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EPI-Center, 1013 Monterey Street, Suite 202 San Luis Obispo, CA 93401
Phone: 805-781-9932 • Fax: 805-781-9384
San Luis Obispo COASTKEEPER®

LATE DIST

September 12, 2008

Salud Carbajal, Chair
Board of Supervisors
105 E. Anapamu Street
Santa Barbara, CA 93101

VIA FACSIMILE: 805-568-2249

Subject: APPEAL / Diamond Rock Sand and Gravel Mine, Santa Barbara County

Dear Chair Carbajal,

I am submitting the attached additional expert testimony supporting the effort of San Luis Obispo COASTKEEPER® member group "Save the Cuyama" in our appeal of the Diamond Rock Gravel Mine and Processing Facility scheduled for hearing Tuesday September 16.

By this letter I am requesting the attached comment letter by Dr. Robert Curry be included in the record for this appeal.

Thank you

Gordon R Hensley

Gordon Hensley, San Luis Obispo COASTKEEPER®

CC: Gary Kaiser, 805-934-6258

WATERKEEPER® ALLIANCE MEMBER

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Watershed Systems
Hydrology - Geology - Soil Science

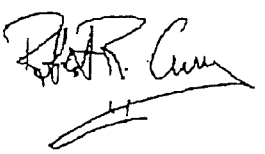
Robert Curry, Ph.D., P.G.
600 Twin Lanes, Soquel, Calif. 95073
831 426-6131; FAX 426-9604; curry@.ucsc.edu
field: 760 932-7700

September 10, 2008

Santa Barbara County Planning and Development

Attached is a brief report addressing some of hydrologic issues that are not adequately evaluated in the revised EIR for the proposed Diamond Rock Cuyama River in-stream mining development.

Respectfully Submitted



Robert R. Curry
Registered Geologist and Hydrologist

Assessment of adequacy of some hydrologic aspects of the proposed Diamond Rock, Cuyama River, aggregate mine, Santa Barbara County, California

September 11, 2008

Background of author:

I am a Professor Emeritus of Geology at the University of California, Santa Cruz, and Research Director of the Watershed Institute at California State University, Monterey. I received my Ph.D. in Geomorphology and Paleoclimatology in 1967 from the University of California at Berkeley. I have over 45 years of training and experience in the fields of fluvial geomorphology and hydrology, and have authored over 100 scholarly papers in these fields. I have conducted extensive geomorphological field investigations throughout California, and have conducted over 20 studies on the effects of aggregate gravel mining on California rivers since 1962. I am a Registered Geologist in the State of California, and submit this letter based on facts within my personal and professional knowledge. I was a professor at UC Santa Barbara for several years and have conducted many academic and consulting projects in Santa Barbara County, including a recent assessment of riparian conditions in south Santa Barbara County for the County Water Agency[1].

I participated in the drafting of the 1994 Aggregate Resources Management (ARM) Plan for Sonoma County and have consulted for aggregate mining companies and mining-site landowners as well as State and tribal governments throughout my professional life. Over the past 40+ years I have conducted numerous studies regarding sediment transport, hydrologic conditions, sediment budgets and riverbed and riverbank stability throughout the western United States and foreign countries. My specialization is in sediment transport fluvial geomorphology. I also have extensive experience and advanced degrees in soil science and biological aspects of mined land reclamation and have helped both federal and State agencies develop their mining and reclamation standards.

My work with the aggregate division of Vulcan Materials in Southern California led to the Hardrock Mineral Environmental Award from the Bureau of Land Management's Reclamation and Sustainable Development program. Vulcan received the award for its reclamation of a sand and gravel mining operation on the Morongo Indian Reservation in San Bernadino County. I developed the Reclamation Plan.

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[1] Lee, L.C., P. Fiedler, S. Stewart, R. Curry, D. Partridge, and J. Mason, 2001, Guidebook for referenced-based assessment of the functions of riverine Waters/Wetlands ecosystems in the South Coast region of Santa Barbara County, California – to Santa Barbara County Water Agency ~900 pp

Issues with the revised final EIR:

The following hydrologic aspects of the proposed Diamond Rock Cuyama River mine proposal were not, in my professional opinion, accurately or adequately evaluated or considered in the revised environmental document for this project. I do appreciate that the EIR has been revised and may meet the bulk of CEQA requirements, but I believe there are inaccuracies in the EIR itself that render it inadequate as it now stands.

1. The water table is too close to the surface to accommodate in-channel mining to a depth of 90 feet below pre-mining grade.

Both water quality and water quantity issues are raised by the proposal to mine to a depth of 90-feet in the active river-bed. The EIR consultants argue that the seasonal drop in stream-bed water table will allow mining during some seasons of some years. Their Figure 3-10 shows the ultimate depth of mining to be below the 1982-2001 recorded water-table for the mine site. To protect water quality and reduce evaporative losses it is necessary to establish a "blue line" that is above the seasonal low water table, and with a sufficiently large depth of alluvium to protect the open alluvial aquifer from contamination and exposure. Five to ten feet is standard in California.

Even during the very dry 2007 water year, we can see exposed water in two deeper areas of the nearby GPS mine on the satellite photos displayed on Google Earth. For this 2008 year, several acres of open water are seen in August in those pits, based on photos by local residents. While it is true that in some dry years, mining could progress to a depth that is 5-10 feet above the seasonal low water table in those years, based on the Figure 3-10 data, that would not allow mining to 90-feet below the current river bed.

The EIR states that "Aggregate mines typically operate above the aquifer. Section 3.3.2.2.1 describes the project's impacts on the quality of groundwater. The Diamond Rock Mine would typically operate above the groundwater level. During periods of high runoff, groundwater could rise above the bottom of the pit. However, exposure of the groundwater is expected to be infrequent and of short duration so the impact is considered adverse but not significant." This statement is without foundation and incorrect. Many years have groundwater at or very close to the ground surface throughout most of the year. Observation of sequential aerial photos and ground photos and comparison of these with local climate data suggest that exposure to groundwater is, in fact, frequent and thus significant. A thorough analysis of the aerial photo archives at the county and at UCSB can quantify the probability but water at the surface of the ordinary river-bed for two or more months per year will likely occur 5 out of 10 years. These probabilities increase as the pit gets deeper.

2. The water balance model (Chart 3-7) is incorrect and groundwater use will exceed Santa Barbara County limits for the Cuyama Valley.

The water budget calculated by EIR consultants proposes that the evaporative losses will average 45,054 gallons per day and that the total consumptive water use will only be 59,686 gpd. They propose to meet Santa Barbara County's limitation of 31 ac-ft per year for "significance" by "recycling" 258,744 gallons per average day. EIR responses state that "Section 3.3.2.2.2 describes groundwater consumption. While the usage is above these limitations, the net consumptive use is far less (6.25 and 28.12 acre-feet of water per year) due to recharge and historic use adjustment. The effect on groundwater supplies is, therefore, less than significant as stated in the EIR."

The problem with this analysis is that, for these riverbed materials that can be seen exposed on the GPS site pit walls, the various recharge basins will plug with fine grained silts quite rapidly and the water will have to either evaporate or be pumped back into the river. River bed excavations plug with fine material annually. Without a drag-line, the operators will not be able to maintain recharge for the required 299 ac-ft per year. In this windy area evaporation will doubtless exceed the consultants' estimates, but if it does, we rapidly exceed the 31-ac-ft per year Santa Barbara County groundwater use threshold and this becomes a significant and wasteful use of water. The streambank exposures demonstrate that most sediment is carried by flows of less that about a 20-year return-period event, and that coarser gravels are carried in infrequent events larger than that. Thus most pit-filling flows will carry dominantly fine grained sand-sized materials mixed with wind-blown silt, as seen in the streambanks.

Open recharge ponds and sumps are difficult to keep clean. Evaporative concentration of the already high Boron levels in the water create a contaminate concentration that the State must then regulate. During wet years with 4 or more months of local rainfall, there will be insufficient evaporative demand to meet the water balance model needs with the proposed infrastructure at the processing and mine site.

3. Cumulative effects on river bed grade and stability are not adequately evaluated.

Headcutting in the immediately-adjacent Deer Park Creek drainage can be controlled with well-maintained grade control structures but overall incision of the Cuyama riverbed both up- and downstream of the mine site is a certain outcome of the proposed action. I appreciate that County Planners and field personnel have looked at the GPS mine site and concluded that incision problems are minimal. But the cumulative effect of two on-going mining operations immediately adjacent along the river is not adequately evaluated and is very likely to exceed replenishment rates to the point that deleterious cumulative effects will occur

The EPA letter submitted by the then-specialist Tim Vendlinski that is in your record accurately outlines my findings. The gravel supply that is carried about every third year to the GPS pits will be reduced by the upstream mining and flood deflection berms. When big flow events occur and the berms wash out, the proposed mine pit will still capture the new sediment as well as the washed-out berms. Thus, the downstream site is "starved" for sediment and the "hungry river" scenario ensues. This is a cumulative effect that is not adequately evaluated. The GPS site is a pre-SMARA development that does not requirie the reclamation plan and standards of the proposed Diamond Rock Mine, but both must be assessed cumulatively under CEQA.

A significant safety issue also exists in that most major flood flows such as the February 1998 event and even the recent February, 2005 event generate flash flood flows. While an equipment operator can usually escape, equipment is often buried and results in groundwater contamination. The Cuyama California Irrigation Management Information System (CIMIS #88) recorded the hourly rainfall intensity in the 100-year return period 1998 event and Santa Barbara County Flood Control has calculated rainfall magnitude-intensity-return periods for the Cuyama Ranch site (station 221) and for New Cuyama Fire Station and both sites demonstrate that it will be difficult to simply shut down whenever rainfall is predicted.

As noted by the applicants' attorneys, there are actually 4 mines that should be included in a cumulative effects analysis. As noted in the California Mining and Reclamation Board review for SMARA compliance, the effects of the proposed upstream mine on the restoration of the downstream GPS mine, when its sediment supply is interrupted, needs to be considered. They further call for modeling of the cross-sectional changes that will occur during mining and during restoration. A mining and reclamation plan must include restoration and it should have been discussed and modeled just as was the progressive mine site development. The statements about either abandoning uneconomical pit-filling sediments or reworking a partly filled pit do not seem to imply that the applicants are not very certain about the quality of "run-of-the-river" tractive bed-material sediment load. We can see what that material is like in the GPS mine site pit walls. It is mostly wash-load with some scour and fill but primarily deposited by lateral braided flow. There appear to be rather great quantities of sand with fewer than 20 percent potential aggregate clasts for crushing.

4. Impacts to near-by wells and irrigators are not fully considered.

The EIR responses actually state that the adjacent property is owned by the applicant and so this issue does not need to be considered! Parcels in close proximity are supplied by shallow irrigation wells, such as that supplying the pistachio orchard immediately adjacent to the mine owners' parcel. That well

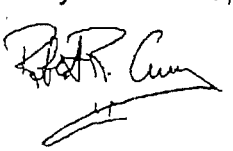
is reported to draw upon a water table at 50 feet, which puts it in the range of the base of the proposed mine excavation. With recharge from Deer Park Creek to an open aquifer system, and a reasonable gradient on that water table to intersect the low seasonal water table in Cuyama Creek, the adjacent wells may reasonably be expected to be affected by the proposed mining. Deer Park Creek is very ephemeral and gradients to the wells adjacent to Highway 33 may be expected to reverse during times of sustained drought, with well water tables lower than those in the Cuyama mine site alluvium. It is very unreasonable to assume special circumstances like isolated separate aquifers or compensatory mine-site recharge that may or may not prevent impacts to nearby wells.

The groundwater also supports the cottonwood trees adjacent to the mine site. It is meritorious that the applicants intend to remove invasive phreatophytes, and to protect the cottonwoods. But cottonwoods rely on deep soil water and summertime groundwater. They could not exist if their roots did not tap reliable groundwater. One cannot simply apply water to the surface to keep these trees alive if water tables drop. They require deep water. They also support the wildlife that has little other habitat. The EIR consultants have assessed some of the wildlife but I do not see a linkage to the litter and cottonwood sap that supports many species.

5. The categorization of in-stream shrublands as "terraces" is misleading.

Yes, these features are formed by the Cuyama River as it anastomoses across its wide alluvial riverbed. But inspection of the top 2-3 feet of the active streambanks in the vicinity of the proposed mine shows that these terraces are actually underlain by finer-grained riverwash sand and wind-blown silt. During high flow events like those in February of 1998 many of these "terrace" remnants disappear are reworked into the active alluvium. A thin discontinuous cryptogrammic crust that can be seen to fold down over the top face of the active riverbanks and that characterizes and supports these vegetated communities on infrequently flooded parts of the riverbed is responsible for the differences in vegetation between the active annually flooded riverbed and the so-called "terraces". These 'terraces' are simply a less-frequently flooded part of the river.

Respectfully Submitted,



Robert R. Curry – RG #3295