sediment concentrations. I believe this southern portion of the watershed, which is drier, is subject to higher erosion rates from natural sources than the Uvas/Llagas portion of the watershed; these characteristics are reminiscent with the Salinas River where delisting has been proposed. Both the San Benito and the Pajaro River proper have elevated sediment concentrations during high discharge events, which may have little to do with human activities in the watershed. However, sediment concentrations may impact fisheries. Nevertheless, without a better understanding of local fisheries habitat and physiology to these concentrations, it is difficult to argue that these values represent biologically relevant thresholds.

Staff response: The load analysis and numeric target evaluation indicate sediment impairment. While current data may suggest Llagas and Uvas Creeks do not have sediment concentrations and durations above the SEV-8 threshold to suggest fish stress, the numeric targets proposed have a 15-year period that accounts for the dynamic and episodic nature of sediment discharges and impacts. If, over a 15-year period, we are able to show that sediment conditions in Llagas and Uvas Creek demonstrate suspended concentrations consistent with or lower than the numeric targets proposed, or that there are no impacts to fish, staff will propose delisting. Staff also concurs that sediment loading from natural sources varies amongst the subwatersheds, but several types of human activity have been identified that are likely causing impairment throughout the entire Pajaro River Watershed. The existing and any future data collected by the University of California, Santa Cruz will help provide a baseline to compare existing

conditions and better inform staff about the complex issues associated with suspended sediment characteristics as the TMDL is implemented.

Comments and Responses-County of Santa Cruz

John Ricker of the County of Santa Cruz, Health Services Agency, submitted comments in a letter dated October 7, 2005. The following are staff's response.

Comment-10: The County urges the Regional Board to take the additional time needed to meet with the affected stakeholders to insure that the proposed implementation plan reflects all existing programs as well as new programs that would have a good chance of success. A one-size-fits-all fix for each pollutant source within the very diverse sub-watersheds of this extremely large watershed, is not an optimal approach. Time is needed to carefully craft implementation measures representative of the various sediment sources within the geographically different portions of the watershed.

Staff response: A one-size-fits-all approach has not been proposed in the Implementation Plan. Rather, responsible parties for each source category are required to develop and implement plans that will best suit their needs in reducing sediment discharges and improving water quality. The TMDL schedule provides one and a half years to develop individual implementation program plans. See response to comment #3.

Comment-11: Santa Cruz County staff was not invited to participate in the Advisory Committee, did not have an opportunity to review the draft Project Report, and was not involved in the development of the TMDL and implementation plan. We would welcome the opportunity to have more input to help form a workable plan. We would suggest an additional meeting of the Advisory Committee to be held in Watsonville to allow more discussion and participation with Santa Cruz County stakeholders. That process has worked well with the development of other TMDL's.

Staff response: Water Board staff prepared a four-page flyer that invited public participation in the Pajaro River TMDL process. The flyer was mailed June 26, 2001 to 62 individuals on the Pajaro River Watershed Interested Parties List (IPL). The IPL consists of members from public agencies, environmental groups, and private parties. The flyer was sent to two county staff members, including John Ricker. Santa Cruz county stakeholders on the committee included the City of Watsonville, the Santa Cruz Resource Conservation District, and the Pajaro Valley Water Management Agency. Water Board staff also presented TMDL updates to the Pajaro River Watershed Council, where Santa Cruz county representatives were present.

Comment-12: As currently drafted, it appears that the implementation plan focuses on site-specific portions of the watershed identified through past focused studies that were used to justify placement of these specific reaches on the 303(d) list. For example, for the silviculture sediment source, the load reduction only considers the 0.2 square mile area of unpaved roads in the Rider Creek subwatershed. The implementation plan needs

to address paved and unpaved roads throughout the watershed. Roads have been found to be the most significant single sources of anthropogenic sediment in other Santa Cruz Mountains watersheds. It also needs to address impacts of timber harvesting in the forested portions of the watershed.

Staff response: Staff agrees that TMDL implementation should address all roads (paved and unpaved) within the Pajaro River watershed and has made changes to Resolution R3-2005-0132 (Resolution), the Staff Report, and the Project Report to clarify that owners and operators of roads must comply with the new Pajaro River Watershed land disturbance prohibition. The draft language prohibited sediment discharge from "other activity of whatever nature," which would include roads. The land disturbance prohibition applies to all roads in the Pajaro River watershed, public and private, paved and unpaved. To comply with the prohibition, owners and operators of roads must develop a Nonpoint Source Pollution Control Implementation Program or demonstrate that their road does not discharge sediment.

Staff also added requirements for sediment discharges from timber harvest activities. The Resolution, Staff Report, and Project Report have been modified to require compliance with the General Conditional Waiver of Waste Discharge Requirements for timber harvest activities in the Central Coast Region (July, 2005; Resolution No. R3-2005-0066).

Comment-13: The TMDL implementation plan should incorporate more existing tools or programs as implementation measures. Specific examples are included below within our specific comments. Also other existing tools or programs from related efforts should be reviewed as to the possible addition of incremental improvements to these specific programs as a means to help achieve TMDL goals.

Staff response: The TMDL implementation plan relies on submittal of Nonpoint Source Implementation Programs. The county should mention these existing tools or programs in such documentation. Documenting the county's existing tools and programs in their program submittal will demonstrate that the county has implemented or will implement appropriate measures.

Comment-14: Missing from this discussion are rural, unpaved roads that service home sites. Section 5.1.2 (Silviculture) only addresses seasonal, unpaved **forest** roads; Section 5.1.3 (Urban/Residential) only addresses paved roads; and Section 5.1.7 addresses unpaved off-road vehicle trails within only two well known, publicly owned off-highway recreational areas. It would be a major oversight to not acknowledge the numerous miles of existing rural, unpaved roads that service home sites within this particular watershed. Many of these roads were originally timber roads or roads serving farm housing. It is strongly recommended that rural residential unpaved roads be addressed.

Staff response: Staff edited the Project Report and clarified how roads are included in the load analysis (see Section 6.1) and TMDL and allocations (see Section 6.2). The US

Census Bureau TIGER roads coverage does not distinguish the difference between paved and unpaved roads, public or privately owned roads, or whether the roads are related to timber harvest activities. It did however distinguish silviculture roads in limited areas, paved urban roads in limited areas, and off-road vehicle trails in known recreational areas.

Comment-15: The reference to PTI, 1993 is not included in the List of References (page 51-53).

Staff response: The reference was added to the Project Report.

Comment-16: Unpaved roads for the Corralitos subwatershed includes a total of a 0.2 square mile area, but there is no load allocation for these unpaved forest roads. This means a 100% reduction is expected, which is probably not feasible.

Staff response: Staff agrees that a 100% reduction from roads within the Corralitos Creek and Rider Creek watersheds and off-highway vehicle areas is not feasible and the Resolution, Staff Report and Project Report have been revised to require a 90% reduction. This reduction is based on research that has shown that achievable sediment reduction for unpaved forest roads ranges from 27-96%, depending on a variety of site conditions (Burroughs and King, 1989). However, TMDL compliance will be based on attainment of suspended sediment numeric targets, not annual load reductions. The targets are a better indicator of beneficial use protection.

Comment-17: The only non-point source identified in Section 5 not required to achieve sediment load reductions is silviculture, other than a total of 0.2 square mile area of unpaved roadway in the Rider Creek sub-watershed. Even though it is pointed out in Section 5.1.2 that, "forest roads account for nearly 90 percent of the total sediment load from forestry operations in the watershed (ASE, 1999)." It is recommended that all silviculture related unpaved roads within the Pajaro River watershed be fully addressed.

Staff response: See Response to Comment 12 regarding timber harvest activities.

Comment-18: As currently proposed, the County of Santa Cruz (for the Rider Creek subwatershed only) is required to: 1) assess sediment production from roads; 2) implement management measures to mitigate sediment production; and 3) evaluate the success of management measures through a monitoring program. We do not think these are reasonable requirements for several reasons: (1) the requirements focus on reducing sediment from County roads while ignoring sediment production from private roads and development in the Rider Creek watershed; (2) the County has limited authority and means to assess sediment production from private roads and private development; (3) we believe the requirement to perform a full sediment production assessment and management plan will be of unreasonably large cost when compared with the relatively small percentage of roads under County management within the Rider Creek watershed; and (4) given the other land uses and natural erosion in the watershed, the contribution to

sediment loads from county roads will likely be small and indistinguishable from other sources in any kind of monitoring program. It is unreasonable to request that the County implement a monitoring program for just a single land use.

Staff response: The Resolution, Staff Report, and Project Report have been modified to require all nonpoint source dischargers to comply with the land disturbance prohibition, not just the county. Nonpoint source dischargers include owners and operators of roads, both public and private, as well as several other categories of nonpoint source pollution. Compliance with the prohibition will require nonpoint source dischargers to either submit documentation that their activity does not cause sediment discharge or submit a nonpoint source implementation program that is consistent with the NPS Policy (see Response to Comment 12). Appropriate components of these implementation programs include: 1) assess sediment production from roads; 2) implement management measures to mitigate sediment production; and 3) evaluate the success of management measures through monitoring.

Staff recognizes that the county may have limited authority over private roads and private development. However, the county is responsible for exercising any existing authority to enforce relevant land use, land development, zoning, grading, or environmental protection ordinances that will reduce sediment production from these activities.

Comment-19: These requirements are based on the *Rider Creek Sediment Management Plan, Santa Cruz County, California, 1991*. In this plan, the consultant ranked the remediation priorities by the following three categories: 1) Road Drainage Sediment Sources; 2) Gully and Rill Sediment Sources; and 3) Road Related Debris Slides and Block Glide Failures. The requirements in the Pajaro TMDL do not seem to reflect this information.

- 1) Road Drainage Sediment Sources – Many of the proposed remediation projects are associated with drainage and maintenance practices along Rider and Buzzard Lagoon Roads maintained by the County Department of Public Works. Only 2.5 miles of Rider Road and 5.8 miles of Buzzard Lagoon Road are maintained by the County. The remaining portions of the roads are **privately owned**.
- 2) Gully and Rill Sediment Sources – These problems occur on five **privately owned** parcels which currently support timber or agricultural uses. These may have already been addressed or can be addressed in the future through the Timber Harvest Review process. Just recently Timber Harvest Plan 1-05-108 SCR adjacent to Rider Creek was approved and included required implementation of many road improvements.
- 3) Road Related Debris Slides and Block Glide Failures – Past efforts to stabilize landslides and unstable slopes in highly erodable sand areas similar to those in the Rider Creek watershed have not been successful, nor cost-effective.

Staff response: Staff has modified the Project Report (Section 5 Source Analysis) to include the sources identified in the Rider Creek Sediment Management Plan, Santa Cruz County, California, 1991. See Response to Comment 12 and 14 for private roads.

Comment-20: Much has occurred since the preparation of the *Rider Creek Sediment Management Plan*. Most notably, the listing of anadromous steelhead has and will continue to drive the implementation of management measures to mitigate sediment production as well as other negative impacts. Through the County's participation in the FishNet 4C, a county-based salmonid protection and restoration program, Public Works has adopted the operations and maintenance manual, "Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County Road Maintenance". Training workshops are being schedule for the near future. Also, Santa Cruz County Public Works has been involved in numerous fish passage barrier removal projects and other best management practice projects around the County. While the County of Santa Cruz Public Works is working to reduce erosion and sediment production from County roads, work in the Rider Creek watershed would need to be prioritized on a county-wide basis to maximize the cost-benefit of erosion and sediment control projects. If the County receives funding for a roads assessment in the Corralitos watershed, then Rider Road and Buzzard Lagoon Road will be included.

Staff response: Staff commends the county for all of these efforts. See Response to Comment 13 regarding existing tools and programs.

Comment-21: Over the last 10 years, sixteen (16) timber harvest plans have been completed, are occurring or proposed with the Corralitos Creek Watershed. These timber harvest plans account for approximately 21% of the Corralitos Creek Watershed. Santa Cruz County has a well documented history of our on-going active involvement in the review of timber harvest activities in the Santa Cruz Mountains. Impacts from each timber harvest are mitigated through site-specific measures incorporated in the THP and through the implementation of BMP's found within the Forest Practice Rules. Improvements to both seasonal and paved road networks are made during each 10 to 14 year timber harvest re-entry. Every approved timber harvest plan is now required to monitor water quality at various sites in the watershed, immediately above and below each harvest area. The collection and reporting of this additional monitoring data will greatly increase our knowledge of these larger portions of the Corralitos and Lower Pajaro watersheds.

Staff response: Staff commends the county for their active involvement in timber harvest plans. See Response to Comment 12.

Comment-22: In regards to our previous comment that the TMDL implementation plan should incorporate more existing tools or programs as implementation measures, what is notably absent is any mention of the Regional Board's recent adoption (July, 2005) of the General Conditional Waiver of Waste Discharge Requirements for Timber Harvest Activities in the Central Coast Region, Resolution No. R3-2005-0066 and the Monitoring

and Reporting Program. Monitoring data being collected in the watershed in compliance with this program could be used to document sediment load reductions from the specific source of silviculture from a much larger portion of the watershed.

Staff response: Comment Noted. See Response to Comment 12.

Comment-23: The implementation plan only addresses rural residential properties that maintain farm animal or livestock facilities. The plan needs to also address all the rural residential mountain property, which may have extensive grading, road construction, site disturbance, and drainage modification.

Staff response: See Response to Comment 18.

Comment-24: The plan makes the counties solely responsible for streambank erosion. However, much of the streambank erosion occurs in areas where the County has had little effect or jurisdiction. The streamside landowners need to be included as implementing entities. The County may be able to help facilitate solutions, but throughout most of the watershed, the County has limited authority and resources to address streambank erosion.

Staff response: The Resolution, Staff Report, and Project Report have been modified to include owners and operations of hydromodification activities that result in streambank erosion, as well as other nonpoint sources of pollution, to comply with the land disturbance prohibition (see Response to Comment 18).

Comment-25: An explanation of Load Allocations and Waste Load Allocations is needed.

Staff response: Allocations are the portion of a receiving water's loading capacity attributed to one of its existing or future pollution sources. Load allocations are assigned to nonpoint sources or to natural background levels and wasteload allocations are assigned to point sources. These definitions have been added to the Project Report.

Comment-26: The model output in figures 6-2, 6-3, and 6-4 is very odd, in that the figures show higher sediment output corresponding to years with lower flow.

Staff response: These figures were interpreted incorrectly because the flow axis is a descending scale. High sediment output corresponds to the high flow events as indicated in the figures.

Comment-27: The cost estimates do not seem complete or accurate. The stormwater program costs seem quite low and may just include educational programs. A higher cost for street-sweeping is added, but there are no additions for other aspects of the stormwater program, such as permitting, inspections, etc.

Staff response: Stormwater program costs are based on estimates made by the City of Watsonville on a per-capita annual cost basis. The stormwater cost estimates reflect current available information for a variety of stormwater control measures and activities, as represented by a municipality within the Pajaro River watershed. The estimated costs include permitting activities for development of good-house keeping procedures and inspections necessary for illicit discharge detection.

Comments and Responses- California Department of Parks and Recreation

John Horn of the California Department of Parks and Recreation, Hollister Hills District, submitted comments in a cover letter dated October 5, 2005. In addition to the cover letter, Michael Fuller of the California Geological Survey provided comments on behalf of the California Department of Parks and Recreation October 5, 2005. The following are staff's response.

Comment-28: The California Department of Parks and Recreation is opposed to the TMDL rate set for unpaved roads in the Project Report. Given the lack of current data, the technical difficulties with the modeled TMDL, uncertainties inherent in the TMDL analysis, and the economic considerations; the 100% reduction in unpaved road related sediment is not justifiable and is not realistic.

Staff response: Staff agrees that a 100% reduction from roads is not feasible and the Resolution, Staff Report, and Project Report have been revised to require a 90% reduction. See Response to Comment 16.

Staff will apply an adaptive management approach as explained in the Project Report, Section 7.4, Implementation Tracking and TMDL Evaluation, to account for uncertainties inherent in the TMDL analysis. Staff will assess compliance on attainment of numeric targets, not allocations, as these numeric targets are a better indicator of beneficial use protection.

Comment-29: It appears that more study is needed to develop an achievable sediment reduction target for the Hollister Hills SVRA.

Staff response: See Response to Comment 28.

Comment-30: The Hollister Hills SVRA is one of the few entities or locations that are specifically identified in the TMDL as being required to reduce excess sediment production by 100%. This is very disproportionate with other land management activities, such as agriculture, mining, and forestry, which will be required to reduce sediment production by 30-80%. These other land uses will be permitted some level of anthropogenic erosion while Hollister Hills is not. The TMDL does not recognize that the goal of 100% reduction (essentially reduction to background or unmanaged conditions) is not likely an economically or technologically achievable goal. Thus, the burden for reduction in sediment production within the watershed may be

disproportionately placed on the Hollister Hills SVRA. The TMDL should set a more reasonably achievable sediment reduction goal for unpaved roads.

Staff response: See Response to Comment 16.

Comment-31: The TMDL documents assume that erosion rates within the Hollister Hills SCRA are about 25 times greater than natural loads. This assumption reflects two studies, one conducted over the period from 1983 to 1985 (Tuttle and Griggs, 1987) and the other conducted in the early 1990's (PTI, 1993) on very different soils than those located at the Hollister Hills SVRA. Unfortunately these older studies do not reflect the current management practices at the Hollister Hills SVRA, and likely significantly overestimate the amount of sediment production. Thus, the perceived sediment production may be vastly different than current loading; and as numeric sediment targets are developed by the Water Board staff over the next few years there is a risk that percentage reduction values consistent with the older sediment production rates will be enforced. The TMDL document should acknowledge this fact.

Staff response: See Response to Comment 28.

Comment-32: The Hollister Hills SVRA is within the Bird Creek subwatershed of the San Benito River basin, which has an area of 24.5 mi², rather than the 87.8 mi² noted in the TMDL documents which incorrectly identify the subbasin as Pescadero Creek. The park consists of 6,510 acres and contains an excess of 144 miles of roads and trails rather than 8,353 and 114 miles of roads as described in the TMDL documents. These vary from narrow motorcycle tracks to standard two-way roads and parking areas. Some of the trails are not completely mapped. The TMDL does not specify what width of road is included in the model. For example, the TMDL identifies 0.96 mi² of "unpaved roads" in this basin as a land use that contributes 559 tons per mi² per year; however, if the watershed area and road lengths are not correct, the sediment allotment must be incorrect as well. Since the watershed and SVRA areas as well as miles of roads are critical to the development of load estimates, the discrepancies in this data should be resolved in the TMDL document or subsequent Water Board plans prior to ascribing numeric sediment reduction allotments or targets.

Staff response: The Project Report has been modified to clarify that Hollister Hills SVRA is in the Bird Creek subwatershed. The 87.8 mi² area pertains to subbasin 20, which contains the Bird Creek subwatershed and the Hollister Hills SVRA. Park area and miles of roads were obtained from previous reports (ASE, 1999). Estimated road widths are 2-3 meters and this information was contained in the Project Report (see footer on page 28). The development of load estimates are based on the area of roads within the entire area of subbasin 20, including the SVRA, and subsequent load allocations are also based on these estimates. The park area was not used to estimate loads. Staff agrees that inaccurate road lengths will result in further uncertainty in sediment production rates. Staff discussions with State Parks personnel have indicated that the SVRA will acquire additional road mileage within the park that will total about 131 miles by 2006. The 114

miles of SVRA roads that were used in the load analysis is within a reasonable range, and, as indicated by the commenter, this area has not been entirely mapped. TMDL compliance will be based on attainment of suspended sediment numeric targets, as this is a better indicator of beneficial use protection. Annual load reductions will not be used to determine TMDL compliance.

Comment-33: The San Benito River is a major tributary to the Pajaro River. The sediment dynamics and geological controls are very different for each river. Both Rivers are classified as “sediment starved” due to such factors as instream mining and the construction of dams and reservoirs; however, the San Benito River is identified as the most significant sediment source for the Pajaro River. The TMDL documents do not discuss the interrelationship between the “sediment starved” conditions of these rivers and the goal of reduced sediment production from anthropogenic sources such as the Hollister Hills SVRA. Clarification is needed in the TMDL document regarding how reducing nonpoint source sediment generation in distant upland areas mediates the cumulative effects of down-stream sediment-starved rivers.

Staff response: Fluvial processes have been impacted by anthropogenic activities within the San Benito watershed, leading to “sediment starved” conditions. Understanding these changes and their impacts to beneficial uses will require specific studies that are complex in nature. Therefore, staff will review existing waste discharge requirements (WDRs) for sand and gravel mining operations and revise or require activities to: 1) assess cumulative impacts, including fluvial geomorphic impacts, upon the beneficial uses of the San Benito River; 2) mitigate the impacts identified; and 3) monitor the effectiveness of mitigation activities.

Comment-34: Seismic shaking, landslides, rain, drought, fire, and land use are pronounced in the watershed. These conditions are mappable and documentable and to some level predictable within the bounds of standard science. Although the TMDL’s focus is on the manageable and anthropogenic sediment sources, their relationship to the larger scale natural variability in sediment production needs to be recognized in the TMDL document so that realistic goals can be set. The approach behind the development of the TMDL does not directly deal with these scientific complexities; it instead relies on a computer simulation that does not necessarily take into account natural variance in long-term natural sediment production. For example in Pescadero Creek, an adjacent watershed, daily loads of suspended sediment were measured by the USGS in 1980 to range over 6 orders of magnitude, from 0.02 to 18,100 tons. Additionally, the US Army Corps of Engineers developed a rating curve for suspended sediment discharge using a 14-year record at the Chittenden gage, they found that the error between calculated and measured sediment loads was 52%. These discrepancies need to be addressed in the TMDL document.

Staff response: See Response to Comment 28.

Comment-35: The key components of the sediment source analysis were the use of stream gage measurements, statistics, and a complex simulation using the computer model called SWAT. The model created a synthetic stream channel network using coarse topographic data. The report states that the simulation was calibrated to the stream gage data and that the simulation fits well with the actual stream gage data. Because most sediment transport occurs during intense rainfall, the model should be calibrated to large events. However, the documents say it is not. The report also acknowledges shortcomings of the roads data within the model simulation.

Staff response: Staff is not aware of any suspended sediment data collected during the intense rainfall events nor more refined road data. Sediment regression equations are commonly used for model calibration where adequate water quality data is not available. See Response to Comment 28 regarding uncertainties.

Comment-36: Although the model may provide useful insight at the large scale of the Pajaro River, it is not suitable for apportioning sediment loads to specific source areas. For example, it does not account for mining, which is a major influence on the San Benito River. The data has limitations and assumptions had to be made in the construction of the model. The TMDL documents should articulate to the public the intended role of the model in regulation.

Staff response: Staff agrees that the model is suited for large-scale assessments and may not accurately represent small-scale conditions (including the effects of mining). Staff also acknowledges that data limitations and assumptions provide a level of uncertainty. The intended role of the model was to estimate suspended sediment concentrations and duration under the various scenarios described in the Project Report and develop suspended sediment numeric targets and load allocations. The model was used to validate whether or not sources are present and should be included in the TMDL, and to provide dischargers information to develop appropriate implementation plans. There is no further intended role of the model at this time. See Response to Comments 28 and 33.

Comment-37: More current information is needed to judge the erosion related to unpaved roads at Hollister Hills SVRA. The decades-old erosion studies are out of date, and current operations and areas of disturbance have changed at the recreation area over the 20 years since the studies were done. The TMDL document needs to acknowledge that the information used to develop the TMDL is in many cases old and may not represent current conditions.

Staff response: See Response to Comment 28.

Comment-38: The goal of 100% reduction in road related sediment is infeasible, and out of context with the other source reduction goals within the TMDL. For example, the EPA notes that well designed sediment detention ponds typically are effective at retaining about 80% of suspended sediment loads (<http://www.epa.gov/owow/nps/education/runoff.html>). Besides, the goal of 100%

reduction is excessive and apparently unfair compared to the goals for other land uses (i.e. 20-80% reductions).

Staff response: See Response to Comment 16.

Comments and Responses- United States Environmental Protection Agency (EPA)

David Smith of the EPA submitted comments in a letter dated October 7, 2005. The following are staff's response.

Comment-39: EPA recommends inclusion of a requirement to complete a monitoring plan within one year and to begin monitoring in accordance with that plan immediately thereafter.

Staff response: Staff believes it will take more than a year to adequately identify monitoring sites, secure monitoring and sampling equipment, and develop dedicated funding to monitor numeric targets. The implementation actions do require responsible dischargers to include monitoring of management practices within one to two years of TMDL approval. Staff estimated that monitoring streambed numeric targets in the San Lorenzo River watershed would cost approximately \$54,000, equivalent to about 0.5 personnel years. The cost for the Pajaro River Watershed would be much higher because it is a larger watershed and requires suspended sediment monitoring in addition to streambed monitoring.

Comment-40: EPA recommends the inclusion of turbidity monitoring with other types of monitoring based on recent literature results that associate turbidity exposures to salmonid health effects.

Staff response: Staff anticipates that suspended sediment concentration and duration, as well as turbidity and stream discharge will be measured. See Response to Comment 1.

Comment-41: The staff report description of the proposed TMDL approach and the numeric target approach in particular is somewhat vague and should be clarified.

Staff response: Staff reviewed the relevant sections of the staff report and did not make any changes. The Project Report contains details of the TMDL and numeric target approaches.

Comment-42: The Central Coast Basin Plan contains an outdated numeric turbidity objective. TMDLs that address suspended sediment usually benefit from including turbidity as an indicator to target and monitor. EPA has recommended adoption of updated turbidity objective for the past decade, as we believe updated objectives would be very helpful in implementing several programs, including development of TMDLs for sedimentation. Please clarify the Regional Board's schedule for updating its turbidity objective.

Staff response: The Central Coast Water Board's triennial review list includes revision of the turbidity objective, but this has not been scheduled yet. Staff estimates that it would take three months within a two-year period to revise the Basin Plan Objective. A modified turbidity effluent limit has been reviewed and adopted by the Board in numerous NPDES Orders discharging to inland surface waters.

Comment-43: EPA supports the proposed numeric targets but believe it is somewhat uncertain whether this target level is sufficiently protective. It would be helpful to report available sediment data results for local reference streams that support health salmonids populations and associate these data with the related SEV categories to which they correspond (if available). This supplemental analysis would provide additional justification for the selection of the SEV-8 as the target condition for the TMDLs. We believe an effective (and necessary) method for addressing the uncertainty involved with this numeric target approach is to accelerate the completion and implementation of the TMDL monitoring program.

Staff response: See Response to Comment 8 regarding sufficient beneficial use protection. Staff agrees that data from a reference stream would have been helpful, however this data is unavailable. See Response to Comment 39 regarding monitoring program.

Comment-44: Please specify the NPDES discharger and permit number to whom each WLA applies.

Staff response: This information is included in the implementation sections of the Resolution and Project Report. Waste load allocations apply to the cities of Gilroy, Hollister, Morgan Hill, and Watsonville, as per Section D of State Board Order No. 2003-005, NPDES General Permit No. CAS000004 for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems.

Comment-45: Please clarify how the Regional Board will ensure implementation of the proposed land disturbance prohibition.

Staff response: Staff will identify and notice all nonpoint source dischargers of sediment within the Pajaro River watershed, informing them of the prohibition and conditions for compliance with the prohibition. Compliance with the prohibition includes submittal of nonpoint source implementation programs or documentation that no discharges are occurring. Failure to submit or implement programs may result in enforcement actions.

Comment-46: The monitoring plan should be developed and implemented within 1 year following TMDL approval. Given the uncertainties involved in the TMDL analysis, the proposed 5 year timeframe before even beginning the monitoring work is excessive and unwarranted. EPA would be happy to offer technical assistance in designing the monitoring plan to help expedite its implementation.

Staff response: See Response to Comment 39. If assistance is available, it may be possible to implement monitoring on a faster schedule than the TMDL requires.

Comment-47: The monitoring plan should focus upon turbidity and flow monitoring, both of which can be done with automatic sampling equipment, to complement periodic suspended sediment sampling, occasional bedload sampling, and approximate annual channel indication measurement. EPA supports the TMDLs focus upon suspended sediment; however, a focus on turbidity is also warranted for several reasons. Several lines of academic research have focused upon the relationship between turbidity exposures and salmonid health effects; our sense is that it may be easier to evaluate the effectiveness of sediment control efforts to protect salmonids health through reference to turbidity results. Moreover, in most California watersheds where the relationship has been studied, we find very close correlations between turbidity and suspended sediment levels. Finally, turbidity is usually easier and relatively inexpensive to measure through the use of automatic sampling equipment, particularly on a frequent or continuous basis as will be necessary to evaluate TMDL compliance.

Staff response: Staff agrees with these comments and anticipates establishing suspended sediment and turbidity relationships. Also see Response to Comment 1 and 39.

Comment-48: CCAMP data should be included in the first paragraph.

Staff response: Sediment data is not included as part of the Central Coast Ambient Monitoring Program (CCAMP), therefore staff did not evaluate CCAMP data for this TMDL. The only type of CCAMP data that may pertain to this sediment TMDL would be turbidity data. However, CCAMP turbidity data is measured in nephelometric turbidity units (NTU) and does not readily compare with the general objective for turbidity, which uses the antiquated Jackson Turbidity Units (JTU). Because of this limitation, CCAMP data is not evaluated. No known conversion between the two measures is currently available.

Comment-49: A description and more detailed explanation of the USLE C factor is missing.

Staff response: A description of the USLE C factor has been added to the Project Report (see Table 6-2).

Comment-50: It is highly unlikely that a 100% reduction in road erosion can be achieved in basins 3, 15, and 20. Is there a more practical approach to achieving the desired loading level?

Staff response: See Response to Comment 16.

Comment-51: How will the TMDL implementation plan address non-irrigated agricultural activities and for areas such as bare soil, denuded stream banks, etc?

Staff response: The TMDL implementation plan contains a waste discharge prohibition that applies to all nonpoint source discharges of sediment within the Pajaro River Watershed. Non-irrigated agricultural activities, such as grazing, are specifically referenced in the prohibition. If other types of non-irrigated agricultural activities are found to discharge sediment, Water Board staff will require these parties to comply with conditions of the prohibition. Bare soil areas are fallow irrigated agricultural lands that are required to comply with the exiting Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands. Hydromodification activities that result in streambank erosion are specifically referenced in the prohibition; therefore denuded stream bank conditions that result in sediment discharges are addressed in the implementation plan.