

SAN RAFAEL ROCK QUARRY COMBINED FINAL ENVIRONMENTAL IMPACT REPORT

Response to Comments Amendment

SCH#s 2005102122 (Amended Reclamation Plan)
2007082097 (Amended Quarry Permit)

Prepared for:
Marin County
Community Development Agency

August 2009



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CHAPTER 1

Introduction: Purpose and Use of the FEIR Response to Comments Amendment

This document is an Amendment to the combined Final Environmental Impact Report (FEIR) for the San Rafael Rock Quarry Amended Reclamation Plan (ARP) and Amended Surface Mining and Quarrying Permit (AQP) (SCH #s 2005102122 (ARP) and 2007082097 (AQP)) published in January, 2009. Pursuant to Marin County's environmental review procedures, the FEIR, which includes revisions to the combined Draft Environmental Impact Report (DEIR), published in January, 2008, as well as comments on the DEIR and responses to those comments, circulated for a comment period of 45 days following its release to allow additional review and comment on the adequacy of the earlier responses to comments on the DEIR. During this FEIR review period, which ended on March 16, 2009, public and agency reviewers had the opportunity to submit written comments on the FEIR document.

This FEIR Response to Comments Amendment is intended to aid the public, the Marin County Board of Supervisors, responsible agencies, and interested organizations and individuals in understanding the project, its potential environmental effects and alternatives to the project, and particularly to address additional comments on the adequacy of the earlier responses to comments presented in the FEIR. Marin County's environmental review procedures provide for circulation of a FEIR response to comments, focusing on the adequacy of earlier responses in the FEIR. With compilation of this Response to Comments Amendment to the FEIR, the process for public review and comment on the FEIR is concluded and no further review for comment and response is provided. The FEIR Response to Comments Amendment is distributed publicly prior to Board of Supervisors action to consider certification of the FEIR as adequate and complete, and for the Board of Supervisors' and Responsible Agencies' decisions to approve or disapprove the project.

This FEIR Response to Comments Amendment has two specific purposes: First and foremost, to respond to comments received on the FEIR. Responses to comments are included in Chapter 2. Chapter 2 includes one "Master Response," which responds to comments grouped by similarity of topic. Chapter 2 also contains individual responses, as well as the comment letters received. Where comments substantially repeat comments on the DEIR that were responded to in the FEIR, the FEIR responses are referred to in the current set of responses.

A second use of the FEIR is to provide updated and new information on the project, mitigation measures specified in the FEIR, and project alternatives. These are discussed in the responses to comments, and the appendices. Changes to the text of the FEIR are compiled in Chapter 3.

This document will be distributed to interested parties prior to the Marin County Board of Supervisors' consideration of certification of the FEIR as adequate and complete pursuant to CEQA. Prior to considering certification, the Board will hold separate Public Hearings on each of the two Quarry projects (the AQP and ARP) to take comments on the document. Consideration of certification of the combined EIR, and of project approval, will be taken up by the Board following the two Public Hearings.

CHAPTER 2

Comments on the Final EIR and Responses to Comments

2.1 Introduction

This chapter contains all comment letters and responses to individual comments. Each comment letter is assigned a letter code, from A through K, and each comment is numbered in the margin of the comment letter. A complete list of comment letters is provided in the Table of Comments. Responses to the comments follow each letter, and responses are referenced using the same numeric system. For example the first comment from the first letter, from the State Clearinghouse, is designated A-1, as is the response to it.

Several comments have prompted the County to revise the text of the Final EIR. Text revisions are indicated as follows:

- Excerpts of the text of the Final EIR are indented and italicized;
- Additions to the text of the Final EIR are shown as underlined;
- Deletions of the text of the Final EIR are shown as ~~strikeout~~.

Only changes to the text of the Final EIR are shown in underline and ~~strikeout~~; changes to the text of the Draft EIR that were shown in the Final EIR have been accepted. All changes to the text of the Final EIR are also compiled in Chapter 3 of this document.

2.2 Master Responses

Master Response 101: PM2.5

Two comments (C-4, C-9) express concern with health effects of PM2.5 emissions (fine particulate matter with a diameter of 2.5 microns or less) from Quarry operations and reclamation grading. In addition, since the close of the comment period on the final EIR, the County's Health and Human Services agency has expressed concern regarding potential exposure of neighbors of the Quarry to elevated PM2.5 levels, in light of recent research on health effects of PM2.5 exposure. This master response reviews recent information on PM2.5 health effects, the regulatory standards for PM2.5 concentrations, PM2.5 concentrations in the vicinity of the Quarry, and the mitigation measures contained in the Final EIR that reduce PM2.5 emissions.

The California Air Resources Board (CARB), in collaboration with the Office of Health Hazard Assessment (OEHHA) established a new state PM2.5 standard in 2002, in which the annual average standard was lowered to 12 $\mu\text{g}/\text{m}^3$ (twelve micrograms per cubic meter; a microgram is one millionth of a gram). This standard is more stringent than the annual federal standard of 15 $\mu\text{g}/\text{m}^3$ (the federal 24-hour standard is 35 $\mu\text{g}/\text{m}^3$; the State does not have a 24-hour standard). In April 2006, CARB staff informed the Board that they planned to revise and improve the health impacts methodology by updating methods for evaluating changes in PM2.5 exposure and premature death. CARB acknowledged that new studies had appeared in the literature indicating that adverse health effects can occur at exposure levels lower than the State standard. In October, 2008, CARB published a report that reviews the latest information regarding exposure to PM2.5 and consequent health outcomes (CARB, 2008). In this report, the relationship of changes in health outcomes to different levels of PM2.5 exposure is examined, and recommendations are made for assessing health outcomes of PM2.5 exposure. The report, which was authored by 6 staff members of CARB, was peer reviewed by 13 scientists working in the field and located throughout the U.S.

In the CARB report, the relative risk of premature death associated with PM2.5 exposure is evaluated based on a review of all relevant scientific literature, and a new relative risk factor is developed. This new factor is a 10% increase in risk of premature death per 10 $\mu\text{g}/\text{m}^3$ increase in exposure to PM2.5 concentrations (uncertainty interval: 3% to 20%). Using this new factor, CARB staff estimates that in the year 2005, PM2.5 as a component of diesel particular matter emissions (DPM) contributed to 3,500 premature deaths statewide (uncertainty interval 1,000 to 6,400). Also, staff estimates that exposure to ambient PM2.5 concentrations above 5 $\mu\text{g}/\text{m}^3$ can be associated with about 18,000 premature deaths statewide annually, with uncertainty ranging from 5,600 to 32,000 deaths, based on 2004-2006 air quality data.

The 2008 CARB publication reports a linear relationship between mortality and long-term exposure to PM2.5 but acknowledges that definitive studies to establish a cut-off level below which adverse health effects would not occur would be difficult or impossible to conduct, since a very large and diverse population with high variation would have to be included, and they noted that there are very few observations of health outcomes from exposure to PM2.5 at low levels.

The reviewers recognized that selecting a cut-off level involves professional judgment due to limited empirical evidence in the low PM_{2.5} concentration range. The consensus of the peer review panel was that a cut-off level of 4 to 5 $\mu\text{g}/\text{m}^3$ was reasonable based on the lowest observed short-term levels associated with mortality. The report concludes that empirical evidence indicates that mortality can be associated with long-term exposure to PM_{2.5} levels as low as 6 $\mu\text{g}/\text{m}^3$, and the consensus of the reviewers was that effects are likely to occur down to the level of 4 to 5 $\mu\text{g}/\text{m}^3$. (The report also notes that the non-anthropogenic, i.e., natural, background level of PM_{2.5} in California is 2.5 $\mu\text{g}/\text{m}^3$.) Therefore, in consideration of the more recently published reports, and the outcome of the CARB independent peer review, the report recommends that a cut-off level of 5 $\mu\text{g}/\text{m}^3$ be established; below this level, adverse health effects are not expected to occur. To date, the State has not taken up the possible revision of the annual PM_{2.5} standard, which remains 12 $\mu\text{g}/\text{m}^3$.

The County-sponsored study of ambient air quality downwind of the Quarry in 2004-2005 by Sonoma Technology, Inc. (STI) included monitoring of PM_{2.5} concentrations at the Via Montebello Pump site for a period of approximately 3 months (STI, 2005). The results of this monitoring effort found average concentrations at this location to be about 3 $\mu\text{g}/\text{m}^3$ during the monitoring period. STI also monitored PM₁₀ concentrations over a 14-month period, including during the PM_{2.5} monitoring period, and found a good correlation between PM_{2.5} levels and PM₁₀ levels, with PM_{2.5} levels about one-third PM₁₀ levels. Using this correlation, STI estimated the annual concentration of PM_{2.5} at the Via Montebello Pump site to be between 5-6 $\mu\text{g}/\text{m}^3$. Using the same methodology, the annual concentration at the Marin Bay Park monitoring site would be about 6 $\mu\text{g}/\text{m}^3$. Note that the annual PM_{2.5} concentrations reported by CARB at greater Bay Area monitoring sites in 2004 ranged from 8.3 to 12.8 $\mu\text{g}/\text{m}^3$ (9 stations), and in 2005 from 7.6 to 11.8 $\mu\text{g}/\text{m}^3$ (eight stations).¹ The annual average PM_{2.5} levels at both of STI's monitoring sites therefore were below levels found at other monitoring stations around the Bay Area, below the State standard, and near the cut-off level below which no adverse health effects are expected.

Quarry operations and planned reclamation grading result in PM_{2.5} emissions as a component of dust emitted during blasting, transport and processing of rock, and other activities. PM_{2.5} is also a component of DPM emissions. Dispersion of PM_{2.5} emissions from the Quarry were not modeled as part of the Health Risk Assessment (HRA) conducted for the EIR. However, based on the modeling of PM₁₀ emissions and dispersion conducted for the Final EIR, it is possible to estimate PM_{2.5} concentrations at residential locations near the Quarry. Assuming that the fraction of PM₁₀ from fugitive dust that is PM_{2.5} is 30 percent², the maximum annual average concentration of PM_{2.5} from fugitive dust at a residential location near the Quarry would be about 1.29 $\mu\text{g}/\text{m}^3$. In addition, DPM emissions from heavy duty trucks and diesel-powered mining equipment contribute to PM_{2.5} levels. Measurement of diesel exhaust has shown that nearly all of particle emissions from diesel exhaust are one micron or smaller in size (Ecopoint, 2002). If we assume that 100% of DPM emissions are PM_{2.5}, then the modeled maximum annual average DPM concentration of 0.026 $\mu\text{g}/\text{m}^3$ would be added to the predicted concentration of

¹ California Air Resources Board, Select 8 Summary. www.arb.ca.gov/adam, accessed June 17, 2009.

² USEPA, AP-42, 11.19.2 Crushed Stone Processing and Pulverized Mineral Processing.

1.29 $\mu\text{g}/\text{m}^3$ from fugitive dust to result in a total average annual PM_{2.5} concentration of 1.31 $\mu\text{g}/\text{m}^3$. This is the maximum modeled concentration of PM_{2.5} at a residential location near the Quarry attributable to Quarry emissions, and should be considered a worst-case (high-end) estimate. It is very likely that actual dispersal of dust and DPM to the surrounding neighborhood results in lower concentrations of PM_{2.5}. These figures do not account for PM_{2.5} from other sources other than the Quarry, including other anthropogenic sources and natural sources.

The Quarry's existing permits include several requirements to reduce dust emissions. These are noted on page 4.2-13 of the Final EIR, and include the following:

Existing Particulate Control Measures (required by BAAQMD permit)

- Use of baghouses, scrubbers and pulse jets on applicable stationary sources;
- Throughput restrictions for crushers and screening equipment, conveyors and storage piles;
- Facility-wide particulate emission limitation of Ringlemann 0.5³;
- Watering of storage piles and roads;
- Particulate emissions restriction of 0.01 grains per cubic foot for primary crushers and screening equipment to be confirmed with source testing; and
- Maintenance of throughput records for crushers and screening equipment.

Dust Control Measures Required by County Surface Mining and Quarrying Permit

11: The Permittee shall employ such measures to keep the dust nuisance to a minimum and at the request of the Department of Public Works will water the working area to reduce the amount of dust when it is excessive.

The Final EIR also notes on page 4.2-13 the following:

An independent assessment of air quality permits and emissions at SRRQ was conducted for the County in August of 2005 (STI, 2005). This assessment found that all applicable stationery sources on site were operating under BAAQMD permit. The study also concluded that BAAQMD inspectors had found the facility to be operating in compliance with its permits, with historical violations occurring in 1996 and 2004 as the result of non-permitted equipment installation and visual emissions in excess of standards, respectively. The assessment identified improvements to water spraying techniques as the appropriate method of further particulate matter emissions control.

In addition, numerous mitigation measures are specified in the final EIR to reduce fugitive dust and DPM emissions from Quarry operations and reclamation grading. These include the following:

³ A series of shaded illustrations used to measure the opacity of air pollution emissions, ranging from light grey through black; used to set and enforce emissions standards.

Dust Control Mitigation Measures Contained in the Final EIR

Mitigation Measure R4.2-1c: *SRRQ already implements several measures to control dust. These will be continued under the project:*

- *All trucks leaving the Quarry shall be washed down, including the undercarriage, prior to entering Point San Pedro Road (except trucks transporting asphalt). The wash down and adjoining areas shall be paved to minimize tracking of dust and dirt. Point San Pedro Road will be swept up to two times per day, except on rain days, when no sweeping will occur, subject to the approval of the City of San Rafael;*
- *The Quarry shall maintain all required erosion control measures and stormwater management plans, and shall keep current and comply with all permits required by the Regional Water Quality Control Board; and*
- *The Quarry shall maintain all dust abatement devices [such as baghouses on screening and crushing equipment] and shall keep current and comply with all permits required by the BAAQMD.*

Mitigation Measure R4.2-1d: *The project sponsor shall be required to continue existing emission reduction practices, including use of alternative fuels, use of low-emission diesel equipment, and dust abatement measures.*

Mitigation Measure R4.2-1e: *The applicant shall implement additional dust abatement measures identified by BAAQMD as feasible dust control, during all reclamation grading activities:*

- *Cover all trucks hauling soil, sand, and other loose materials as a part of reclamation activities, or require such trucks to maintain at least two feet of freeboard between the top of the material and top of truck;*
- *Pave, apply water at a minimum three times daily in dry weather, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at the Quarry;*
- *Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at the Quarry;*
- *Hydroseed, apply non-toxic soil stabilizers, or water to inactive reclamation areas (previously graded areas inactive for ten days or more);*
- *Limit traffic speeds on unpaved roads to 15 miles per hour;*
- *Install sandbags or other erosion control measures to prevent silt runoff to public roadways;*
- *Replant vegetation in disturbed areas as soon as the growing seasons dictates;*
- *Install wind breaks or plant trees/vegetative wind breaks at the windward sides of the reclamation areas until such time as the vegetation is established;*

- *Suspend reclamation-related excavation and grading activities when wind (as instantaneous gusts) exceeds 25 miles per hour; and*
- *Limit the area subject to reclamation-related excavation, grading and other construction activity at any one time.*

Mitigation Measure P4.2-6b: *Implement Mitigation Measures R4.2-1d through R4.2-1j [see below] for ongoing quarrying operations as well as reclamation activities.*

DPM Reduction Mitigation Measures Contained in the Final EIR

Mitigation Measure R4.2-1a: *The project applicant has recently initiated the use of biodiesel fuel in all quarry rolling stock.... The most common blend, and that currently used at SRRQ, is a 20 percent biodiesel and 80 percent conventional diesel (B-20). B-20 will reduce particulate and CO emission by approximately 12 percent, and reduce hydrocarbon emissions by approximately 20 percent. Use of biodiesel may increase or decrease NOx emissions (McCormick et al, 2006).*

Mitigation Measure R4.2-1b: *SRRQ has already upgraded SRRQ's entire fleet of off-road diesel equipment to USEPA Tier 3 standards, ahead of regulatory requirements that at least 10 percent of the fleet be upgraded each year. SRRQ also plans to upgrade its tug boat fleet to Tier 2 standards prior to the end of 2008.*

Mitigation Measure R4.2-1d: *The project sponsor shall be required to continue existing emission reduction practices, including use of alternative fuels, use of low-emission diesel equipment, and dust abatement measures.*

Mitigation Measure R4.2-1f: *The project applicant shall keep all off-road equipment well-tuned and regularly serviced to minimize exhaust emissions, and shall establish a regular and frequent check-up and service/maintenance program for all operating equipment at the Quarry.*

Mitigation Measure R4.2-1g: *To further reduce emissions from off-road diesel equipment, the applicant shall fuel on-site diesel-powered mobile equipment used in reclamation activities with a minimum 80 percent biodiesel blend (B-80) or use other equipment and/or fuel that achieves the same reduction in particulate (PM10) and CO emissions.*

Mitigation Measure R4.2-1h: *Off-road diesel equipment operators shall be required to shut down their engines rather than idle for more than 5 minutes, unless such idling is necessary for proper operation of the vehicle.*

Mitigation Measure P4.2-6b: *Implement Mitigation Measures R4.2-1d through R4.2-1j for ongoing quarrying operations as well as reclamation activities.*

Mitigation Measure P4.6-6a: *The applicant proposes to limit daily truck traffic to 250 one-way trips per day (125 in and 125 out). This appears to be less than the daily average during the period 1980-1982 and within the baseline for Quarry operations.*

Mitigation Measure P4.6-6b: *Quarry operations shall be limited to the levels of intensity extant in 1982, at the time that the Quarry became a legal nonconforming use.*

Together, the above mitigation measures are expected to reduce emissions of dust, DPM, and PM2.5 substantially.

In conclusion, County-sponsored monitoring in 2004-2005 at residential sites downwind of the Quarry indicate relatively low levels of PM2.5 concentrations. Monitored levels are well below state standards, and near the cut-off level below which adverse health effects are not expected to occur. The contribution of the Quarry to PM2.5 concentrations in the surrounding neighborhoods is small. The Final EIR contains numerous mitigation measures to further reduce dust and DPM emissions, which will further reduce PM2.5 concentrations in the vicinity of the Quarry.

References for Master Response 101: PM2.5

California Air Resources Board (CARB), *Methodology for Estimating Premature Deaths Associated with Long-Term Exposure to Fine Particulate Matter in California*, Staff Report, October 24, 2008.
http://www.arb.ca.gov/research/health/pm-mort/pm-mort_final.pdf

Ecopoint, Inc., *Dieselnet Technology Report, Diesel Exhaust Particle Size*, 2002.
http://www.dieselnet.com/tech/dpm_size.html

Sonoma Technology, Inc. (STI), *Results from Air Quality Monitoring near the San Rafael Rock Quarry, 2004-2005*. Prepared for Marin County, November, 2005

USEPA, AP-42, *Compilation of Air Pollutant Emission Factors. Volume I: Stationary Point and Area Sources. Chapter 11: Mineral Products Industry. Section 11.19.2 Crushed stone processing and pulverized mineral processing*. Updated August, 2004.
<http://www.epa.gov/ttn/chief/ap42/ch11/final/c11s1902.pdf>

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2.3 Individual Comment Letters and Responses

Comment Letter A



ARNOLD SCHWARZENEGGER
GOVERNOR

STATE OF CALIFORNIA

GOVERNOR'S OFFICE of PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

MAR 23 2009 PM 12:33 Planning



CYNTHIA BRYANT
DIRECTOR

March 17, 2009

Tim Haddad
Marin County Community Development Agency
3501 Civic Center Drive, Room 308
San Rafael, CA 94903-4157

Subject: San Rafael Rock Quarry Amended Quarry Permit and Amended Reclamation Plan
SCH#: 2005102122

Dear Tim Haddad:

The State Clearinghouse submitted the above named Final Document to selected state agencies for review. The review period closed on March 16, 2009, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

A-1

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts
Director, State Clearinghouse

Document Details Report State Clearinghouse Data Base

SCH# 2005102122
Project Title San Rafael Rock Quarry Amended Quarry Permit and Amended Reclamation Plan
Lead Agency Marin County

Type FIN Final Document
Description The Final EIR is a combined Final Environmental Impact Report for two closely related project applications for the San Rafael Rock Quarry; an Amended Reclamation Plan and an Amended Surface Mining and Quarry Permit. The project sponsors propose to amend the quarry permit to facilitate continued quarrying operations within certain areas of the site, including blasting, excavating from the Main Quarry Bowl, and they propose to amend the existing Reclamation Plan approved for the quarry pursuant to the Surface Mining and Reclamation Act of 1975 (SMARA) (Amended Reclamation Plan ARP82 approved by the County in 1982).

Lead Agency Contact

Name Tim Haddad
Agency Marin County Community Development Agency
Phone (415) 499-6269 **Fax**
email
Address 3501 Civic Center Drive, Room 308
City San Rafael **State** CA **Zip** 94903-4157

Project Location

County Marin
City San Rafael
Region
Lat / Long 37° 59' 10.8" N / 122° 27' 24.3" W
Cross Streets Point San Pedro Road
Parcel No. 184-010-09, 15, 16, 51, 52
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways San Francisco Bay
Schools
Land Use RMPC (Residential/Commercial Multiple Planned).

Project Issues Air Quality; Archaeologic-Historic; Biological Resources; Landuse; Noise; Toxic/Hazardous; Traffic/Circulation

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 3; Office of Historic Preservation; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Department of Water Resources; California Highway Patrol; Caltrans, District 4; Regional Water Quality Control Board, Region 2; Department of Toxic Substances Control; Native American Heritage Commission; State Lands Commission

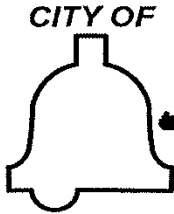
Date Received 01/29/2009 **Start of Review** 01/29/2009 **End of Review** 03/16/2009

Note: Blanks in data fields result from insufficient information provided by lead agency.

Comment Letter A: Governor's Office of Planning and Research, State Clearinghouse and Planning Unit

- A-1 This comment acknowledges receipt and distribution of the Final EIR by the State Clearinghouse, and notice to the County that no State agencies submitted comments on the Final EIR to the State Clearinghouse.

MAR 16 2009 PM 12:38 Planning



San Rafael

Mayor
Albert J. Boro

Council Members
Greg Brockbank
Damon Connolly
Barbara Heller
Cyr N. Miller

March 16, 2009

Tim Haddad
Environmental Coordinator
Marin County Community Development Agency
3501 Civic Center Drive, Room 308
San Rafael, CA 94903

Subject: FEIR for San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit

Dear Mr. Haddad:

Thank you for forwarding a copy of the Final Environmental Impact Report/Response to Comments (FEIR) prepared for the San Rafael Rock Quarry ARP and Amended Surface Mining and Quarrying Permit. The FEIR provides responses to comments on the Draft Environmental Impact Report (DEIR), which was published and made available for public review in early 2008. The City of San Rafael participated in the review of the DEIR and submitted comments to the County on April 11, 2008 (FEIR Comment Letter No. 9).

B-1

After reviewing the FEIR, the City is concerned that some of our comments on the DEIR were either not addressed or the response that has been prepared is inadequate. For this reason, we respectfully submit the following comments for the record:

1. Responses 9-1 and 9-10, pages 7.3-25 and 7.3-26. The City continues to express concern with the Reclamation Plan process and its relationship to the future environmental review for and the granting of land use entitlements for ultimate, post-reclamation re-use of the property. Response 9-2 notes that entitlements for reuse of the property following cessation of the quarry operation will be subject to Final Development Plan approval. However, the entitlement process for this approval and future environmental review for this process continues to be unclear and has not been adequately described. Response 9-10 notes that the document provides a 'programmatic review' of post-reclamation development, yet the DEIR (Volume I, Section 1.2, Scope of EIR) specific states that the document evaluates the environmental impacts associated with activities covered by the ARP and Surface Mining and Quarrying Permit. No where in the collective volumes of the EIR does it state that the document has been prepared to assess program level review of post-reclamation reuse.

B-2

Response 9-1 states that the "EIR finds that the preliminary plan for post-reclamation development of the site is generally consistent with Countywide Plan Policy PA-3.2." Further, Response 9-10 states that the "more detailed analysis will be required prior to the granting of entitlements that will allow more traffic." These conclusions are presumptuous and premature given: a) the lack of clarity in the post-reclamation re-use environmental review and entitlement process; b) that detailed modeling and study of re-use traffic along the Point San Pedro Road corridor was not completed to determine the extent of potential traffic impacts, even though such impacts would not be realized for many years; and c) there

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1400 Fifth Avenue, P.O. Box 151560, San Rafael, CA 94915-1560
Phone: (415) 485-3085 • Facsimile: (415) 485-3184

To: Tim Haddad, County of Marin
March 16, 2009
Page 2

are traffic capacity constraints along Point San Pedro Road, Third Street and all intersections leading to US101.

↑ B-2
cont.

2. Response 9-2, page 7.3-25. In our April 11, 2008 DEIR comment letter, we encouraged the County to update the toxicological analyses addressing air quality (specifically related to blasting and dust generation [crystalline silica], and diesel emissions) based on input from the San Pedro Road Coalition and the quarry operator. In response to the City's initial comment on this concern, the FEIR merely states that the studies prepared to date were found to be accurate and conservative but no expanded analysis was completed.

B-3

The request for updated toxicological analyses is partially addressed in DEIR Master Response 4 (Alternatives), which has been revised to include an expanded description for the "Reduced Alternative." The expanded description for this alternative would require the quarry operator to prepare and submit to the County (within one year of permit issuance) "more specific engineering and economic evaluation and report of measures to reduce noise and dust from quarry operations." The change in the description of this alternative is not really effective nor does it fully address the request for further toxicological analysis because of the following facts:

- a. This additional study has not been added to the description of proposed project but to an EIR project alternative. There is no mention or discussion in the FEIR volume (particularly in Master Response 1, New Information) or in the Notice of Availability that the quarry operator has agreed to accept the "Reduced Alternative" as a revised project. Therefore, absent the operator's agreement to accept this alternative as a revised project, the more specific engineering and economic evaluations and reports would not occur. The provision for further study would be more appropriately presented as a revised description to the project or additional and new mitigation for the project.
- b. The expanded description for further study presents no specific performance standards to be met or achieved to reduce noise and dust from the quarry operation. Further, the expanded description presents no provisions for monitoring the measures of the subsequent studies to ensure that they are effective at reducing noise and dust.
- c. The expanded description essentially amounts to the deferral of study. Since the review process for this project has spanned a period of up to five years, there has been adequate time to study and assess measures to reduce dust emissions utilizing the best control practices recommended by the Bay Area Air Quality Management District.

B-4

The City has reviewed Response 2-3, pages 7.3-6 through 7.3-11 (comments from Bay Area Air Quality Management District), which include revisions to Impact R4.3-1 and the addition of new Mitigation Measures R4.2-1i and R4.2-1j. Since updated toxicological studies were not completed for this FEIR, it is difficult to understand how CO, PM10 and NOx emissions have gone from a significant and unavoidable impact (in DEIR) to a significant impact that can be reduced through implementation of these new mitigation measures (in the FEIR). New Mitigation Measure R4.2-1j would establish some operational limits during days when there are simultaneous mining and grading activities, which may be effective. However, new Mitigation Measure R4.2-1i, which requires the operator to "acquire BAAMD off-site emission offset credits," is not tangible as it provides no quantifiable means of reducing emissions.

B-5

3. Response 9-8, page 7.3.25. In our April 11, 2008 DEIR comment letter, we requested that there be improvements to the level of on-going road maintenance along Point San Pedro Road. This road is severely impacted by continuous quarry truck traffic. The DEIR comment requested that there be an amended agreement between the City and County that would expand the quarry's responsibility for road maintenance and improvement. In response to this comment, this suggestion was ignored; the FEIR merely refers the reader to the Transportation and Traffic section of the DEIR. The City will continue to request as part of the County's consideration of an Amended Surface Mining and Quarrying Permit that this impact to public infrastructure be addressed.

B-6

Community Development Department
1400 Fifth Avenue, P.O. Box 151560, San Rafael, CA 94915-1560
Phone: (415) 485-3085 • Facsimile: (415) 485-3184

To: Tim Haddad, County of Marin
March 16, 2009
Page 3

If you have any questions, please feel free to contact Paul Jensen, Planning Manager at 415.485.5064 or at Paul.Jensen@cityofsanrafael.org.

Sincerely,



Robert Brown
Community Development Director

cc: City Council
Planning Commission
City Manager
Public Works Department

W:/ . . /dutra.FEIRcmnts3-10-09

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Comment Letter B: City of San Rafael

- B-1 This comment is preamble to those that follow and does not require a separate response.
- B-2 The programmatic nature of the review of post-reclamation development is evident throughout the Final EIR, which frequently mentions that future environmental review of the final post-reclamation Development Plan will be required. The final post-reclamation Development Plan is to be submitted to the County three years prior to the anticipated cessation of mining operations.

Approval of the Amended Reclamation Plan would not entitle the project applicant to develop the Quarry site, but only to reclaim for post-reclamation beneficial use, which is a requirement of SMARA. Entitlements for post-reclamation development, including the number of housing units, the amount of commercial space, conditions of approval, etc., will be considered as part of the County's review (including environmental review) of the post-reclamation Development Plan for the property. The County anticipates working closely with the City of San Rafael in this process.

- B-3 Master Response 5 in Volume II of the Final EIR summarizes the responses to comments on the Health Risk Assessment (HRA) conducted for the Draft EIR. Please refer to that Master Response, which also references more detailed, technical responses on HRA methods, assumptions, findings, conclusions, and interpretation. See also Master Response 101, above, and responses to comment letters C and G in the current document, which respond to additional comments on the HRA. The HRA was conducted according to guidance provided by the California Office of Environmental Health Hazard Assessment (OEHHA), exceeds the current standards of practice for CEQA documents, provides a conservative (i.e., high-end) estimate of health risks associated with the projects, and does not require updates or revisions.

- B-4 As stated in the prior response, the HRA does not require update or revision.

The additional dust and noise reduction studies and measures specified in the revised version of the Reduced Alternative described in the Final EIR are not intended specifically to reduce health risks, but rather to explore the potential to reduce the incompatibility of Quarry operations with surrounding land uses. This alternative is not represented as mitigation of any particular impact, but rather as an alternative to the project as proposed; specific aspects of the alternative need not meet the CEQA standards for mitigation measures cited in the comment.

The County, as lead agency, has the authority to approve an alternative to the project, rather than the project as proposed. A consideration of whether the applicant would agree to go forward with an alternative is beyond the scope of the EIR. Approval of an alternative, rather than the project, could also require additional environmental review.

- B-5 Standards of significance for criteria air pollutant emissions are separate and distinct from standards of significance for health risks associated with exposure to toxic air contaminants. Please refer to pages 4.2-26 through 4.2-29 in Section 4.2, Air Quality, of Volume I of the Final EIR. The new mitigation measures cited in the comment would reduce or offset daily emissions of criteria air pollutants to levels below the significance threshold.
- B-6 Because the projects do not propose to increase truck traffic, they do not expand the need for road maintenance, and impacts to roadways are considered less than significant in the Final EIR (see Impact C4.10-3, cumulative transportation impacts in Section 4.10, Transportation and Traffic, of the Final EIR). Therefore, a cooperative agreement between the City and the County to address road improvements is beyond the scope of the EIR.

MAR 16 2009 PM 1:54 Planning



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March 16, 2009

Attention: Tim Haddad, Environmental Coordinator, CDA

Please accept my comments for the SRRQ EIR for the reclamation plan and operational permit. The focus of my comments is related to outstanding concerns that have not been sufficiently addressed primarily about air quality, but also about blasting, noise and the movement and storage of materials on the site.

C-1

Air Quality Monitoring for PM 10 and PM 2.5, respirable silica and diesel:

Excessive exposures to airborne crystalline silica have been known for over 100 years to pose a serious health hazard (Madl, AK, Donovan, EP, et al., 2008) and has been studied around the world (Collins, JF, Salmon, AG, et. al.; 2005). Exposure to crystalline silica ranks among the most frequent occupational exposures to an established human carcinogen (Dahmann D, Taeger D; 2008). OSHA directive number: CPL 03-00-007 (Jan. 24, 2008) sites silicosis, lung cancer, tuberculosis, COPD, immunologic disorders, autoimmune diseases, renal disease, stomach cancer and other cancers as the potential health consequences for silica exposure. Early exposure studies revealed that abrasive blasting operations were particularly hazardous and provided the basis for many of the engineering control and respiratory protection requirements that are still in place today (Madl, et al, 2008). Studies involving abrasive blasters over the years revealed that engineering controls were often not completely effective at reducing airborne silica concentrations to a safe level.

C-2

There is evidence for an increased risk of chronic obstructive pulmonary disease (COPD) in occupations and industrial areas where exposure to crystalline silica is the primary exposure even after taking into account the effect of confounders like smoking (Rushton, L. 2007). Factors influencing the variation in risks associated with exposure to silica containing dusts include: presences of other minerals in the dust, particularly when associated with clay minerals; the size of the particles and percentage of quartz, the physicochemical characteristics such as whether the dust is freshly fractured, etc. (Rushton, 2007). The mineralogical forms of silica, the technologies applied to generate dust, protective measures and co-existing carcinogens are important parameters to characterize the exposure condition. Another methodological question concerns the measurement of the

Page Two

respirable dust fraction in an individual's breathing zone and the determination of the quartz content in that fraction (Dahmann D, Taeger D.; 2008).

Safa, WF and Machado, JL (2003) reported the case of a 50 year old woman who presented with pulmonary fibrosis and later developed pulmonary tuberculosis. Her condition was believed to be linked to inhaled dust produced by housework which included scrubbing and cleaning silica rich surfaces during usual daily housework.

C-2
cont.

The evidence is just as compelling for the impact of diesel emissions on human health (Gillissen A, Gessner C; 2006; Li, N, Hao, M, 2003; Liebowitz, MD, 1996). The sources of these emissions for the SRRQ are from barging, on site mechanical operations and trucking of materials off site. EIR section 3-24 cites that the quarry must use barge transport to accommodate shipment of any increases in rock above 1982 volumes. Court documents also recorded that the "vast majority" of rock (1.473 million tons) was barged out of the quarry prior to 1982. The EIR states that there is no definitive factual data about how many truck trips were utilized prior to 1982, nor is it documented about the size and volume taken with each truck trip. For example, trucks today are moving 25 tons at a time in double binned trucks. **Were these the same types of trucks used prior to 1982?** If smaller trucks were used, then it could be inferred that the larger trucks are moving more materials. An estimate for amount of materials barged was set at a baseline of 51% in the EIR (which one could argue does not represent a vast majority for materials being shipped via barge). However, the baseline for truck trips and size of trucks used remains in question.

C-3

Point San Pedro Road is the main thoroughfare for the quarry trucks and passes by 2 elementary schools and a high school, thus exposing children to diesel and possibly stray fugitive dust from the quarry materials. The barge route would not provide the same exposure to the residents or the schools and with the impending opening of the waterfront access in Petaluma, provides a viable option for transportation of materials.

In light of the overwhelming evidence supporting the hazardous health consequences of respirable silica and diesel particulate matter exposure in humans, and in light of the differences listed in state and federal standards for what are considered "safe" levels of exposure and in light of the uncertainty of the synergistic effects of these exposures (4.2-4) it seems to be of the utmost importance that airborne exposures be evaluated using the best and most sensitive methods that take into account acute episodic exposures. **For example, while the 24 hour averaged measurements may demonstrate exposures below the acceptable limits (in part because there is relatively little matter emitting from the quarry during night and non-operational hours), these types of measures do not take into account the acute**

C-4

Page Three

exposures during a blast which may produce the most harmful effects on a human host than ambient consistent low levels. The problem with the air studies and modeled health assessments is that acute episodic exposures are not evaluated or determined for humans in the area. Based on the scientific data, it may be that relatively few high level episodic exposures can cause long term health problems. In order to answer this question, an epidemiologic real time study would need to be conducted for those living and working in the immediate areas surrounding the San Rafael Rock Quarry. At the very least, mitigations should include ongoing proximity and personal monitoring of exposures in the neighborhood.

C-4
cont.

Sirianni, et al. (2008) used 4 different methods to test particulate size and exposure to particulate matter. In general, the proportion of silica increased as collected particulate size increased, but samples varied in inconstant ways. Significant differences in particle size distributions were seen depending on the extent of ventilation and the nature and activities of the individual. Such variability raises concerns about the adequacy of silica exposure assessments based on only limited numbers of samples or short term samples.

C-5

It also appears the health assessment is based on an assumption of all residents having the best health. **What is the risk associated with residents who are already immunocompromised or who have a pre-existing pulmonary condition or even children who do not have full lung maturity?**

C-6

BAAQMD is the agency with jurisdiction over air quality and permitting the quarry annually. The closest monitoring station for PM 10 is four miles southwest of the site next to Highway 101 interchange in San Rafael. The closest PM 2.5 monitoring station is in San Francisco, 16 miles south of the quarry.

"Both PM 10 and PM 2.5 represent fractions of particulate matter which can be inhaled deeply into the lungs and cause adverse health effects." Vol. 1, 4.2.9

C-7

Both stations data are collected every six days with approximately 60 samplings made per year. Does this mean that the monitoring is on 24/7 or that there are random samplings of air, without regard to the time of day or type of activities that are going on at the quarry?

"In 2004, Marin County sponsored an air quality monitoring study specific to ambient air quality in the vicinity of the quarry. Monitoring stations were established at Via Montebello and Marin Bay Park ..." wind speed, direction and concentrations of the different PMs were monitored and then correlated with blasting events. **Elevated PM 10 concentrations were noted for at most one to two hours.** "A majority of blasting events occurring during the monitoring effort were not associated with an identifiable change in PM 10 concentration."

C-8

Page Four

"24 hour PM 2.5 concentrations were all below both state and federal standards. Estimated annual average PM 2.5 concentrations were also below state and federal standards." 4.2-15

"The federal 24-hour PM 2.5 standard was reduced from 65 to 35 micrograms per cubic meter on December 17, 2006" which resulted in a different result in the analysis of how many violations occurred in four of the past five years.

"Mechanical operations of blasting, excavating, and loading and unloading of materials also result in fugitive emissions of PM 10 and PM 2.5 which are also not regulated by BAAQMD" 4.2-13.

Question: Where an elevated measurement of PM 10 was observed for "at most one to two hours", **was there also observed an elevated measurement of PM 2.5 in immediate relation to the blasting events?** If so, what was the measurement?

"Concentrations of crystalline silica were analyzed in 15 of the PM 10 filters collected in 2004 as a part of the County sponsored air quality study. Detectable quantities (greater than 0.5 micrograms per cubic meter) of crystalline silica were not found in any of the fifteen filters tested." (Question: would PM 10 filters capture 2.5 material or would that blow away or fall through the filters over a period of time?) **"Because this study sampled ambient air in the vicinity of the SRRQ, but did not directly sample emissions from quarry operations, the source of the silica cannot be determined from this study."** (Question: If people living in close proximity to the quarry were wearing personal air quality monitors designed to capture PM 2.5, and within specific time relative to blasting events, might the results be more relative to the exposure people are experiencing, rather than monitoring stations (*or computer models*) measuring 24 hour ambient air quality?)

(All bold and italics added for emphasis.)

Blasting

The blasting section seemed to be based more on whether or not structural damage was likely to occur rather than the unpleasant or unsettling experience of feeling the blast by residents. Residents have been calling in over the years to report when they felt particularly extreme shaking to their homes. What has been the correlation between the residents' experiences of feeling the shaking during the blasts and 1, the ground vibrations and 2, the pounds/delay? The latest version of the EIR increased the allowable vibrations from .125 to .250, without any justification for doubling this indicator. However, if the object is to eliminate or

C-8
cont.

C-9

C-10

C-11

C-12

Page Five

greatly reduce the sensation of shaking by residents, the mitigation should reflect this. C-12
cont.

Reclamation Plan: noise and the movement of materials

In 1982, the reclamation plan left the NE quadrant alone. I believe it was the intent of Judge Sutro (2004) that the NE quadrant was to be left alone, that the vested right to mine was in the pit and what was left of the amount allowed in the 1982 reclamation plan on South Hill. The North quadrants of the SRRQ are the areas that are closest to most of the residents. The current reclamation plan is suggesting massive movements of materials to the northern locations to create berms for noise mitigation and pads for reclamation to a post use state.

C-13

There has yet to be a formal planning process to determine what that end use and the entitlements will be. It seems inappropriate to build berms (one of which would be 70 feet above grade) and conduct grading operations in areas that have a possibility of remaining untouched or unbuilt in a future development proposal, especially if moving massive amounts of materials could be associated with health risks. In light of the concerns raised regarding air quality and the high probability that fractured silica dust is contained in the materials, it seems that alternatives to storing or removing these materials need to be readdressed.

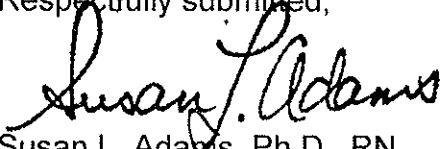
C-14

The berm is being proposed as a method for mitigating sound. Sound measurements at San Marino Dr. in 1982, concluded that sound was at a 48 dba level (Table 3-10), yet the proposal for operations considers 60 to 70 dba of sound. Enclosing dust and noise making operations to the maximum extent feasible could have a better impact in mitigating noise and dust than placement and removal of a berm near residents. The Eagle Rock facility in Richmond provides an excellent example.

C-15

Thank you for including my comments in this process.

Respectfully submitted,


Susan L. Adams, Ph.D., RN

Attachment: References: Research

References

Research on Chronic Respiratory Disease and Diesel Particulate Matter or Crystalline Silica

Office of Supervisor Susan L. Adams

March 16, 2009

Source: <http://gateway.nlm.nih.gov/gw/Cmd>

1. State-of-the-science review of the occupational health hazards of crystalline silica in abrasive blasting operations and related requirements for respiratory protection.

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Int J Occup Environ Health. 2008 Apr-Jun;14(2):94-103.

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**Sirianni G, Hosgood HD 3rd, Slade MD, Borak J.

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C-16

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C-16
 cont.

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C-16
cont.

Comment Letter C: Supervisor Susan L. Adams, Ph.D., R.N.

- C-1 Please refer to the responses below; this comment contains no specifics and so does not require a separate response.
- C-2 The issues brought up in the comment are based on studies of worker exposure to crystalline silica, where the exposure levels are much higher than levels experienced in environmental exposure. The EIR relied on the chronic reference exposure level (REL) established by the California Office of Environmental Health Hazard Assessment (OEHHA) of 3 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) average concentration over one year to determine if the impacts would be significant. This REL is well below the levels that are reported in the studies cited in the comment. The OEHHA REL is based on the most sensitive adverse health effect reported in the medical and toxicological literature, and it is designed to protect the most sensitive individuals in the population by including margins of safety. The OEHHA standard for crystalline silica factors-in the most toxic forms of crystalline silica, which are respirable sized particles that are freshly fractured. Thus the most significant physicochemical effects on the respiratory system are considered. The study by Safa and Machado that is cited in the comment refers to a person exposed to crystalline silica from scrubbing and cleaning silica-rich surfaces during daily housework. This can be considered as worker exposure (similar to other studies cited), where high levels of crystalline silica exposure are experienced chronically (i.e., over a working lifetime). These levels are much higher than levels experienced in environmental exposure.

With respect to cancer from environmental exposure to crystalline silica, the scientific community is split on this issue, but most of the scientific community believe that, if there is a relationship, it is more likely that carcinogenicity is a threshold phenomenon with silicosis being the precursor. Because of this complication, OEHHA has not recommended a cancer potency for environmental exposure to crystalline silica. They have stated that there is active research being conducted with respect to the relationship between silicosis and lung cancer in humans. In the meantime, the existing chronic REL, which is intended to provide protection from silicosis, also provides protection from lung cancer.

- C-3 The health impacts of diesel particulate matter (DPM) were evaluated in the EIR. See impact C4.2-9 (increased cancer risk due to emissions of toxic air contaminants from future mining and reclamation activities); Impact C4.2-10 (increased risk of chronic health effects), and Impact C4.2-12 (increased health risk, including cancer risk, due to cumulative exposure to past and future mining and reclamation activities) in Section 4.2, Air Quality, in Volume I of the final EIR. See also the response to comment G-7 for minor changes to calculation of health risks.

With respect to health risks posed by truck traffic, Impact C4.2-12 finds a significant unavoidable cumulative impact from toxic air contaminant emissions associated with past quarry operations, including truck traffic, combined with emissions from the proposed

projects. The great majority of the risk is due to past exposure. The HRA assumed a constant level of haul trucks over the time period examined, but used varying emission factors, as depicted in Figure 4.2-3 on page 4.2-47 of the Final EIR. This figure shows that DPM emission rates have declined precipitously since 1982, because of improvements in diesel engines and emissions controls. While changes in the assumptions regarding the number of trucks and the type of trucks in use in 1982 would alter the calculations behind this impact, they would not fundamentally change the conclusion.

- C-4 The comment is concerned with the assessment of acute episodic exposure to crystalline silica. OEHHA has not established an acute REL for crystalline silica. ACGIH, the American Conference of Industrial Hygienists, has recommended an 8-hr worker exposure level of $25 \mu\text{g}/\text{m}^3$ (micrograms per cubic meter) for crystalline silica (ACGIH, 2006), and it was derived assuming that a worker could be exposed to this level each day in the work environment for up to 40 years without experiencing adverse health effects (including silicosis and lung cancer). This can be considered a long-term worker exposure threshold, and it is a more stringent standard than that recommended by the National Institute of Occupational Safety and Health (NIOSH, 2002) or the currently-adopted standard of the federal Occupational Safety and Health Administration (OSHA, 2009).⁴ In the HRA conducted for the EIR, the maximum modeled 8-hour concentration for crystalline silica is $95.9 \mu\text{g}/\text{m}^3$ (see response to comment G-6, below). This occurs at receptor 350 (northwest of the Main Quarry Bowl). Of a total of 434 modeled days, there are two 8-hour periods where the modeled concentration at this receptor exceeds $25 \mu\text{g}/\text{m}^3$. In addition, at receptor 382 (north of the Main Quarry Bowl) there are 21 8-hour periods during the 434 day modeling period when concentrations are predicted to exceed $25 \mu\text{g}/\text{m}^3$; at this receptor the maximum modeled 8-hour concentration for crystalline silica is $45.6 \mu\text{g}/\text{m}^3$. There are a total of 182 8-hour periods and receptor combinations where the modeled 8-hour concentration for crystalline silica exceeds $25 \mu\text{g}/\text{m}^3$, many of which are a single event at a single receptor. Because the dispersion modeling is based on a number of conservative assumptions in order to provide a worst-case estimate of exposure, it is very likely that there will be many fewer instances of 8-hour periods when neighbors of the Quarry actually experience crystalline silica concentrations above or near $25 \mu\text{g}/\text{m}^3$. This conclusion is supported by the results of County-sponsored ambient air monitoring conducted by Sonoma Technology, Inc. (STI), in 2004 and 2005, which found no crystalline silica in 15 24-hour filter samples collected downwind of the Quarry (STI, 2005). Therefore, neighbors of the Quarry are expected to experience infrequent instances when 8-hour crystalline silica concentrations exceed the ACGIH standard, and the health consequences associated with long-term occupational exposures are not expected to occur.

⁴ OSHA has recently initiated a review of their regulatory standard for crystalline silica exposure in the workplace. See U.S. General Services Agency, 2009.

The ACGIH report on crystalline silica (ACGIH, 2006) reviews a study on acute exposure to crystalline silica in which laboratory rats were exposed to concentrations ranging from 10,000 to 100,000 $\mu\text{g}/\text{m}^3$ for 3 days (Warheit, et al, 1995). The authors conclude that exposures to crystalline silica particles at these levels for this period produced adverse health effects in rats, such as persistent pulmonary inflammatory response. The study noted that histopathologic lesions were observed within one month after a 3 day exposure to crystalline silica at these levels. The exposure levels used in this study are 3 orders of magnitude greater than the maximum modeled 24-hour concentration for neighbors of the Quarry, which is 51.1 $\mu\text{g}/\text{m}^3$ (see response to comment G-6, below). Therefore, the results of this study do not apply to the neighbors of the Quarry.

Another study reported on the adverse health effects of coal miners in Scotland from exposure to high levels of crystalline silica over a relatively short time, even though typical long-term exposure levels were much lower (Buchanan et al, 2003). The report analyzed the health effects on workers who were exposed to levels of crystalline silica as high as 2,000 $\mu\text{g}/\text{m}^3$ over a short time, while long-term exposure levels were much lower. Follow-up studies of 371 men aged 50-74 indicated that short-term exposure at higher concentrations resulted in proportionally greater risks of abnormalities. The study concluded that the risk of silicosis over a working lifetime can rise dramatically with exposure to levels of 1,000 to 2,000 $\mu\text{g}/\text{m}^3$, even if these exposure levels are experienced over a timescale of merely a few months. The HRA conducted for the EIR predicted that the maximum 30-day and 1-year concentrations in the residential areas around the Quarry are 6.1 and 2.4 $\mu\text{g}/\text{m}^3$, respectively. These levels are 3 orders of magnitude lower than those experienced by the Scottish coal miners. Therefore, the results of this study cannot be applied to neighbors of the Quarry.

Acute health risk due to DPM exposure was not evaluated in the HRA, because OEHHA has not established an acute (1-hour exposure period) REL for DPM, but only RELs for chronic (1-year) and cancer (lifetime) effects. The HRA did examine chronic health risks due to DPM exposure, and found these to be a relatively minor component of the overall chronic health risk from Quarry TAC emissions; see Table 4.2-17 and Impact C4.2-10 in the Final EIR.

Regarding potential synergistic effects of exposure to multiple toxins, please see the responses to comments 17-1 and 17-2 in Volume II of the Final EIR.

Regarding an epidemiological study, this is beyond the scope of an EIR, and unnecessary to reach reasonable conclusions regarding potential health effects of the projects. Should such a study be undertaken, however, it may be most fruitful to use Quarry workers as the subjects, rather than Quarry neighbors, since they are exposed to higher concentrations of TAC emissions from the Quarry.

In conclusion, based on the available scientific literature, exposure of Quarry neighbors to the predicted maximum short-term concentrations of crystalline silica is not expected to produce adverse acute or chronic health effects. The conclusion of the Final EIR that chronic and acute health effects are less than significant (Impacts C4.2-10 and C4.2-11) is valid. Since these impacts are less than significant, there is no legal basis under CEQA for imposition of mitigation measures such as additional studies or monitoring requirements.

- C-5 The modeling analysis considered only respirable size particles containing crystalline silica when evaluating health effects, and the ambient air measurements and potential source measurements that were reported considered only respirable size particles. Clearly more sampling would improve the accuracy of the measured crystalline silica levels in both the ambient air and emission sources. However, the modeling methods and assumptions included many conservative elements in order to arrive at a worst-case estimate of exposure levels, and to ensure that health risks are not understated.
- C-6 As stated in Response C-2, the OEHHA chronic REL for crystalline silica was established to protect the most sensitive individuals, and a margin of safety was factored into the chosen number.
- C-7 The BAAQMD's San Rafael monitoring station monitors PM10 every sixth day, for a continuous 24-hour period. In this way, sampling occurs on a different day each week. BAAQMD operates this sampler according to regulatory protocols. The 2009 sampling schedule may be found at the following website:

http://www.epa.gov/ttn/amtic/files/ambient/pm25/CALENDAR_2009.pdf

The following description of the San Rafael monitoring station is taken from the BAAQMD's 2008 Air Monitoring Network Plan.⁵ As can be seen from the description, the San Rafael station is not intended to monitor emissions from the Quarry. The County-sponsored study of ambient air quality in the vicinity of the Quarry, which is summarized in Volume 1 of the Final EIR on pages 4.2-14 through 4.2-16, provides a better indication of ambient air quality in the vicinity of the Quarry.

"San Rafael was chosen for an air monitoring site because it is the largest city in Marin County with a 2008 population estimate of 58,363. The city's climate and air quality is representative of that found throughout the populous northeastern side of the county. Afternoon sea breezes typically keep pollution levels low. However, when the sea breeze is absent, local sources can cause elevated pollution levels. The monitoring site is located in a commercial building about a block east of U.S. Highway 101 and near major highway access ramps. It is one half mile east of the downtown San Rafael business district. There is no industrial activity in the immediate area. Ozone and NO₂ are measured to monitor general population

⁵ BAAQMD, 2008 Air Monitoring Network Plan. Submitted July 1, 2009. Available at: <http://www.baaqmd.gov/Divisions/Technical-Services/Ambient-Air-Monitoring/2008-Ambient-Air-Monitoring-Network.aspx>

exposure to these pollutants. Carbon Monoxide and PM10 are measured because the site is close to a major transportation corridor. PM10 is also collected because light winds combined with wood burning and surface-based inversions during the winter months can cause elevated particulate concentrations.

“During the most recent 3 years, this site recorded two exceedances of the California 24-hour PM10 standard.” (BAAQMD, 2009)

C-8 This comment was referred to Paul Roberts of Sonoma Technology, Inc. (STI), who conducted the ambient air monitoring study on behalf of the County. His response follows:

“We monitored for PM10 during most of the study. However, we monitored for both PM10 and PM2.5 at the Via Montebello Pump (VMP) site for the period March 3 through June 2, 2005. During that time, County records show that there were blasts at the Quarry between 11:30 and 1:30 on 11 days (see Table C-8.1). We did a quick review of the time-series plots of PM10, PM2.5, and winds on these days.

“PM10 concentrations increased on four of these days at about the time of the blast while winds were from the southeast. Winds from the southeast would likely bring air from the blast area toward the VMP monitoring site. PM10 concentrations on these days increased to 15-40 $\mu\text{g}/\text{m}^3$ for several hours during these periods just after the blast, but then generally decreased again. On three of these days with increased PM10, there was also an increase in PM2.5 concentrations; the PM2.5 concentrations were up to about 40 percent of the PM10 concentrations during these periods (this is by eye; we did not do any statistical calculations of the concentrations). On the one other day with increased PM10, the PM2.5 concentrations were very low and did not increase at all. There were blasts on seven other days, but the winds were from the northerly direction and would have carried the air from the blast area toward the Bay and away from the monitoring site.”

**TABLE C-8.1
DATES OF RECORDED BLASTS DURING
PM2.5 MONITORING PERIOD**

Wednesday, March 16, 2005
Wednesday, March 30, 2005
Tuesday, April 5, 2005
Friday, April 8, 2005
Wednesday, April 15, 2005
Wednesday, April 20, 2005
Friday, April 29, 2005
Friday, May 6, 2005
Friday, May 13, 2005
Friday, May 20, 2005
Wednesday, June 1, 2005

SOURCE: STI, Marin County Public Works Department

- C-9 A PM10 filter will catch all particles that are 10 microns or smaller, including PM2.5 which does not pass through the system. In a PM10 filter system, baffles stop all particles larger than 10 microns and prevent these larger particles from reaching the filter medium. The remaining air containing all particles which are 10 microns and smaller then pass onto the filter medium, and all of these particles are deposited onto the filter medium. The filter contains all particles that are in the air, ranging from as low as 0.1 micron up to 10 microns. For a PM2.5 system, the baffles are designed to stop all particles greater than 2.5 microns from reaching the filter medium, and the measurement of the filter includes all particles collected from the air sample that are 2.5 microns in size or smaller.
- C-10 A monitoring study such as the one proposed in this comment is beyond the experience of the EIR preparers. However, since people cannot be expected to stay in one place 24 hours per day, the value of such a study for monitoring Quarry emissions would appear to be limited; a stationary mechanical device, such as that used in the STI study, is a more appropriate method for achieving an understanding of ambient air quality, and therefore, potential exposure of individuals living, working, going to school, or recreating in the area.
- C-11 Regarding the “unpleasant or unsettling experience of feeling the blast by residents,” please see Section 4.7, Noise and Vibration, pages 4.7-5 and 4.7-6 of the Final EIR; see also Impact P4.7-7 (Continued blasting at the Quarry would expose neighbors... to vibrations that exceed human annoyance levels), which is identified as a significant impact. As specified, however, this impact can be mitigated to less than significant. See also Impact C4.6-7 in Section 4.6, Land Use and Planning (Continuing operation of the Quarry under the proposed AQP and simultaneous phased reclamation grading under the ARP would result in continuing incompatibility with neighboring residential and recreational land uses), which is identified as a significant and unavoidable cumulative impact; see also Master Response 9: Land Use Compatibility, in Volume II of the Final EIR. Regarding the correlation of residents’ experience with ground vibration and charge-weight-per-delay, please see the text of Impact P4.7-7, and also Appendix J (Assessment of Rock Blasting Practices and Impacts) in Volume III of the Final EIR.
- C-12 The commenter is mistaken in stating that “The latest version of the EIR increased the allowable vibrations from .125 to .250...” Please see the second bullet of Mitigation Measure P4.7-7b; 0.25 inches per second peak particle velocity (PPV) was the value recommended by the County’s blasting expert, Gordon Revey, of Revey Associates (see Appendix J in Volume III of the Final EIR), and appears in both the Draft EIR and Final EIR. The commenter appears to be referring to the Reduced Project Alternative. The description of the Reduced Project Alternative was changed to eliminate the lower PPV value, for the reasons stated in Master Response 4, Alternatives, on page 7.2-12 of Volume II of the Final EIR, which are repeated here:

Limiting blast vibrations to a PPV of 0.125 inches per second would be ineffective because, as discussed in Appendix J and in Section 4.7, Noise and Vibration,

Impact P4.7-7 (continued blasting... would expose neighbors... to vibrations that exceed human annoyance levels), much of the annoyance experienced by neighbors of the Quarry from blast vibrations is likely due to air overpressure, not to ground-based vibrations. Further limiting PPV below 0.25 inches per second could result in more frequent smaller blasts, which might increase disturbance due to air overpressure effects. Therefore, this aspect of the Reduced Alternative is deleted.

- C-13 The commenter is incorrect in stating that the 1982 Amended Reclamation Plan (ARP82) “left the NE quadrant alone.” ARP82 contemplated mining of a portion of the ridge between the NE and SE Quadrants, and continuing to mine clay and shale in the NE Quadrant. Then, following cessation of mining, the area would be re-contoured and revegetated. The grassy knoll was to be left in a “natural state.” Please see page 3-20 and Figure 3-5 in Volume I of the Final EIR. The County does not have the power to demand that an applicant withdraw a completed application. Due process requires that the County accept any completed application and duly process it. The environmental effects of those aspects of ARP04 that differ from ARP82, including use of the NE Quadrant for stockpiling and mixing mining wastes for later use in reclamation grading, are fully analyzed in the Draft EIR.
- C-14 SMARA requires that a reclamation plan or amended reclamation plan include a “... description of the manner in which reclamation, adequate for the proposed use or potential uses will be accomplished...” (Public Resources Code §2772(c)(8). See also California Code of Regulations, Title 14 §3704 Performance Standards for Backfilling, Regrading, Slope Stability, and Recontouring). The proposal to construct a surcharge berm in the NW Quadrant to enable future development of the site with the proposed post-reclamation use appears to be consistent with this requirement. The proposal to construct a berm in the NE Quadrant is, according to the applicant, intended to shield neighbors from reclamation grading and quarrying activities. Approval of ARP04, should it occur, would not authorize the applicant to proceed with post-reclamation development of the site. Consideration of authorization of post-reclamation uses of the site would occur in the context of processing of the final Development Plan application, which will be submitted three years prior to the anticipated cessation of mining operations. The Mitigated Alternative to the ARP includes an alternative reclamation plan for materials handling and reclamation grading in the NE and NW Quadrants whereby the NE Quadrant would not be used as a staging area for phased reclamation grading; see pages 6-4 and 6-5 of Volume I of the Final EIR.
- C-15 A more detailed review of the 1982 noise study is presented on pages 4.7-10 and 4.7-11 of Volume I of the Final EIR. Results of ongoing fenceline noise monitoring, and additional monitoring conducted for this EIR are presented on pages 4.7-11 through 4.7-18 of the Final EIR. Other than noise related to construction of the proposed berm in the NE Quadrant (Impact R4.7-1), noise impacts of both projects are found to be less than significant in the Final EIR.

According to the Polaris Minerals website, the Richmond Terminal referred to in the comment is for receiving, storage, and shipment of aggregate materials, but not crushing or other processing.⁶ Materials are shipped to the Richmond Terminal from the Orca Quarry in British Columbia, where they are mined and processed in the open air (the Eagle Rock Quarry, also owned by Polaris Minerals, is not yet operational). The Reduced Project Alternative to the AQP includes a requirement to examine additional means of reducing noise and dust; see page 6-25.

- C-16 This comment contains citations of literature on health effects of crystalline silica and diesel particulate matter. Many of these sources, or reviews of them, were consulted in the preparation of the Final EIR.

⁶ <http://www.polarmin.com/orcasand/port.php>

MAR 16 2009 PM 3:39 Planning



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March 16, 2009

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Re: Comments on Adequacy of Response and Final EIR for San Rafael Rock Quarry
Operating Conditions and Amended Reclamation Plan

Dear Mr. Haddad:

This letter is submitted on behalf of the San Rafael Rock Quarry, Dutra Materials and The Dutra Group (collectively, "Dutra") to provide comments on the adequacy of the response to comments on the Draft Environmental Impact Report ("DEIR") and continuing legal, factual and analytical errors in the Combined Final Environmental Impact Report ("FEIR") for the San Rafael Rock Quarry ("SRRQ" or "Quarry"). The projects analyzed in the FEIR consist of SRRQ's proposed (1) operating conditions under Surface Mining and Quarrying Permit No. 72-03 ("AQP"); and (2) Amended Reclamation Plan of 2004 ("ARP04").

D-1

We appreciate the County's efforts in analyzing and responding to the numerous comments received on the DEIR, and we recognize that many of the revisions reflected in the FEIR are based on Dutra's earlier comments. In particular, the addition of the mitigation measure to stagger the intensity of reclamation activities and mining operations will reduce potential air quality impacts to less than significant levels. Similarly, the potential use of mechanical circulation and/or aeration after flooding the Main Quarry Bowl, if required to address stratification that may impact water quality and biota, will reduce such impacts to less than significant.

D-2

Notwithstanding these and other revisions that we applaud, Dutra remains concerned that there continue to be a significant number of areas where the FEIR contains statements that are incorrect as a matter of law, faulty assumptions and analyses, and conclusions that are arbitrary, capricious and not supported by substantial evidence, contrary to the requirements of the California Environmental Quality Act ("CEQA").

D-3

This letter summarizes Dutra's comments and responses to the FEIR and includes, as attachments, additional comments submitted on behalf of Dutra by:



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- CSW/Stuber-Stroeh Engineering Group (Technical/Operational) – Attachment 1;
- ENVIRON International Corporation (Air Quality/Health Risk) – Attachment 2; and
- Harry Torchiana LLP, (Economic Feasibility) – Attachment 3.

Each of these comment letters is incorporated in this response by this reference and supplements this response. Nothing herein is intended to alter or waive the comments and issues raised in the April 14, 2008 comment letter and materials submitted on behalf of Dutra concerning the DEIR, which remain in full force and effect and which are also incorporated in this response by this reference.

D-3
cont.

We hope that the County staff and the members of the Board of Supervisors will consider the information, points and authorities provided below concerning the adequacy of the response to comments and the new issues presented by the FEIR, and will take these comments into account when crafting revisions, findings and a statement of overriding considerations prior to certification of the FEIR and approval of these projects.

I. OVERVIEW

While the FEIR resolves a number of issues presented by the DEIR, there continue to be significant legal, factual and analytical problems in several areas, including:

- Despite our comments on the DEIR, the FEIR continues to improperly conclude that SRRQ operations and reclamation activities pose a significant and unavoidable incompatible land use. The FEIR acknowledges that noise, vibration, dust emissions and other impacts are less than significant but, in combination and considering neighbors' complaints, finds that they constitute an incompatible land use. This conclusion is legally and factually erroneous under CEQA, and fails to recognize the SMARA's protection of SRRQ as a preexisting non-conforming use.
- Despite comments from ENVIRON and others on the flaws in the DEIR's Health Risk Assessment and the acknowledgement that emissions have dramatically *decreased* during the past 20 years, the FEIR continues to improperly combine past and future emissions and incorrectly assumes a 20 percent increase in mining operations in finding significant and unavoidable impacts. This approach contravenes CEQA's standards for calculating cumulative impacts and analytical protocols whereby past emissions are relevant as a baseline, not as part of a project impact analysis.
- The greenhouse gas emissions significance threshold used in the FEIR is arbitrarily, capriciously and inappropriately applied to these projects, as compared to other

D-4

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projects undergoing CEQA review by the County. Furthermore, the baseline used to determine 1990 emissions is flawed, not based on substantial evidence or proper analysis, and is inconsistent with the baseline used elsewhere in the FEIR and in the Project Description.

↑
D-6
cont.

- The project alternatives have significant economic, legal, and ecological feasibility issues that are not adequately analyzed, including further restrictions on operations that are not supported by the record, and alternative second uses that have not been subject to a CEQA impact or feasibility analysis, such as an amphitheater in the Main Quarry Bowl. Proper analysis of potential impacts and feasibility must be performed and considered in evaluating the alternatives and drafting CEQA findings.

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D-7

Dutra objects to these and other flaws in the responses to prior comments, and the analyses, findings, assumptions and mitigation measures presented by the FEIR, as addressed in detail below and in the accompanying comment letters.

↑
D-8

II. RESPONSE TO COMMENTS AND FEIR

A. The FEIR's Conclusion that there is a Significant and Unavoidable Incompatible Land Use Impact is Legally and Factually Incorrect

1. A significant and unavoidable cumulative impact finding is inappropriate when there is no adverse change from the baseline in any relevant area

It is a basic tenet of CEQA that an impact can only result from an adverse change in the physical environment caused by the project. *See* Cal. Code Regs. Title 14 ("CEQA Guidelines") § 15382, defining "significant impact on the environment." The Land Use Section of the FEIR concedes that there must be a causal relationship between the project and changes to land uses. *See* FEIR at 4.6-1. Like impact analysis for other CEQA resources, whether there is a land use impact is determined by a change from the baseline caused by the project.

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D-9

Here, it is undisputed that the land use at the site has been surface mining and related activities for more than 100 years, that the nature of these activities has been unchanged since the site became a legal non-conforming use in 1982, and that there is an existing amended reclamation plan that the County approved in 1982 ("ARP82") that is updated in ARP04. The FEIR acknowledges that the baseline is established by the mining operations and reclamation plans in existence as of 1982, and that impacts from noise, blasting and air emissions are not only less than significant, but less than such impacts in 1982. Nonetheless, the FEIR concludes that the projects will result in significant and unavoidable cumulative incompatible land use impacts.





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The CEQA Guidelines are clear that in order for a lead agency to conclude that a project has a cumulative impact on the environment it must have some contribution to that impact. “[A] cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. *An EIR should not discuss impacts which do not result in part from the project evaluated in the EIR.*” CEQA Guidelines § 15130(a)(1) (emphasis added). “Just as zero when added to any other sum results in no change to the final amount, so, too, when no environmental impacts cognizable under CEQA are added to the alleged environmental impacts of past projects, there is no cumulative increased impact.” *Santa Monica Chamber of Commerce v. City of Santa Monica*, 101 Cal.App.4th 786, 799 (2002); *Sierra Club v. West Side Irrig. Dist.*, 128 Cal.App.4th 690 (2005) (holding that a project must make some contribution to the impact in order to be characterized as a cumulative impact).

Whatever basis is used for significance – an adverse change from the baseline due to the projects or the County’s significance threshold – there can be no significance finding as to land use from these projects, with or without a cumulative impacts analysis. That irrefutable conclusion is due to the fact that these projects have not and will not cause any change in land uses at the Quarry or in the surrounding environment.

The Quarry site has been industrial in character for many decades. The land use has not changed nor is it proposed to change. In fact, mining operations have become cleaner and quieter over time: The FEIR appropriately finds that noise, vibration, air emissions and other impacts from current and proposed mining operations and, when staggered, future reclamation activities, are less than significant. Only the surrounding land uses have changed. Those changes, however, have not been caused by the projects reviewed in the FEIR, but are the result of decisions by the County and the City of San Rafael (“City”) allowing residential development. Changes to the surrounding area that are not caused by the project cannot be the basis of a land use impact under CEQA. *See* CEQA Guidelines § 15130(a)(1); *Santa Monica Chamber of Commerce v. City of Santa Monica, supra*, 101 Cal.App.4th at 799.

Finally, like the HRA cumulative impact analysis, the FEIR errs in applying the cumulative impacts standard under these facts (*see* Section II.B below). Here, the County is adding the impacts of the existing Quarry operations to the impacts of future Quarry operations. That is not what is contemplated in a cumulative impact analysis. Like the HRA analysis, there is no other independent, separate project to which the Quarry’s impacts are added. Thus, the County is misusing the cumulative impact standard to conclude that there are significant and unavoidable cumulative land use impacts.

Accordingly, the FEIR’s significant and unavoidable incompatible cumulative land use finding is inappropriate where the projects have caused no significant adverse change from the baseline in any relevant area, and changes to the surrounding area were not caused by these projects.

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cont.



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2. Neighbor complaints do not constitute substantial evidence to support a finding of “significant and unavoidable” incompatible land uses

The FEIR states that the County “has received numerous complaints from residents of the Peacock Gap neighborhood (including Marin Bay Court) regarding noise, blast vibration, soot, and truck traffic from existing mining operations.” FEIR, 4.6-31. The County concludes that such complaints “provide evidence that current site operations are incompatible with neighboring residential land uses” and “cumulatively they create a fundamental incompatibility between the Quarry and surrounding land uses, resulting in a significant, cumulative impact.” *Id.* This reasoning is flawed and, as a matter of law, it must be removed from the FEIR.

First, contrary to the statements in the FEIR, complaints by neighbors do not provide support for a finding of significant impacts or incompatible land uses. Pub. Res. Code § 21082.2(b); *see Leonoff v. Monterey County Bd. of Supervisors*, 222 Cal.App.3d 1337, 1359 (1990) (public controversy cannot trigger an EIR if the record does not contain substantial evidence that a project may have significant effect). As discussed above, and as recognized elsewhere in the FEIR, there will be no increase in noise, blast vibration, dust, soot, or truck traffic from continued operations under the existing conditions, as proposed in the AQP. In fact, such impacts are *reduced* when compared to the baseline. Complaints from some neighboring residents – many of whom are members of the Point San Pedro Road Coalition or are individual plaintiffs in litigation against the Quarry – do not support a finding of significant impact where the impacts themselves are acknowledged to be less than significant. *See Perley v. Board of Supervisors*, 137 Cal.App.3d 424, 436-37 (1982) (unsubstantiated fears and desires of project opponents do not constitute substantial evidence).

Second, such complaints cannot be used to show a significant environmental effect. Courts have consistently held that an adverse change in conditions which results in a significant environmental effect must be one to the physical environment which affects the public in general, not impacts to particular individuals. *San Lorenzo Valley Community Advocates for Responsible Educ. v. San Lorenzo Valley Unified School Dist.*, 139 Cal.App.4th 1356, 1390 (2006); *Mira Mar Mobile Community v. City of Oceanside*, 119 Cal.App.4th 477, 492 (2004); *Association for Protection Etc. v. City of Ukiah*, 2 Cal.App.4th 720, 734 (1991). According to complaint logs maintained by the County and the Quarry, there were a total 16 complaints from neighbors during the past year. Of these, 10 were from the same two individuals.

Third, the complaints here consist of neighbors’ personal observations and impressions of impacts from Quarry operations. In order for such impressions to constitute cumulative impacts, more than merely personal experience is required. Expressions of subjective concerns and personal beliefs alone do not constitute substantial evidence. *Perley v. Board of Supervisors*, 137 Cal.App.3d at 436-37. Substantial evidence in support of impact findings for vibrations, traffic, dust and soot must also include technical measurements. For example, while a neighbor may experience dust and noise at their home from the Quarry operations, that alone is not

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enough evidence on which to conclude that there is a significant and unavoidable impact. Understanding the behavior and intensity of impacts – *e.g.*, the source and dispersion of dust – requires specialized expertise and technical analysis. Without objective evidence supporting any of these impacts as contributing to a cumulative land use impact, complaints from neighbors do not meet the substantial evidence test. Here, the FEIR acknowledges that the objective evidence shows such impacts to be less than significant.

D-10
cont.

Finally, it bears recognition that (1) many of the neighboring residents who spoke or submitted comments at the March 25, 2008 public hearing expressed *support* for the Quarry’s proposal for continued operations and reclamation, (2) as noted above, the complaint logs show the number of neighbor complaints to be limited both in total and in the number of complainants. Such complaints cannot be used as a basis for finding a significant impact or incompatible land use under CEQA.

3. SMARA requires the County and City to protect the Quarry from incompatible land uses by maintaining a buffer and imposing conditions on residential development; practically and legally, SRRQ cannot be the cause of incompatible land use impacts for such residential development.

As Dutra noted in comments on the DEIR, the Surface Mining and Reclamation Act (“SMARA”) requires the County to *protect the mineral resource* when making land use decisions that potentially affect incompatible land uses. *See* Pub. Res. Code § 2762-2764. SRRQ has been found by the State, County and Court to be a regionally significant mineral resource. As a result, SMARA requires that the County’s mineral resource management policy include protections that will restrict the encroachment of incompatible land uses, furnish notice to prospective developers or purchasers of the presence of the mineral resource, and provide conditions for subsequent incompatible land uses that mitigate any conflicts prior to approving such uses. *See* 14 Cal.Code of Regs § 3676. Thus, rather than using the FEIR to protect the adjoining residences from potential land use impacts from mining operations at the Quarry, which are proposed to continue unchanged (albeit with *reduced* impacts), the County and City were and are required to minimize impacts from the residential uses that affect the ongoing Quarry operations. The FEIR turns SMARA on its head by concluding that the *project* poses significant land use impacts for the subsequently developed residential areas near the Quarry.

D-11

The County has, in fact, already exercised its land use authority with respect to the adjoining residential uses to comply with SMARA. In 1982, the County and the City used their planning powers to create a land use buffer to protect the Quarry from incompatible land uses. Because the proposed project does not intrude into this buffer nor are project operations proposed to change in any manner that would increase impacts compared to 1982 levels, there are no land use impacts presented by the Quarry for adjoining residential areas.



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In addition, since all of the nearby residential development was contemplated in 1982,¹ County or City approvals were required to include – and did include – design requirements to minimize conflicts between the proposed residential uses and the Quarry. For example, Marin Bay Park’s conditions of approval included a mitigation measure that requires design guidelines for certain lots near SRRQ to provide building layout and construction techniques to reduce noise impacts, including "well sealed insulated windows" and placement of kitchens and bathrooms toward the noise sources. *See Mitigated Negative Declaration, Marin Bay Subdivision, City of San Rafael (November 22, 1983) at 7.*

D-11
cont.

These design conditions address the potential conflict of residential land use development near the Quarry, as required by SMARA. Thus, the only incompatible land use impacts that should be analyzed in the FEIR relate to whether the Quarry is proposing new operations or reclamation activities that would result in an adverse change relative to the 1982 baseline. The Quarry is making no such proposal. In fact, as acknowledged in the FEIR and demonstrated in the ENVIRON comment letter accompanying this response (Attachment 2), impacts from current and proposed operations are less than they were in 1982. Accordingly, under SMARA, there is no valid legal basis to conclude that the Quarry poses a land use impact to the adjoining residences.

4. An unavoidable and significant cumulative impact finding here would be contrary to public policy, preventing or limiting improvements and upgrades for industrial or commercial projects with ongoing operations adjacent to residential developments in the County.

The FEIR’s significant and unavoidable incompatible land use impact finding is also contrary to sound public policy: If it were to remain in this FEIR and consistently be applied to other projects, any time environmentally beneficial upgrades and improvements were proposed for an industrial or commercial facility with ongoing operations adjacent to residential developments, the County would be required to make a finding of significant and unavoidable land use impacts. Using the example from the HRA analysis, an upgrade to a freeway segment could be delayed or jeopardized, or such projects could routinely and unnecessarily require overriding considerations.

D-12

From a public policy standpoint, as a matter of law and for all the reasons stated above, the FEIR’s finding of significant and unavoidable incompatible land use impacts is arbitrary, capricious, and not supported by substantial evidence.

¹ We note that the County and the City approved the Peacock Gap Neighborhood Plan in 1982, and it was incorporated into the Marin Countywide Plan and the City’s General Plan.



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B. The Health Risk Assessment Continues to Violate CEQA's Cumulative Impact Standards and to Rely on Faulty and Exaggerated Assumptions, Improperly Finding Significant and Unavoidable Impacts

1. A finding of significant and unavoidable cumulative impacts based on the retrospective analysis and faulty assumptions in the Health Risk Assessment does not comply with CEQA.

The FEIR continues to rely on a flawed Health Risk Assessment in concluding that the projects will pose significant and unavoidable cumulative impacts. CEQA Guidelines § 15355(b) defines "cumulative impacts" as arising from a "change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects." In addition, CEQA Guidelines § 15130(a)(1) states that "[a]n EIR should not discuss [cumulative] impacts which do not result in part from the project evaluated in the EIR." See also ENVIRON comments, Attachment 2 hereto.

The CEQA Guidelines demonstrate the fundamental flaws in the HRA's analysis, based as it is on past emissions when diesel technology and fuel produced higher emissions (and when most of the nearby homes were not even built) and faulty assumptions about a 20 percent increase in operations. When these flaws are corrected, health risk impacts are less than significant under the FEIR. For these reasons and those that follow, the significant and unavoidable cumulative impacts finding should be deleted.

- a. Historical emissions have no role in the analysis of impacts under CEQA except to establish the baseline.

CEQA Guidelines § 15130(a)(1) makes clear that cumulative impacts must derive from the project when combined with other "projects." Here, the projects to which impacts from other projects must be added are the revision to the mining permit's operating conditions and the 1982 Reclamation Plan. Yet, the FEIR concludes that the cumulative impacts to human health include past emissions that do not derive from these projects plus other projects, but from presumed historical emissions from historical mining operations and reclamation plans that provide the baseline for the projects, not cumulative impacts. The FEIR's approach turns cumulative impacts analysis on its head.

First, if the term "past project" is to have any meaning for purposes of cumulative impact analysis, it must mean a "project" other than the project that is the subject of the FEIR. Cumulative impact analysis should be, for example, the combination of the air quality impact from the proposed projects combined with the air quality impact of another, different project

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located nearby even if approved some reasonable number of years ago.² That approach ensures that the “past projects” included in a cumulative impacts analysis are closely related in time and location to the FEIR projects. Here, however, the FEIR analyzes the emissions from the projects, at two different time periods, to obtain the HRA values. The inevitable consequence of performing cumulative impact analysis this way is that no industrial project in an area that has experienced residential development over the years would ever be able to avoid a significant and unavoidable cumulative impact finding.

Second, “historical emissions” do have a role in a CEQA analysis, but not in cumulative impacts analysis. As noted above and in our comments on the DEIR, historical activities are commonly treated as part of the baseline. Numerous CEQA cases uphold using the “established usage of the property as part of the environmental setting.” *San Joaquin Raptor Rescue Center v. County of Merced*, 149 Cal.App.4th 645, 659, and citations therein. Thus, historical emissions are used to determine whether the change in the project’s proposed operations will result in an impact. They are not meant to be combined with impacts of that which is proposed and reviewed under CEQA. Thus, historical emissions have no role in the analysis of impacts under CEQA except to establish the baseline.

- b. Project description and objectives, which are the cornerstone of a CEQA analysis, are forward-looking, not retrospective.

CEQA is intended to analyze the environmental impact of activities that are proposed and under consideration which, by definition, have yet to occur. That is why there is such emphasis in CEQA on the project description and the project objectives defining the scope of project activities to be analyzed. A “finite project description is [indispensable] to an informative, legally sufficient EIR.” *County of Inyo v. City of Los Angeles* 71 Cal.App.3d 185, 192-193 (1977). While a project description is the analytic framework which focuses the scope and detail of impact analysis, project objectives fulfill the same role for alternatives analysis. *See e.g., Mira Mar Mobile Community v. City of Oceanside*, 119 Cal. App. 4th 477 (2004).

These elements establish the parameters for all the information contained in an EIR: it is prospective, not retrospective. Nothing in CEQA requires or even remotely suggests that these EIR elements should include past data or facts, except for baseline purposes. Furthermore, guidance from the California Office of Health Hazard Assessment confirms the prospective nature of health risk assessments:³

Most epidemiologic studies evaluate whether a *past* chemical exposure may be responsible for documented health problems in a

² If no such project existed, then there would not be a project within the “past projects” category for cumulative impact analysis.

³ <http://oehha.ca.gov/pdf/HRSguide2001.pdf>

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specific group of people. In contrast, health risk assessments are used to estimate whether a current or future chemical exposure will pose health risks to a broad population, such as a city or community. [emphasis added]

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See also ENVIRON comments, Attachment 2 hereto. Accordingly, the historical emissions analysis should be stricken from the FEIR as inconsistent with CEQA's purposes and regulatory guidance on risk assessments. With this correction, the HRA shows that current and proposed operations pose no significant impact or health risk.

2. Public policy requires correcting the HRA to eliminate the FEIR finding of the significant and unavoidable cumulative impacts.

The FEIR is based on an erroneous HRA analysis that, if not corrected, will ensure that CEQA review of environmentally beneficial upgrades and improvements to industrial or commercial projects with ongoing operations will virtually always result in a finding of significant and unavoidable human health risks. *See* ENVIRON comments, Attachment 2 hereto.

The County should consider the public policy consequences of this result, which would not only discourage environmentally beneficial upgrades to existing industrial and commercial facilities, but would also delay or jeopardize important public works projects including beneficial projects that may receive funding from the economic stimulus package recently passed by Congress and signed into law by President Obama. Imagine stimulus money being awarded to the County for modification of a freeway segment or improvement of a major thoroughfare. As proposed, the project would not involve any increase in traffic, but would simply rehabilitate a highway suffering from deferred maintenance. Yet, a logical extension of County's HRA analysis for this FEIR would require including in that project's CEQA analysis the air quality impacts from the past 20+ years of vehicular emissions from traffic on the highway. CEQA review of such projects could be unnecessarily delayed, there could be unfounded fears generated by flawed health risk calculations, the County could face opposition adopting overriding considerations, and the County's approval of the project could be more susceptible to judicial challenge.

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For all of these reasons, past emissions should be eliminated from the HRA. When corrected, the HRA shows that current and proposed operations pose no significant impact or health risk.



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3. The FEIR's assumption of a 20 percent increase in annual production is not proposed or supported by the record.

The FEIR continues to include in its Health Risk Assessment a 20 percent increase in production and resulting emissions above baseline production levels in 1982. FEIR, 4.2-46. Rather than providing the substantial evidence required by CEQA for the source of that assumption, the FEIR simply states that the "20 percent figure is a conservative factor relative to the variation in production levels since 1982." *Id.* There are numerous flaws in this statement and the FEIR's reliance on it to support a significant and unavoidable cumulative impact finding.

First, while CEQA allows "reasonable assumptions" to be made about a project's impacts, such assumptions *must* be based on substantial evidence. *See Environmental Council of Sacramento v. City of Sacramento* 142 Cal.App.4th 1018, 1036 (2006). Substantial evidence includes "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts." CEQA Guidelines § 15384(b). Based on this definition requiring that there be some verifiable, factual basis for substantial evidence, it is clear that the assumed 20 percent increase in future production is not substantial evidence.

Here, the 20 percent increase assumption is directly contradicted by the Project Description in the FEIR, which provides for continued operations subject to existing interim operating and equipment upgrades, which the FEIR acknowledges bring impacts to *below* 1982 levels. There are no facts in the FEIR to support a different assumption, making the 20 percent increase appear to be pulled out of the air. Thus, any "assumed" increase in production cannot be the basis for a finding of significant and unavoidable impacts, because significance findings must also be based on substantial evidence. *See* CEQA Guidelines § 15091(b); *see also Bakersfield Citizens for Local Control v. City of Bakersfield*, 124 Cal.App.4th 1184, 1198 (2004); *see also* ENVIRON comments, Attachment 2 hereto.

Second, CEQA requires that only the "reasonably foreseeable impacts of a proposed project" be analyzed. *See Laurel Heights Improvement Ass'n v. Regents of the University of California*, 47 Cal.3d 376, 396-399 (1988) (reasonably foreseeable future activity must be described and analyzed in an EIR). In *Save Round Valley Alliance v. County of Inyo* 157 Cal.App.4th 1437 (2007) the court answered "no" to a question similar to that posed here: Must the impacts of a speculative intensification of a development be included in an EIR? The court rejected a challenge by neighbors who wanted the EIR for a 27-lot subdivision for single-family homes to include the possibility of second units on the lots because current zoning permitted such second units. In rejecting the challenge, the court concluded that such an analysis would be too speculative. *Id.* at 1450 (holding there was no factual basis for finding that a future lot owner would likely build a second unit).

Third, as stated above and in our comments on the DEIR, Dutra has not proposed a 20 percent increase in production nor is there a factual basis in the record to support the assumption.

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To the contrary, the Project Description provides for continued operations subject to existing interim operating and equipment upgrades. Although there are modest fluctuations in annual production due to emergency response and customer needs, there is no basis for concluding there would be a 20 percent increase. To the contrary, Dutra proposes to continue current restrictions on truck trips, days and hours of operation, noise limits and blasting frequency, which the FEIR acknowledges bring impacts to *below* 1982 levels.

As SRRQ pointed out in its January 31, 2005 Annual Report to the County and in comments on the DEIR, based on historical records, production levels increased during the 1970s and early 1980s due to customer needs and emergency response requirements: 1,873,231 tons in 1973, 1,839,791 in 1974, 1,473,000 tons in 1982, and 1,789,000 in 1983. An analysis of the production levels since the Quarry has been operating under the Court-ordered interim operating conditions – the same conditions that SRRQ has proposed to make permanent – shows limited fluctuations for similar reasons: 1,099,169 tons in 2008; 1,593,512 tons in 2007; 1,470,562 tons in 2006; 1,106,909 in 2005; and 1,361,457 tons in 2004.

Thus, and as we demonstrated in response to the DEIR, (1) production fluctuated during the years prior to and following 1982 depending on the market, public and private customer needs and emergency response requirements, and (2) production continues to fluctuate but, even in emergency response years, any increase in tonnage since the 2004 Court-ordered interim operating conditions went into effect has been less than 20 percent, and in some years tonnage had been less than 1982 production. Such fluctuations will not affect the significance analysis. See ENVIRON comments, Attachment 2 hereto.

The FEIR makes no attempt to explain why it assumes a 20 percent *increase*, which is unsupported, but fails to recognize years in which annual production has *decreased*. Furthermore, it fails to explain how the assumption of a 20 percent increase is consistent with mitigation measures proposed in the FEIR that would limit annual production to 1982 levels.⁴

The assumption of a 20 percent increase in production should be deleted, as stated in our comments on the DEIR. With this correction, the HRA shows that current and proposed operations pose no significant impact or health risk.

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⁴ While Dutra has not proposed a 20 percent increase, some flexibility in annual production is required to meet market needs and emergency response requirements. No absolute annual limit is required or appropriate under CEQA, given other mitigation measures limiting hours and days of operation, truck trips, blasting and staggering of reclamation activities and the FEIR's findings of less than significant impacts in each of these areas (see ENVIRON comments, Attachment 2 hereto), nor is such a restriction appropriate under the Supreme Court's decision in *Hansen Brothers Enterprises, Inc. v. Board of Supervisors*, 12 Cal.4th 533, 573 (1996). No annual limit should be imposed, and the mitigation measures proposed in the FEIR that would limit annual production should be deleted.



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C. Noise from Construction of the Temporary Berm in the Northeast Quadrant will be Extremely Brief, Supporting a Finding of Less than Significant Impacts, and if Required, Mitigation Provided by the Berm Support Overriding Considerations

The FEIR concludes that there is a significant and unavoidable noise impact from the construction of the temporary berm in the Northeast Quadrant. *See* FEIR at 4.7-24. This berm is to be constructed to mitigate noise, dust and visual impacts from the grading required for reclamation. While the FEIR acknowledges that this impact is both temporary (occurring over an 8 to 10 week period during Phase 1 of reclamation and for a brief period during Phase 4 when the berm is removed) and beneficial, it continues to consider noise impacts from construction to be significant and unavoidable.

CEQA acknowledges that temporary impacts may be considered as a potential impact. However, courts have recognized that *temporary construction impacts* are different in kind and intensity from long-term or permanent impacts and, for this reason, are generally less than significant. *See, e.g. El Dorado County Taxpayers for Quality Growth v. County of El Dorado*, 122 Cal.App.4th 1591, 1604 (2004) (“The operation of earth moving equipment would create *temporary air quality impacts* through the release of particulate matter and the release of . . . ozone precursors. . . . These impacts would be less than that presently imposed by the mining operation and are therefore considered less than significant.”)(emphasis added); *Benton v. Board of Supervisors*, 226 Cal.App.3d 1467, 1483 (1991) (“The board did not consider construction phase noise impacts, as they were temporary.”). Thus, the two brief periods required for construction and removal of the temporary berm, proposed as a mitigation measure during reclamation grading in the Northeast Quadrant, should not be considered a significant and unavoidable impact.

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Alternatively, because the temporary berm was included in ARP04 *only* to mitigate any potential impacts during reclamation grading in the Northeast Quadrant (*see* Mitigation Measure R4.6-3a, and Impact R4.7-1), if the County determines that the berm is not necessary to mitigate visual impacts, noise, dust or other impacts from the reclamation activities to less than significant, then the temporary berm could be eliminated from ARP04.

D. The Application of the Significance Threshold for Greenhouse Gas Emissions is Arbitrarily Applied to SRRQ and Incorrectly Assumes that ARP04 is a New Project

The FEIR’s analysis of the greenhouse gas (“GHG”) emissions modeled for reclamation activities under ARP04 is being applied to SRRQ arbitrarily, capriciously and discriminatorily in the FEIR, and is based on an inconsistent and inappropriate use of the baseline.

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As demonstrated below and in the accompanying comment letter of ENVIRON (Attachment 2), the GHG significance threshold, (1) if it is applied to ARP04, must be evaluated against a baseline reflecting GHG emissions from reclamation activities that were permitted to occur in 1990 based on the County's approval of ARP82; (2) if evaluated against the ARP82 baseline, GHG emissions from reclamation activities proposed in ARP04 will show no adverse change, and probably a *decrease*; and (3) cannot be applied to GHG emissions from reclamation activities proposed in ARP04 unless it is being applied uniformly to projects in the County, which does not appear to be the case.

For these reasons and those that follow, Mitigation Measures R4.2-3c and R4.2-1i should be deleted, or if retained, revised based on the results of an evaluation taking into account baseline emissions from reclamation activities permitted under ARP82.

1. The FEIR improperly assumes zero emissions as a GHG baseline when, in fact, the permitted reclamation activities approved by the County in ARP82 provide the project baseline for GHG emissions APR04.

The FEIR improperly applies the GHG emissions significance threshold to ARP04. The FEIR mistakenly assumes that ARP04 is an entirely new project with zero emissions in 1990. This, however, is inconsistent with the baseline identified in the Project Description. As the Project Description acknowledges, the baseline for ARP04 includes the reclamation activities described in ARP82. *See* FEIR at 3-19. Under CEQA, it is the *permitted* activities, not the actual activities, that provide the baseline in an EIR. *See Fairview Neighbors v. County of Ventura* 70 Cal.App.4th 238 at 242-243 (1999); *Benton v. Board of Supervisors*, 226 Cal.App.3d 1467, 1483 (1991). Based on the County's approval of ARP82, the reclamation activities it describes that could have occurred in 1990, and the resulting GHG emissions, form the baseline for the GHG emissions analysis under ARP04.⁵

The GHG emissions from reclamation activities permitted by ARP82 to occur in 1990 can be modeled to the same extent as future reclamation activities that will be performed under ARP04. *See* ENVIRON comments, Attachment 2 hereto. The adverse change, if any, would be calculated based on the difference between GHG emissions permitted by ARP82 versus those proposed for the future under ARP04.

Given this baseline, it is inappropriate for the FEIR to conclude that there is a significant impact from GHG emissions and to require as mitigation an offset of all of ARP04's emissions. In order to find a significant impact under CEQA, the project must cause an adverse change in the physical conditions in the area of the project when compared to the baseline. CEQA Guidelines § 15382. In fact, given the combustion technology and fuel efficiency improvements,

⁵ Additionally, some reclamation activities actually occurred in 1990, as they do during many years, as part of surface mining to contours consistent with the approved reclamation plan.

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reclamation activities permitted under ARP82 and occurring in 1990 would have generated considerably *more* GHG emissions than future reclamation activities under ARP04. Accordingly, there can be no GHG impact because there is no adverse change in GHG emissions from the baseline.

Likewise, applying the 1990 threshold identified in the FEIR, GHG emissions under ARP04 can be found to be significant only to the extent such GHG emissions exceed the 1990 emissions that were permitted under ARP82. Again, given the description of reclamation activities approved in ARP82, and given the extant data concerning equipment fuels and emissions, GHG emissions from such reclamation activities may be calculated as readily for 1990 as they are for future reclamation under ARP04. This analysis will not only provide the required baseline, is likely to confirm that GHG emissions from future reclamation activities under ARP04 will be *less than* those permitted to occur in 1990 (or other past years) under ARP82. See ENVIRON comments, Attachment 2 hereto.

Public policy also dictates that the County should not apply the GHG emissions threshold to SRRQ: For environmental, health, safety and land use reasons, reclamation and second use, and periodic updates of reclamation plans, are statutorily required under SMARA. These legal requirements and benefits are appropriately considered as part of the project. However, by applying the GHG emissions threshold to operating quarries without taking into account the GHG baseline provided by the existing reclamation plan, the County's policy would frustrate the objectives of SMARA by providing that every time a reclamation plan is proposed to be updated, GHG emissions from the reclamation activities would be considered a new and significant impact – even if unchanged from the pre-existing permitted reclamation activities. Such a result would discourage mine operators from updating and improving reclamation plans and impose enormous, unnecessary and inappropriate costs for offsets.

For these reasons, the FEIR's analysis of GHG emissions that will result from reclamation activities proposed under ARP04 should be revised to apply a more appropriate threshold. The FEIR must recognize that reclamation activities under ARP04 do not constitute a "new" use that did not exist in 1990, but must instead compare emissions from such reclamation activities against those permitted under ARP82, consistent with caselaw interpreting CEQA baseline requirements.

2. If it is to be applied, the County must apply the GHG significance threshold consistently and appropriately to all projects.

The County must be consistent and evenhanded in applying the GHG standard to projects subject to CEQA review. Here, the significance threshold that the County is using for analyzing GHG emissions from continued mining operations and future reclamation activities at the Quarry is being arbitrarily and unjustly applied. The FEIR states that this threshold is derived from the County's Greenhouse Gas Reduction Plan, adopted in October 2006. Under the 2007



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Countywide Plan Update, the threshold is “applicable to all land use planning and development projects in Marin.” FEIR at 4.2-29.⁶ Yet, other recent EIRs and negative declarations that the County has available on its website make clear that this is the *only* project subject to which this new and stringent standard has been applied.

Such an unjust application is clearly arbitrary and capricious and violates the fundamental right that each person receive equal treatment by their government and a uniform application of its laws. *Village of Willowbrook v. Olech*, 528 U.S. 562, 564-65 (2000) (municipal decision that was wholly arbitrary, irrationally and unequally applied to similarly situated individuals found to violate the property owner’s equal protection rights); Cal. Const. Art. I, § 7; *Hinman v. Department of Personnel Admin.*, 167 Cal.App.3d 516, 525 (1985) (“Discrimination in the enforcement or administration of a statute fair on its face is as much a denial of equal protection as is the enactment of a statute which is discriminatory in the first place.”); Cal. Const., Art. IV, § 16 (“All laws of a general nature have uniform operation.”).

For example, a December 2008 Draft EIR for a 12 unit subdivision at 650 North San Pedro Road (“San Pedro Road DEIR”) provides only a brief analysis of the GHG emissions from that project. In contrast to the FEIR for the Quarry, that analysis fails to even attempt to quantify the GHG from the project’s construction or long term operations. *See* San Pedro Road DEIR at 4.5-16 to 21. Moreover, the analysis that is there concludes that the GHG would be “negligible” when compared to other projects in the County. San Pedro Road DEIR at 4.5-20. However, this standard is impermissible in light of the decision in *Communities for a Better Environment v. California Resources Agency*, 103 Cal.App.4th 98, 117 (2002) (rejecting the argument that an EIR need not consider “de minimis” emissions).

Furthermore, the San Pedro Road DEIR fails to apply the significance threshold that the County applies to SRRQ and which the FEIR states is applicable to *all* projects in Marin. Under the standard applied to SRRQ, the San Pedro Road project should be found to have a significant impact for its GHG because it will create emissions “from a source that did not exist in 1990, such as a new development.” FEIR at 4.2-29. To be consistent with stated County policy and the FEIR for the Quarry, the San Pedro Road DEIR would be required to find that GHG from the project’s construction and operation creates a significant impact and impose mitigation measures similar to those proposed for mitigation and offset of GHG emissions at the Quarry.

The County’s position with respect to the consistent application of its GHG emissions standards is made even weaker by the Final EIR for the Lawson’s Landing Master Plan, published in September 2007. This FEIR contains absolutely *no* mention of the projects’ GHG

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⁶ Given that the Notice of Preparation for ARP04 predated adoption of the Greenhouse Gas Reduction Plan, and the Notice of Preparation for both ARP04 and operating conditions under the AQP predated adoption of the 2007 Countywide Plan Update, we question application of the threshold to these projects. However, if it is applied here, it must be consistently applied to all contemporaneous and future projects in the County.



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emissions. Even assuming this project would be considered a source that existed in 1990, under the Countywide Plan's policy, there would still need to be a discussion in the FEIR of GHG emissions.

To ensure consistent application of the County's GHG emissions standard, it must analyze whether the "emissions would be greater than the 1990 emission level from that source minus 15 percent," and whether the project "includes feasible measures to reduce GHG emissions." See FEIR at 4.2-29. Because of these glaring differences in the application of the Countywide Plan's standard for GHG emissions to other projects, the County must revisit application of the policy and the significance threshold to the Quarry and revise the GHG analysis to correspond to the manner in which the policy is being applied to other projects.

3. Public policy militates against application of the GHG significance threshold as it is being applied here.

Because the significance threshold is a discretionary policy of the County General Plan, the Board of Supervisors has the authority in its SRRQ project approvals to balance the benefits of the GHG policy against other General Plan policies found in Chapter 3.7 of the Plan that encourage reclamation of mines. See *Sequoyah Hills Homeowners Assn. v. City of Oakland*, 23 Cal.App.4th 704, 719 (1993) (holding that land use officials may balance General Plan policies and objectives in determining whether a project complies with the General Plan.); *San Franciscans Upholding Downtown Plan v. City and County of San Francisco*, 102 Cal.App.4th 656, 678 (2002) (holding that projects must be "in agreement or harmony" with the terms of a general plan.). This means that in determining the applicability of the GHG emissions threshold, the County may want to balance against strict application of the threshold the policies and objectives that encourage and promote clean and viable industrial operations that generate tax revenue and create jobs.

For all of these reasons, Mitigation Measures R4.2-3c and R4.2-1i should be deleted, or if retained, revised based on the results of an evaluation taking into account baseline emissions from reclamation activities permitted under ARP82.

E. The FEIR Continues to Use an Incorrect and Unclear Baseline, Particularly With Respect to Proposed Reclamation Activities Under ARP04

Throughout the FEIR the County inconsistently applies the baseline for ARP04. At times it seems that, for every impact, a different baseline is described, but ultimately a baseline of zero is used.

As described in the Project Description, the baseline for ARP04 includes the existing physical characteristics at the site along with the reclamation activities described in ARP82. Yet, for Impact R4.2-1 the FEIR takes the inconsistent and erroneous position that all of the ARP04

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Phase 1-3 emissions are “new” since, under ARP82, they were not going to be conducted at the same time as ongoing mining operations. Thus, the FEIR uses a “baseline” of zero for such reclamation activities. As discussed above, the evaluation of GHG emissions from reclamation activities under ARP04 also incorrectly assumes a baseline of zero emissions instead of determining what the emissions would have been from the permitted reclamation activities under ARP82. In both cases, this is inconsistent with the Project Description and the caselaw interpreting CEQA, and results in substantially overstated impacts from the project.

For Impact R4.2-1, the fact that reclamation was occurring separately from mining operations does not warrant a baseline of zero in the FEIR. Instead, emissions calculated based on reclamation activities permitted under ARP82 should still be used as the baseline, with the addition of any operational emissions (subject to the mitigation through staggering of mining operations and reclamation activities, as provided in the FEIR) for the cumulative impacts discussion.

Thus, when determining whether the emissions for concurrent mining operations and reclamation activities would exceed the significance criteria, the calculation should be the delta between ARP82 emissions and ARP04 emissions, plus any concurrent operational emissions. This is the appropriate use of the baseline as it is described in the Project Description.

The fact that it is not possible to calculate the *exact* emissions that would have resulted from reclamation activities under ARP82 does not mean that the default assumption should be that they were zero. Clearly, it is equally difficult to calculate the *exact* emissions that will result from reclamation activities under ARP04 in the future. However, based on the calculations of ARP04 emissions, the limited number of changes between the proposed reclamation activities in ARP82 and ARP04, and regulatory estimates concerning equipment emissions of the past and future, a reasonable calculation can be made and is required by CEQA. *See* ENVIRON comments, Attachment 2 hereto.

A similar issue arises in the discussion of Impact R4.2-2, which examines the Phase 4 emissions. Phase 4 reclamation will be done after mining operations cease. The FEIR’s discussion identifies the differences between ARP82 and ARP04 (although we believe that certain of these activities would still have occurred under ARP82), but it does not break out the total cubic yard difference between the two plans even though each of the activities are separately identified in Table 3-3. *See* FEIR at 4.2-34. Instead the EIR incorrectly treats the movement of all of the 865,500 cubic yards of soil as new under Phase 4. Once again, the FEIR fails to make any reasonable effort to utilize the baseline provided by ARP82.

The baseline must be corrected to take account of ARP82, including as it relates to both Impact R4.2-1 and 4.2-2. This corrected analysis must be used in determining whether Dutra would need to acquire BAAQMD emissions offsets under mitigation measure R4.2-1i, and then

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only after the emissions reductions from all the other mitigation measures (including staggering of mining operations and reclamation activities) have been taken into account.⁷

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F. The FEIR Includes Mitigation Measures that are Unnecessary and Inappropriate

1. Mitigation Measure P4.6-6b and C4.2-9b are Unduly Restrictive

Through Mitigation Measure P4.6-6b and C4.2-9b, and other mitigation measures which reference these provisions, the FEIR seeks to restrict the annual production of the Quarry to the 1982 production level of 1,473,000 tons per year. As noted above, no absolute annual limit is required or appropriate under CEQA, given other mitigation measures limiting hours and days of operation, truck trips, blasting and staggering of reclamation activities and the FEIR's findings of less than significant impacts in each of these areas, nor is such a restriction appropriate under *Hansen Brothers Enterprises, Inc. v. Board of Supervisors, supra*, 12 Cal.4th at 573.

In order to meet customer demands and respond to emergencies, some flexibility in annual production is necessary and appropriate, and will not cause significant impacts, given other operating conditions and mitigation measures. As SRRQ pointed out above and in its comments on the DEIR, based on historical records, production levels increased during the 1970s and early 1980s when emergency response activities were required: 1,873,231 tons in 1973, 1,839,791 in 1974, 1,473,000 tons in 1982, and 1,789,000 in 1983, and production levels since the Quarry has been operating under the Court-ordered interim operating conditions – the same conditions that SRRQ has proposed to make permanent – shows limited fluctuations for similar reasons, above and below the 1982 level. Such fluctuations will not affect the significance analysis. See ENVIRON comments, Attachment 2 hereto.

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For all of these reasons, Mitigation Measures P4.6-6b and C4.2-9b, and other provisions of the FEIR that would cap annual production, should be deleted or revised to provide such flexibility and to recognize such fluctuations in annual production.

2. Mitigation Measure R4.3-5 Should be Modified to Correspond to the Baylands Corridor Designations in the Countywide Plan

Mitigation Measure R4.3-5b, which requires setbacks and buffers around the Northwest Quadrant marshes and the seasonal wetlands, should be clarified to be consistent with the Baylands Corridor designation for the site adopted by the Supervisors in Countywide Plan Amendments on January 27, 2009. Specifically, the Supervisors excluded developed areas of

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⁷ Mitigation Measure R4.2-1i also needs to make clear that offsets under R4.1-1i are only required if the staggering of mining operations (Mitigation Measure R4.2-1j) does not reduce emissions to a less than significant level under either R4.2-1 or R4.2-2. The FEIR suggests in some instances that *either* Mitigation Measure R4.2-1i or R4.2-1j will be required, but inconsistently also implies that both mitigation measures may be required.



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San Rafael Rock Quarry from the Baylands Corridor designation, including access roads and the McNear's Brickyard and Marin Aggregates facilities, pulling the boundary back to the edge of the existing marshlands while maintaining the 100-foot shoreline buffer along San Pablo Bay. *See* Resolution and Countywide Plan Amendments, as adopted by the Supervisors on January 27, 2009; *see also* Staff Report and Attachments for the January 27, 2009 Supervisors' hearing.

The Supervisors action is supported by the policies and provisions of the Countywide Plan Update for designation of the Baylands Corridor, which recognize that "[t]he Baylands Corridor was established to protect important baylands and large adjacent *undeveloped* uplands along San Pablo and San Francisco bays." (emphasis supplied) *See* 2007 Countywide Plan at 2-11; *see also, id.*, at 1-2, 3-8. In defining the Baylands Corridor as it relates to large developed parcels, the Final EIR for the Countywide Plan Update expressly excludes "developed lands on privately owned parcels." *See* Final EIR for Countywide Plan Update at 3.0-8.

For all of these reasons, the FEIR should delete all references to the setbacks or buffers at the marshes in light of the Supervisors' action amending the Baylands Corridor designation as it relates to San Rafael Rock Quarry.

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G. Contrary to Continuing Claims by the Point San Pedro Road Coalition, ARP04 Fully Complies with Judge Sutro's Orders

A number of the written and oral comments on the DEIR argue that the temporary berm required as mitigation of reclamation activities in the Northeast Quadrant and proposed reclamation activities and grading in areas of the South Hill are "illegal" under the Marin County Superior Court's April 19, 2004 Order. Statements and proposals in the FEIR concerning alternatives for stockpiling and reclamation activities appear to have their genesis in these allegations. However, as we demonstrated in our written and oral comments on the DEIR, these allegations are factually incorrect.

First, County Counsel advised counsel for the Coalition by letter dated April 4, 2005 that the berm is not in violation of the Court's order:

I do not read the court's order as prohibiting the Board from considering any and all issue relating to reclamation, including identifying project impacts, exploring environmentally superior alternatives and imposing appropriate mitigation measures. As an example, the evidence may show that stockpiling overburden (suitable for reclamation) onsite for an interim period (subject to conditions) is environmentally superior to causing such to be removed and requiring fill material to be later transported in during reclamation.

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Similarly, in response to these claims at an April 6, 2005 Status Conference, Judge Sutro responded to counsel for the Coalition:

[T]here is no amended reclamation plan, at this point, of course. That's under consideration and will be the subject of, it looks like, considerable study before it's finally approved in whatever form it may be approved. So I don't think it's appropriate for the Court to interject itself, at this juncture, in that regard. I'm going to assume that everybody is going to abide by the orders that I've issued to date in this matter.

Dutra has abided by the Court's Order prohibiting "depositing any overburden, tailing, dredged material or other waste materials" in the Brick Resource area of the Northeast Quadrant, and "mining, grading and depositing materials, overburden, tailings, dredged material or other waste materials" in the areas designated by ARP82 to be preserved in a natural state. The temporary berm in the Northeast Quadrant is, in fact, intended to mitigate noise from grading undertaken during reclamation. Since this berm is proposed as part of a new reclamation plan, and not being done under ARP82, it complies with SMARA and the Court's Order.

Dutra will continue to observe these restrictions on mining operations, and ARP04 proposes to maintain the areas designated by ARP82 to be preserved in a natural state. The reclamation activities proposed in the Northeast Quadrant, McNear's and the South Hill are entirely consistent with SMARA, CEQA and ARP82.⁸ As recognized by Judge Sutro and County Counsel, the Court's Order restricting mining operations was not intended to prevent the Supervisors from considering proposed reclamation activities.⁹ Reclamation, including berm construction, stockpiling and grading in the Northeast Quadrant, should be approved as proposed in ARP04.

H. The Alternatives Outlined in the FEIR are Infeasible and are Not More Environmentally Beneficial than the Projects as Proposed

In his April 12, 2004 Statement of Decision and April 19, 2004 Order in *Point San Pedro Road Coalition v. San Rafael Rock Quarry, Inc.*, Judge Sutro found that SRRQ had a vested right to mine the Main Quarry Bowl "without respect to duration or depth," and required SRRQ to prepare an amended reclamation plan for the County's review. His July 15, 2004 Order also authorized the Quarry to consent to a process of administrative review, with public hearings directly before the Board of Supervisors, for adoption of "economically viable" conditions for

⁸ As noted above, ARP82 provided for maintenance of a 15 foot high "lip" between 8 machines working on the North Hill and San Marino Drive for visual screening and noise buffering.

⁹ Copies of the April 4, 2005 correspondence of County Counsel and the transcript of the Court's April 6, 2005 Case Management Conference were previously submitted with comments on the DEIR.



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mining activities without waiver of the Quarry's vested mining rights. SRRQ submitted ARP04 and its proposal for permanent operating conditions for review by the County in October 2004.

As part of the review process, CEQA requires that the lead agency identify a range of reasonable and potentially feasible alternatives to a project as proposed. *See* CEQA Guidelines § 15126.6(a). The FEIR correctly notes that CEQA "requires an evaluation of the comparative effects of a range of reasonable alternatives to a project that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project (CEQA Guidelines 15126.6[a]." Under CEQA,

Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, *economic viability*, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), . . . No one of these factors establishes a fixed limit on the scope of reasonable alternatives. (emphasis added)

CEQA Guidelines § 15126.6(f)(1); *see also* § 15364 ("Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."). In addition to the CEQA criteria, here the Court has expressly directed the County to approve only "*economically viable conditions*" in the review of mining operations." July 15, 2004 Order at 2 (emphasis added). Economic feasibility is also an implicit objective of both ARP04 and the proposal for operating conditions under the mining permit. *See Association of Irrigated Residents v. County of Madera*, 107 Cal.App.4th 1383, 1399 (2003) (finding that "economic feasibility is implicit in the project objective").

CEQA provides that alternatives may be rejected if it is determined that they would make the project economically infeasible. CEQA Guidelines § 15091. Feasible "means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors." CEQA Guidelines § 15364. As observed by the court in *Uphold Our Heritage v. Town of Woodside*, 147 Cal.App.4th 587, 600 (2007),

[T]he question is not whether [the applicant] can afford the proposed alternative, but whether the marginal costs of the alternative as compared to the cost of the proposed project are so great that a reasonably prudent property owner would not proceed with the [alternative project].

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cont.



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Here, the Project Objectives include continuing to operate a surface mining, aggregate process and asphalt production facility capable of continuing to meet local and regional needs and emergency response requirements, serving customers both by truck and by barge. Continued operational, technical and economic feasibility are key to achieving these Objectives.

The FEIR made some improvements to the DEIR Alternatives by acknowledging the adverse environmental impacts that would be created by the Barge Only alternative and by recognizing the infeasibility and ecological impacts of using dredge spoils to fill the quarry bowl. However, there continue to be a number of significant concerns with the Alternatives that are not addressed or resolved by the FEIR, as summarized below and in the accompanying comment letters from CSW/Stuber-Stroeh Engineering and Harry Torchiana. Proper analysis of potential impacts and feasibility must be performed in evaluating the alternatives and drafting CEQA findings.

In particular, the "Alternative Reclamation with Alternative Beneficial End Use" Alternative to ARP04 was revised to include different and new end uses, but the potential impacts of those uses are not analyzed. CEQA requires that the County examine all the impacts, direct and indirect, from the project and the proposed alternatives. CEQA Guidelines § 15126.6(d); *Kings County Farm Bureau v. City of Hanford*, 221 Cal.App.3d 692 (1990).

Failing to flood the Main Quarry Bowl also raises serious post-mining slope stability concerns previously addressed by California Department of Conservation Office of Mine Reclamation's January 11, 2005 comments on ARP04, which said that the "minimal acceptable factor of safety (1.15) under seismic loads can only be achieved under flooded conditions that equalize groundwater pressures." Thus, from a post-mining slope stability standpoint, flooding of the Main Quarry Bowl is an essential part of reclamation. It has been contemplated by the reclamation plans approved by the County for more than thirty (30) years. See CSW/Stuber-Stroeh Engineering comments, Attachment 1 hereto.

The other alternatives uses proposed, including an amphitheater, a rock climbing venue, and solar array, would not satisfy slope stability requirements for reclamation, have not been the subject of a CEQA impacts analysis, and would present a host of adverse impacts, safety issues and other concerns. The potential traffic and noise impacts of using the Quarry as an amphitheater would be significant and likely much greater than those that would result from residential/marina use. These impacts should be taken into account when considering the feasibility of that Alternative. In addition, the safety concerns of using the Main Quarry Bowl for rock climbing, and the considerable safety issues and aesthetic impacts of leaving the Main Quarry Bowl unfilled, are also not discussed and should be taken into account.

As noted above, accompanying this response is an economic feasibility analysis prepared by Harry Torchiana (Attachment 3 hereto) that compares the economic viability of the proposed operating conditions and ARP04 with the "Reduced" Alternatives identified in the FEIR,

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cont.



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concluding that further restrictions on mining operations would render the project economically infeasible. The Reduced Alternative, Mitigated Alternatives and Alternative Beneficial Use Alternative also raise a number of operational and technical feasibility issues, as addressed in the comment letter of CSW/Stuber-Stroeh Engineering (Attachment 1 hereto).

It is also important to keep in mind what purpose the various alternatives proposed might serve. For operating conditions under the AQP, when properly analyzed and with mitigation measures already adopted or proposed by Dutra, there are no unavoidable significant impacts resulting from the project as proposed. For ARP04, the only unavoidable significant impact found by the FEIR are the noise resulting from the construction of the temporary berm and the cumulative impacts of AQP and ARP04 which, for the reasons discussed above, are not valid findings under CEQA. However, *none* of the alternatives proposed in the FEIR would have the ability to reduce any of these impacts to a less than significant level.

For the land use impacts, none of the AQP or ARP04 alternatives would change the actual land use in place at the Quarry, or the land uses surrounding the Quarry. Similarly, for the cumulative air quality impacts, since the HRA erroneously considered historic emissions, none of the AQP or ARP04 alternatives have the ability to reduce the impacts to a less than significant level, since the majority of the emissions contributing to that finding occurred in the past and there is no alternative that could eliminate those emissions. The only other unavoidable significant impact identified in the FEIR – again, erroneously as we demonstrate above -- is the temporary noise resulting from the construction of the beneficial berm in the Northeast Quadrant (Impact R4.7-1). However, none of the proposed alternatives eliminate this impact. Thus, none of the alternatives proposed in the EIR actually eliminate an unavoidable significant impact, and none can be considered more environmentally beneficial than the projects as proposed.

While considering the alternatives, the County should also take into account the climate change *benefits* of selecting the operating conditions as proposed over the other alternatives. As outlined by ENVIRON's April 11, 2008 letter commenting on the DEIR, the GHG reduction benefits of maintaining SRRQ operations as proposed are considerable. *See also* ENVIRON comments, Attachment 2 hereto. While it may be difficult to determine with precision the exact distance that rock would have to travel from an alternate source if local needs could not be satisfied with rock from SRRQ, it is not unduly speculative to assume that a substantial portion would come from Canada and other remote quarry locations. This not only would result in fewer County-based jobs, but increased GHG emissions.

The best public policy solution to meeting the County's goal of reducing GHG emissions to 15 percent below 1990 levels should not be one which involves displacing local emissions for an increase in regional and global emissions. The County should consider this important objective in formulating its findings and include it in any statement of overriding considerations.

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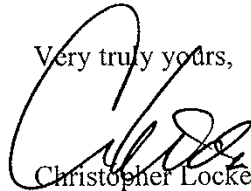
III. CONCLUSION

Thank you for considering and addressing these comments on the adequacy of the response to comments on the DEIR and continuing legal, factual and analytical errors in the FEIR for San Rafael Rock Quarry. As you know, the proceedings on the FEIR are the culmination of administrative review of Dutra's October 27, 2004 proposal for operating conditions under the AQP, and Dutra's October 12, 2004 submittal of ARP04.

Dutra respectfully requests that the staff and Supervisors revise the FEIR as requested in these comments and objections, make the appropriate findings, and approve these projects as proposed. If you have any questions or require additional information, please contact Al Cornwell or me.

D-25

Very truly yours,



Christopher Locke

RCL:jjl

Attachments

cc: Brian Crawford, Community Development Agency
Farhad Mansourian, Department of Public Works
Bill T. Dutra, The Dutra Group
Aimi Dutra Krause, The Dutra Group
Lee Selna, The Dutra Group
Brian Peer, The Dutra Group
Al Cornwell, CSWSt2

Comment Letter D: Project Sponsor – Christopher Locke, Farella Braun + Martel, LLP (Attorneys for San Rafael Rock Quarry and the Dutra Group)

- D-1 This comment is preamble to those that follow and does not require a separate response.
- D-2 This comment refers to revisions to the environmental analysis, including new feasible mitigation measures agreed to by the applicant, contained in the Final EIR.
- D-3 This comment is general in nature. The Final EIR is fully compliant with CEQA, does not contain faulty assumptions or analysis, and does contain conclusions that are reasonable, consistent, and well-supported. The additional letters referred to in this comment, and responses to them, appear below as Comment Letters and Responses D.1, D.2, and D.3.
- D-4 This comment summarizes Comments D-9 through D-12; please see the responses to those comments.
- D-5 This comment summarizes Comments D-13 through D-16; please see the responses to those comments.
- D-6 This comment summarizes Comments D-18 and D-19; please see the responses to those comments.
- D-7 This comment summarizes Comment D-24; please see the response to that comment.
- D-8 Please see the response to Comment D-3, above.
- D-9 The contribution of the AQP and ARP projects to the cumulative land use incompatibility impact (Impact C4.6-7) is due to at least three factors: (1) The extension in the active life of Quarry, related to that anticipated in ARP 82 (which contemplated that the Quarry would cease operations and be reclaimed and developed with conforming uses years ago). ARP 04, if approved, would enable the Quarry to continue to operate for at least 14 years or more, thereby extending adverse impacts on the neighborhood and delaying a conversion of the site to conforming uses. (2) The AQP, as proposed, would allow for the intensification of certain aspects of operations relative to the apparent conditions extant in 1982, when the Quarry became a non-conforming use; this would also contribute to cumulative land use incompatibility. (3) The Superior Court's Statement of Decision, April 12, 2004, is replete with discussion of adverse impacts to the nearby neighborhood due to the activities of SRRQ. The finding of significant and unavoidable for Impact C4.6-7 is therefore appropriate, well-supported, and consistent with the letter and intent of CEQA.

- D-10 Neighbors' complaints do not form the basis for the finding of significance for Impact C4.6-7. Rather, the significance finding is based on physical evidence, including monitoring of ambient air quality, noise, blast vibration, truck traffic, and other aspects and consequences of Quarry operations. Neighbors' complaints are consistent with the physical evidence.
- D-11 The SMARA sections cited in the comment relate to procedures to be followed when a land use is proposed that could affect mineral extraction. That is not the case with the current ARP and AQP projects being evaluated in this EIR. Past approvals of numerous projects have brought incompatible land uses closer to the Quarry. Any design conditions contained in those approvals notwithstanding, a situation exists, and would be extended and potentially exacerbated, in which residential and recreational uses are in close proximity to a large mining operation, and in which mined materials are shipped through residential neighborhoods on roads that also serve as access to residential and recreational uses.

The finding of a significant land use impact related to incompatible land uses (Impact C4.6-7) is not made pursuant to SMARA, but rather to CEQA, and particularly to the significance thresholds established in the Final EIR for land use impacts.

- D-12 The County conducts CEQA review on a case-by-case basis. The finding of a significant unavoidable cumulative land use impact (Impact C4.6-7) is in this case, as stated above, well-founded. The County, as decisionmaker, can consider override findings and therefore, the determination of a significant impact is not equivalent to preventing the application from being approved.
- D-13 This comment ignores the fundamental method for determining health risks from exposure to toxic air contaminants: the degree of health risk is a function of the concentration of TACs to which an individual is exposed over time. Because ARP04 would extend Quarry operations for at least 14 years, and because the AQP could result in an intensification of mining operations (see Impact P4.6-6 in Section 4.6, Land Use and Planning, in the Final EIR, and also the response to comment D-21, below), both projects would add incrementally and substantially (measured in terms of additional likely cancer cases per million exposed individuals) to health risks posed by past mining operations. The cumulative nature of this impact requires an examination of project impacts in combination with past and reasonably foreseeable future projects.
- D-14 The point of the cumulative HRA analysis contained in Impact C4.2-12 in Volume I of the Final EIR is to examine project impacts (i.e., future TAC emissions) that are individually limited, but cumulatively considerable. As defined in CEQA *Guidelines* § 15065 a(3), “‘Cumulatively considerable’ means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”
- D-15 The fundamental nature of the projects is not to “upgrade” an industrial facility, but instead to continue mining operations for at least an additional 14 years, and to alter the

timing of reclamation. As stated above, the cumulative HRA analysis contained in Impact C4.2-12 is not erroneous, and is consistent with CEQA; it is also consistent with OEHHA guidance in that it factors-in other sources of toxic air contaminants that can affect public health over a lifetime. As noted above, the County conducts CEQA review on a case-by-case basis, though review is always conducted according to County and State CEQA *Guidelines*.

D-16 Please see the response to comment D-21, below.

D-17 The comment states that the temporary significant unavoidable construction noise impact identified in the Final EIR resulting from construction and removal of the proposed berm in the NE Quadrant (Impact R4.7-1) should not be considered significant because it is temporary in nature.

An adequate noise analysis considers not only noise level produced by a project but also the number of receptors affected, the duration of the impact, and the intensity of the noise activity proposed. The proposed berm in the northeast quadrant would be constructed of a total of 257,000 cubic yards of material consisting of 171,000 cubic yards of soil and 86,000 cubic yards of pond fines (Page 3-53 of the Draft EIR Project Description). Construction would occur over a 10 week period during the dry season. Assuming that trucks moving material on site have a standard capacity of 20 cubic yards, it would require 12,850 truck loads of material to this area over a 10 week period. Empty trucks returning for material would account for another 12,850 truck trips over this 10 week period. Assuming seven days a week movement operations, an average of 367 trucks trips per day would travel to and from the berm site, which is as close as 300 feet from sensitive receptors. In addition, consistent operations of loaders, bulldozers and compaction equipment would be necessary to construct the berm in the 10 week window proposed. While berm construction operations are proposed to occur over a temporary period of 10 weeks, consideration of the proximity to sensitive receptors (300 feet), the relative quiet of the existing daytime conditions (52 dBA) and the intensity of operations necessary to construct the berm in the proposed 10 week window, resulted in the identification of a significant noise impact.

While construction of the berm would result in a significant and unavoidable temporary noise impact, once constructed, it would provide beneficial impacts to both noise attenuation and visual screening from the remainder of reclamation activities proposed to occur over the following years. Consequently, elimination of this element would result in a greater degree of noise impact during reclamation.

D-18 Neither ARP82, nor the Initial Study for ARP82 attempted to quantify any of the air emissions from reclamation activities. Since ARP82 lacks detail regarding the level of intensity and duration of reclamation activities (including grading), it is difficult at best to estimate GHG or other air emissions that would have resulted from reclamation under ARP82. See the response to comment D-20, below, which reconciles this issue.

- D-19 As stated on page 4.2-29 of Volume I of the Final EIR, the County's new threshold for determining the significance of greenhouse gas emissions is based on the County's Greenhouse Gas Reduction Plan, which was adopted by the Board of Supervisors in October, 2006 and subsequently incorporated into the Countywide Plan Update in November, 2007. As is the case in virtually all jurisdictions in California, the incorporation of GHG analysis into CEQA documentation has been evolving as the issue has become better understood, policy plans have embraced it, and guidance from the State has become more focused. The application of the Countywide Plan's policies regarding greenhouse gas emissions reduction in CEQA analysis is becoming more standardized and made consistent across County CEQA documents. The County greenhouse gas standard has been applied to other recent projects undergoing environmental review, including project EIRs for the Redwood Landfill and Sorroko Property, that have been processed since adoption of the Countywide Plan policies.
- D-20 As noted in the response to comment D-18, air emissions associated with reclamation activities that would have taken place under ARP82 were never quantified, and, given the lack of detail in ARP82, are difficult, at best, to estimate. Nevertheless, the commenter's point regarding inclusion of ARP82 planned activities as part of the baseline for the EIR analysis is well-taken, as it is consistent with the overall approach to the baseline, as described on pages 3-18 and 3-19 in Chapter 3, Project Description of the Final EIR.

In order to estimate the difference in air emissions between ARP82 planned reclamation, and reclamation specified in ARP04, we rely upon the table of cut and fill volumes for various grading activities in each planned reclamation phase provided in ARP04 and included in the Final EIR as Table 3-3 in Chapter 3, Project Description (Volume I of the Final EIR). A modified version of Table 3-3, appears below, showing which of the planned phased reclamation grading activities specified in ARP04 could reasonably have been expected to occur under ARP82.

As indicated in modified Table 3-3, the overall estimated reclamation grading volumes for ARP82 are about half (51%) of those for ARP04. The main differences between the two are that ARP82 did not include construction of a new berm in the NE Quadrant, nor the surcharge berm in the NW Quadrant, nor plans for moving and mixing pond fines. The estimated relative volume of grading for ARP82 is applied below as the baseline in revisions to Impact 4.2-1 (criteria pollutant emissions from reclamation Phases 1-3), Impact 4.2-2 (criteria pollutant emissions from reclamation Phase 4), and Impact 4.2-3 (greenhouse gas emissions from reclamation grading) and associated tables. The full text of these impacts and mitigation measures and associated tables are provided below, with underline and strikeout showing changes from the text as it appeared in the Final EIR. The inclusion of baseline air emissions for ARP82 results in minor changes to these impacts and the associated mitigation measures, but does not alter conclusions regarding significance, either before or after mitigation: all three of these impacts can be reduced to less than significant with the specified mitigation measures.

TABLE 3-3
RECLAMATION GRADING CUT AND FILL VOLUMES, ARP04 AND ARP82
(TABLE HAS BEEN REVISED TO INCLUDE ESTIMATES OF ARP82 GRADING VOLUMES)

Quadrant	Work Description	ARP04 Cut	Fill	ARP82 Cut and Fill	ARP82 volume as Percent of ARP04 Volume
Phase 1					
NW	Topsoil stockpile		14,500	14,500	
SW	Remove overburden from area SW-1	58,800		58,800	
	Remove topsoil from area SW-1	19,600		19,600	
NE	Mix South Hill overburden material with pond fines and regrade area NE-1		58,800		
	Remove pond fines to mix	62,100			
	Remove pond fines to stockpile	86,800			
	Erosion control		5,100	5,100	
	Build new berm with pond fines and overburden material from existing berm		171,700		
	Stockpile pond fines on back of berm		86,800		
	Mixed material to begin new grade		80,000	80,000	
	Remove from existing berm to mix with pond fines	189,600		189,600	
Total Phase 1		416,900	416,900	367,600	44%
Phase 2					
NW	Topsoil stockpile		7,500	7,500	
	Surcharge berm		218,100		
SW	Remove topsoil from SW-2	29,300		29,300	
	Remove overburden from SW-2 for mix with pond fines and existing berm material	87,800		87,800	
NE	Existing berm material for mix with pond fines and overburden	247,500		247,500	
	Pond fines for mix with existing berm material and overburden	83,800			
	1' topsoil to cover pond fine berm		15,800		
	Amend topsoil for Area NE-1 and revegetate		6,000	6,000	
	Re-grade area NE-2 to final grade		201,000	201,000	
Total Phase 2		448,400	448,400	579,100	65%
Phase 3					
NW	Create topsoil stockpile (from SW Quadrant)		12,800	12,800	Information not provided by applicant on amount of material to be moved
	Move and re-contour surcharge material to final grades	218,100	218,100		
SW	Remove 2' topsoil from SW-3	24,900		24,900	
	Remove 8' overburden from SW-3	74,800		74,800	
	Create stockpile from overburden material plus 18,700 cy of pond fines stockpiled in NE quadrant		93,500		
	Re-soil SW-2 benches from topsoil stockpile				

TABLE 3-3 (Continued)
RECLAMATION GRADING CUT AND FILL VOLUMES, ARP04 AND ARP82
(TABLE HAS BEEN REVISED TO INCLUDE ESTIMATES OF ARP82 GRADING VOLUMES)

Quadrant	Work Description	ARP04 Cut	Fill	ARP82 Cut and Fill	ARP82 volume as Percent of ARP04 Volume
Phase 3 (cont.)					
NE	Remove pond fines from stockpile to SW Quadrant to mix with overburden	18,700			
	Remove remaining pond fines stockpile to meet final grade; mix with material from existing berm, use for re-grading	46,600			
	re-grade portion of NE Quadrant		233,000	233,000	
	Place topsoil in NE-2 and revegetate		12,100	12,100	
	Remove material from existing berm, mix with pond fines, for re-grading of portion of NE Quadrant	186,400		186,400	
	Total Phase 3	569,500	569,500	544,000	48%
Phase 4					
NW	Demolish McNear Brickworks buildings				
	Place fill to raise McNear site		199,500	199,500	
	Remove topsoil stockpiles	34,800		34,800	
	Remove surcharge berm	218,100			
	Lower hill behind brick manufacturing facility to +50' MSL	291,100			
SW	Place fill mix over quarry plane		440,000	440,000	
	Place topsoil in resoil areas				
	Material to go offsite for levee repairs		191,200		
NE	Remove remaining West end of berm just to the north of North Hill and berm at NE-1 and regrade north side of Main Quarry Bowl	300,000		129,000	
	Remove pond fines stockpile	21,500			
	Place pond fines in bottom of pit				
	Resoil areas at finished grade		20,000	20,000	
SE	Complete mining of Main Quarry bowl - to elevation -350 MSL				
	Remove crushing and asphalt plants				
	Place topsoil		14,800	14,800	
	Regrade south side of Quarry excavate connection to the bay (optional)				
Total Phase 4		865,500	865,500	838,100	48%
Grand Total, Phases 1-4		2,300,300	2,300,300	2,328,800	51%

SOURCE: ARP04 and ARP82

The revised impacts, mitigation measures, and associated tables follow:

Impact R4.2-1: Reclamation grading under Phases 1-3 of the The proposed Amended Reclamation Plan would result in an increase in daily emissions of criteria air pollutants above emissions that would have occurred under as a result of reclamation activities being conducted simultaneously with mining activities, instead of at the end of quarrying activities, as contemplated in the 1982 Amended Reclamation Plan. This increase in daily emissions would exceed the Bay Area Air Quality Management District-established significance thresholds for ~~reactive organic gases, nitrogen oxides, carbon monoxide,~~ and particulate matter equal to or less than 10 microns (Significant).

The proposed amended reclamation plan would result in reclamation activities for Phases 1, 2, 3, and part of Phase 4 being conducted during the remaining operational life of the Quarry, instead of at the end of quarrying activities, as contemplated in ARP82. Emissions associated with reclamation grading under ARP82 were never quantified. However, using details of proposed reclamation grading under ARP04 and reasonable assumptions regarding which of these activities would have occurred under ARP82 (Table 3-3 in Chapter 3, Project Description), an estimate has been made of the level of emissions that can reasonably be assumed to have occurred under ARP82. These are summarized in Table 4.2-9.1, and are also shown in Table 4.2-10 as a percentage of emissions calculated for each ARP04 phase. These + Reclamation activities under ARP04 would result in an increase in daily emissions rates of criteria pollutants, including ozone precursors and PM-10 in an air basin that is designated as non-attainment with respect to state and federal ozone standards and state PM-10 standards.

**TABLE 4.2-9.1
COMPARISON OF RECLAMATION GRADING VOLUMES, ARP04 AND ARP82
(ENTIRE TABLE IS NEW IN THIS FINAL EIR AMENDMENT)**

ARP 04 Reclamation Phase	ARP04 Cut and Fill (yds3)	ARP82 Cut and Fill (yds3)	ARP82 as % of ARP04
Phase 1	833,800	367,600	44%
Phase 2	896,800	579,100	65%
Phase 3	1,139,000	544,000	48%
Phase 4	1,731,000	838,100	48%
Total	4,600,600	2,328,800	51%

SOURCE: Table 3-3

Appendix N of the Marin County Environmental Impact Review Guidelines identifies any project that would cause or contribute substantially to existing or projected air quality violations to have a significant impact on air quality.

**TABLE 4.2-10
INCREASES IN EMISSIONS OF CRITERIA AIR POLLUTANTS FROM THE ARP
(Without Mitigation Measures)**

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10 ^a
Phase I				
Exhaust Emissions from Earthmoving Equipment	527	35	162	8.4
Exhaust Emissions from On-Site Truck Travel	164	54	506	19
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	534
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	12
TOTAL QUANTIFIED PHASE I EMISSIONS	691	89	668	573
<u>ARP 82 Estimated Emissions (44% of ARP04)</u>	<u>304</u>	<u>39</u>	<u>294</u>	<u>252</u>
<u>ARP04 Increased Emissions over ARP82</u>	<u>387</u>	<u>50</u>	<u>374</u>	<u>321</u>
BAAQMD Significance Criteria	550	80	80	80
<u>Reduction required to reduce to below significance threshold</u>			<u>294</u>	<u>241</u>
Phase 2				
Exhaust Emissions from Earthmoving Equipment	567	38	174	9.0
Exhaust Emissions from On-Site Truck Travel	139	47	387	14
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	574
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	13
TOTAL QUANTIFIED PHASE 2 EMISSIONS	706	85	561	610
<u>ARP 82 Estimated Emissions (65% of ARP04)</u>	<u>459</u>	<u>55</u>	<u>365</u>	<u>397</u>
<u>ARP04 Increased Emissions over ARP82</u>	<u>247</u>	<u>30</u>	<u>196</u>	<u>214</u>
BAAQMD Significance Criteria	550	80	80	80
<u>Reduction required to reduce to below significance threshold</u>			<u>116</u>	<u>134</u>
Phase 3				
Exhaust Emissions from Cut and Fill Equipment	720	48	221	11.5
Exhaust Emissions from On-Site Truck Travel	158	51	335	12
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	729
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	17
TOTAL QUANTIFIED PHASE 3 EMISSIONS	878	99	556	769
<u>ARP 82 Estimated Emissions (48% of ARP04)</u>	<u>421</u>	<u>48</u>	<u>267</u>	<u>369</u>
<u>ARP04 Increased Emissions over ARP82</u>	<u>457</u>	<u>51</u>	<u>289</u>	<u>400</u>
BAAQMD Significance Criteria	550	80	80	80

TABLE 4.2-10 (Continued)
INCREASES IN EMISSIONS OF CRITERIA AIR POLLUTANTS FROM THE ARP
(Without Mitigation Measures)

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10 ^a
Phase 3 (cont.)				
<u>Reduction required to reduce to below significance threshold</u>			<u>209</u>	<u>320</u>

^a Fugitive dust emissions of PM-10 are uncontrolled and do not account for water application to site areas, which can reduce emissions by 70 percent.

NOTE: **Bolded** values are in excess of significance thresholds.

SOURCE: Environmental Science Associates

Emissions resulting from reclamation activities would include fugitive particulate emissions (including PM-10 and PM-2.5) from earthmoving and disturbance and truck travel on unpaved Quarry roads, as well as criteria pollutants from the exhaust of trucks and equipment used in earthmoving. Reclamation activities would be separated into four phases with portions of the fourth and final phase being conducted after the end of mining operations. As indicated in the Project Description, each reclamation stage would occur over an approximately 5 year period. Additionally, SRRQ proposes to limit disturbance of neighbors by conducting reclamation grading activities only during an 8-10 week period during the dry season of each year.

Daily pollutant emissions resulting from Phases 1 to 3 of reclamation were calculated based on emission factors published by the USEPA, BAAQMD and the South Coast Air Quality Management District and data sheets for these calculations are presented in Appendix C of this document. ~~and are considered new~~ New emissions associated with reclamation grading activities not contemplated in ARP82 are shown in Table 4.2-10, ~~since that plan contemplated no reclamation activities during the operational life of the Quarry. Because a portion of the grading conducted under Phase 4 would occur after the cessation of mining, Phase 4 reclamation activities are considered a change from ARP82 only to the extent that they differ from those proposed in ARP82. Consequently, Phase 4 emissions are addressed separately in the following impact statement.~~

The emissions from Phases 1 through 3 are presented in Table 4.2-10 and assume the cut and fill volumes presented in Table 3-3 and activity over an eight week period for each of five consecutive years. These emission estimates for ARP04 include reclamation activities not previously proposed under ARP82 including: mixing of pond fines with overburden material in Phase 1, construction of the berm in the NE Quadrant in Phase 1, construction of the surcharge berm in the NW Quadrant in Phase 2, and the stockpiling of topsoil in the NW Quadrant in all phases.

The increased daily emissions shown in Table 4.2-10 indicate that for reclamation Phases 1, 2 and 3, the increase in daily emissions of ~~ROG~~, NO_x, and PM-10 ~~and CO~~ would ~~all~~ both be greater than the significance standards established by the BAAQMD. Consequently, the proposed ARP would be considered to result in a significant air quality impact resulting from increases in daily emission rates as compared to ARP82.

As noted above, ARP82 did not contemplate any reclamation activities during the active life of the Quarry; all reclamation was to occur after the cessation of mining operations. Phases 1-3, and a portion of phase 4 of ARP04, however, would take place while the Quarry is still operating. This is considered a change from the baseline, in that reclamation-related emissions that occur simultaneously with mining-related emissions could together exceed the baseline for either project, and the combined emissions could exceed threshold values for criteria pollutants established by the BAAQMD. This potentially significant adverse effect of the ARP is addressed in Mitigation Measure R4.2-1j, below.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure R4.2-1a: The project applicant has recently initiated the use of biodiesel fuel in all quarry rolling stock. Biodiesel is the only alternative fuel for which a detailed emissions evaluation has been submitted to the United States Environmental Protection Agency (USEPA). The effectiveness of emission reduction resulting from the use of biodiesel is dependant upon the percent of biodiesel contained in the mixture (USEPA, 2002). The most common blend, and that currently used at SRRQ, is a 20 percent biodiesel and 80 percent conventional diesel (B-20). B-20 will reduce particulate and CO emission by approximately 12 percent, and reduce hydrocarbon emissions by approximately 20 percent. Use of biodiesel may increase or decrease NO_x emissions (McCormick et al, 2006).

Mitigation Measure R4.2-1b: SRRQ has already upgraded SRRQ's entire fleet of off-road diesel equipment to USEPA Tier 3 standards, ahead of regulatory requirements that at least 10 percent of the fleet be upgraded each year. SRRQ also plans to upgrade its tug boat fleet to Tier 2 standards prior to the end of 2008.

Mitigation Measure R4.2-1c: SRRQ already implements several measures to control dust. These will be continued under the project:

- All trucks leaving the Quarry shall be washed down, including the undercarriage, prior to entering Point San Pedro Road (except trucks transporting asphalt). The wash down and adjoining areas shall be paved to minimize tracking of dust and dirt. Point San Pedro Road will be swept up to two times per day, except on rain days, when no sweeping will occur, subject to the approval of the City of San Rafael;
- The Quarry shall maintain all required erosion control measures and stormwater management plans, and shall keep current and comply

with all permits required by the Regional Water Quality Control Board; and

- *The Quarry shall maintain all dust abatement devices, and shall keep current and comply with all permits required by the BAAQMD.*

Mitigation Measures Identified in This Report

Mitigation Measure R4.2-1d: *The project sponsor shall be required to continue existing emission reduction practices, including use of alternative fuels, use of low-emission diesel equipment, and dust abatement measures.*

Mitigation Measure R4.2-1e: *The applicant shall implement additional dust abatement measures identified by BAAQMD as feasible dust control, during all reclamation grading activities:*

- *Cover all trucks hauling soil, sand, and other loose materials as a part of reclamation activities, or require such trucks to maintain at least two feet of freeboard between the top of the material and top of truck;*
- *Pave, apply water at a minimum three times daily in dry weather, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at the Quarry;*
- *Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at the Quarry;*
- *Hydroseed, apply non-toxic soil stabilizers, or water to inactive reclamation areas (previously graded areas inactive for ten days or more);*
- *Limit traffic speeds on unpaved roads to 15 miles per hour;*
- *Install sandbags or other erosion control measures to prevent silt runoff to public roadways;*
- *Replant vegetation in disturbed areas as soon as the growing season dictates;*
- *Install wind breaks or plant trees/vegetative wind breaks at the windward sides of the reclamation areas until such time as the vegetation is established;*
- *Suspend reclamation-related excavation and grading activities when wind (as instantaneous gusts) exceeds 25 miles per hour; and*
- *Limit the area subject to reclamation-related excavation, grading and other construction activity at any one time.*

Mitigation Measure R4.2-1f: The project applicant shall keep all off-road equipment well-tuned and regularly serviced to minimize exhaust emissions, and shall establish a regular and frequent check-up and service/maintenance program for all operating equipment at the Quarry.

Mitigation Measure R4.2-1g: To further reduce emissions from off-road diesel equipment, the applicant shall fuel on-site diesel-powered mobile equipment used in reclamation activities with a minimum 80 percent biodiesel blend (B-80) or use other equipment and/or fuel that achieves the same reduction in particulate (PM-10) ~~and CO~~ emissions. The applicant shall also use Purinox[™], another approved additive, or other measures to reduce NOx and PM-10 emissions to the maximum extent feasible given current technologies.

Mitigation Measure R4.2-1h: Off-road diesel equipment operators shall be required to shut down their engines rather than idle for more than 5-minutes, unless such idling is necessary for proper operation of the vehicle.

Mitigation Measure R4.2-1i: If the mitigation measures listed above do not reduce emissions to below threshold values, the ~~The~~ applicant will acquire BAAQMD off-site emission offset credits in sufficient quantity to reduce emissions from reclamation grading to levels below significance thresholds.

Mitigation Measure R4.2-1j: The applicant will limit on-site mining operations on days on which reclamation grading activities are performed, such that total emissions from the site are not increased above significance thresholds. To ensure the effectiveness of this measure, the Quarry will be required to maintain and report to the BAAQMD and the County Public Works Department a record of reclamation and operations activities, with an estimate of emissions from each. ~~Since emissions related to reclamation grading were not quantified in ARP82, and since simultaneous reclamation and mining was not contemplated in ARP82, the~~ The baseline for combined emissions is the current level of emissions for mining operations only, as shown in Table 4.2-5, 4.2-13.1, plus the baseline emissions for the reclamation grading phase, as shown in Tables 4.2-10 and 4.2-11. The limit for combined emissions from mining and reclamation will therefore be the sum of the current emissions levels from mining operations, the baseline emission levels for reclamation grading, plus and the BAAQMD's threshold values for criteria pollutants, as shown in Table 4.2-10.1 for each reclamation phase.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure R4.2-1: The Marin County Public Works Department will be responsible for monitoring implementation of all the above mitigation measures, which will become conditions of approval of the project. Monitoring will occur during periodic inspections of the Quarry. The BAAQMD is the administrator of the emissions credit program, and will be responsible for ensuring compliance with the terms of participation in this program.

TABLE 4.2-10.1
ALLOWABLE EMISSIONS LEVELS FOR SIMULTANEOUS MINING AND RECLAMATION

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10
Total Existing Quarry Operational Emissions (from Table 4.2-5 4.2-13.1 ⁷)	<u>450.9</u>	<u>77.28</u>	<u>2,272</u>	<u>493</u>
Phase 1 Baseline Emissions	<u>304</u>	<u>39</u>	<u>294</u>	<u>252</u>
Phase 2 Baseline Emissions	<u>459</u>	<u>55</u>	<u>365</u>	<u>397</u>
Phase 3 Baseline Emissions	<u>421</u>	<u>48</u>	<u>267</u>	<u>369</u>
Phase 4 Baseline Emissions	<u>598</u>	<u>56</u>	<u>269</u>	<u>556</u>
BAAQMD Significance Criteria for Increased Emissions	550	80	80	80
Phase 1 Allowable Emissions from Combined Operations and Reclamation	<u>1,305</u>	<u>196</u>	<u>2,646</u>	<u>825</u>
Phase 2 Allowable Emissions from Combined Operations and Reclamation	<u>1,460</u>	<u>213</u>	<u>2,717</u>	<u>969</u>
Phase 3 Allowable Emissions from Combined Operations and Reclamation	<u>1,422</u>	<u>205</u>	<u>2,619</u>	<u>942</u>
Phase 4 Allowable Emissions from Combined Operations and Reclamation	<u>1,599</u>	<u>213</u>	<u>2,621</u>	<u>1,129</u>
Maximum Allowable Emissions from Combined Operations and Reclamation Activities	<u><960</u>	<u><152</u>	<u><1,877</u>	<u><544.4</u>

SOURCE: Tables 4.2-5, 4.2-10, 4.2-11, 4.2-13.1, BAAQMD

TABLE 4.2-11
INCREASES IN EMISSIONS OF CRITERIA AIR POLLUTANTS FROM PHASE 4 RECLAMATION
(Without Mitigation Measures)

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10
Phase 4				
Exhaust Emissions from Earthmoving Equipment	1,095	73.0	336	17.4
Exhaust Emissions from On-Site Truck Travel	150	43	225	8
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	1,108
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	25
TOTAL QUANTIFIED PHASE 4 EMISSIONS	1,245	116	561	1,158
ARP 82 Estimated Emissions (48% of ARP04)	<u>598</u>	<u>56</u>	<u>269</u>	<u>556</u>
ARP04 Increased Emissions over ARP82	<u>647</u>	<u>60</u>	<u>292</u>	<u>602</u>
BAAQMD Significance Criteria	550	80	80	80
Reduction required to reduce to below significance threshold	<u>97</u>		<u>212</u>	<u>522</u>

NOTE: **Bolded** values are in excess of significance thresholds.

⁷ See revisions to Table 4.2-13.1 in the response to comment D-21, below.

Level of Significance after Mitigation

Given current technologies, conversion of diesel equipment to USEPA Tier 3 standards, which SRRQ has already implemented for on-site mobile diesel equipment used in mining operations, would achieve a maximum NO_x reduction of ~~only~~ about 50 percent. Use of fuel additives, such as PuriNox[™], would also reduce NO_x emissions. It is therefore ~~unlikely~~ likely that Mitigation Measures 4.2-1b, d, f, g, and h could achieve ~~an 85-90 percent~~ the reduction in NO_x emissions, the level necessary to reduce emissions from these sources to a level below the BAAQMD's 80 pounds per day significance threshold. ~~In order to reduce~~ If NO_x emissions are not reduced to below significance with these measures, it will be necessary for the Quarry to implement ~~either~~ Mitigation Measure R4.2-1i and/or j.

Use of B-20 biodiesel (Mitigation Measure R4.2-1a) would reduce emissions of ROG ~~to less than significance thresholds of 80 pounds per day, reduce and CO emissions~~, and marginally reduce equipment exhaust emissions of PM-10. Increasing the biodiesel blend to B-80 or use of other alternative fuels or fuel additives (Mitigation Measure R4.2-1g) would further reduce PM-10 emissions from mobile equipment: use of B-80 results in approximately 40 percent reduction in PM-10 and CO, and approximately 50 percent reduction in ROG emissions (McCormick et al, 2006). ~~CO emissions would be reduced to less than significant.~~ Use of higher biodiesel blends may, however, increase NO_x emissions.

Conditions of the BAAQMD permit apply to stationary sources that would presumably not be involved in proposed reclamation processes. Therefore, no emissions reductions would be realized from implementation of these conditions relative to the calculated emissions resulting from the ARP.

Implementation of dust control measures (Mitigation Measures R4.2-1c and R4.2-1e) is expected to result in a decrease in fugitive dust emissions of 70%. ~~Even with~~ With this reduction, daily PM-10 emissions during reclamation grading would ~~exceed~~ likely be reduced to below significance thresholds in each for all reclamation ~~Phase 3~~ phases. In order to reduce PM-10 emissions to below significance it will be necessary for the Quarry to implement either Mitigation Measure R4.2-1i or j. If PM-10 emissions are not reduced to below significance with these measures, it will be necessary for the Quarry to implement Mitigation Measure R4.2-1i and/or j.

The combination of Mitigation Measures R4.2-1a-h, with Mitigation Measures R4.2-1i and j, will reduce this impact to less than significant.

Impact R4.2-2: Phase 4 of the 2004 Amended Reclamation Plan would include cut and fill activities that were not included in 1982 Amended Reclamation Plan. These new reclamation activities would result in emissions of criteria pollutants that would exceed Bay Area Air Quality Management District significance thresholds (Significant).

Proposed Phase 4 reclamation includes several activities that were not contemplated in ARP82. These activities include the demolition of McNear's Brickyard buildings, ~~placement of fill to raise McNear's Brickyard site~~, removal of the surcharge berm, and removal of the NE Quadrant berm and the pond fines stockpile. As shown in Table 4.2-9.1, 3-3 in Chapter 3, Project Description, these Phase 4 activities planned under ARP04 would involve approximately double the amount of reclamation grading contemplated in ARP82. Emissions from reclamation grading under ARP04 in excess of those that can reasonably be expected to have occurred under ARP82 are considered new emissions. ~~activities would require the cut and fill of approximately 865,500 cubic yards of soil.~~

Emissions resulting from Phase 4 reclamation activities would include fugitive particulate emissions (including PM-10 and PM-2.5) from earthmoving and disturbance and truck travel on unpaved Quarry roads, as well as criteria pollutants from the exhaust of trucks and equipment used in earthmoving. As with the first three reclamation phases, Phase 4 reclamation would occur over an approximately five-year period (see Table 3-2 in Chapter 3, Project Description). SRRQ proposes to limit disturbance of neighbors by conducting reclamation grading activities only during an 8-10 week period during the dry season of each year.

Daily pollutant emissions resulting from Phase 4 reclamation not contemplated in ARP82 were calculated based on emission factors published by the USEPA, BAAQMD and the South Coast Air Quality Management District and data sheets for these calculations are presented in Appendix C of this document.

The increased daily emissions shown in Table 4.2-11 indicate that in Phase 4 reclamation, the increase in daily emissions of ~~ROG~~, NOx, PM-10 and CO would all be greater than the significance standards established by the BAAQMD. Appendix N of the Marin County Environmental Impact Review Guidelines identifies any project that would cause or contribute substantially to existing or projected air quality violations as having a significant impact on air quality. Consequently, Phase 4 of the proposed ARP would be considered to result in a significant air quality impact resulting from increases in daily emission rates as compared to those calculated for this EIR for ARP82.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure R4.2-2a: Mitigation measures R4.2-1a, b, and c apply to Phase 4 as well.

Mitigation Measures Identified in this Report

Mitigation Measure R4.2-2b: Implement Mitigation Measures R4.2-1d through R4.2-1j for Phase 4.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure R4.2-2: The Marin County Public Works Department will be responsible for monitoring implementation of all the above mitigation measures. This will occur during periodic inspections of the Quarry.

Level of Significance after Mitigation

The increase in NO_x emissions from off-road equipment use and on-site truck travel would be ~~561~~ 292 pounds per day (Table 4.2-11) from new Phase 4 reclamation activities. Given current technologies, converting or modifying diesel equipment could achieve a maximum NO_x reduction of ~~only~~ about 50 percent. Use of fuel additives, such as PuriNox[™], would also reduce NO_x emissions. It is therefore ~~unlikely~~ likely that the mitigation measures identified above could achieve ~~an 85-90 percent~~ the reduction in NO_x emissions, ~~the level~~ necessary to reduce emissions from these sources to a level below the BAAQMD's 80 pounds per day significance threshold.

The project applicant has already converted all rolling stock using the facility to B-20 biodiesel. Use of biodiesel would reduce emissions of ROG to less than significance thresholds of 80 pounds per day and marginally reduce equipment exhaust emissions of PM-10. Increasing the use of biodiesel to B-80 (Mitigation Measure R4.2-1g) would further reduce diesel particulates and CO emissions (by about 40%, compared to conventional diesel; McCormick et al, 2006), which would be ~~but not~~ enough to reduce CO beneath the significance threshold.

Implementation of dust control measures (Mitigation Measures R4.2-1c and R4.2-1e) is expected to result in a decrease in fugitive dust emissions of about 70 percent, compared to emissions without dust control. ~~Even with this~~ This reduction in PM-10 emissions would be sufficient to reduce Phase 4 emissions below the significance threshold. ~~exceed significance thresholds in Phase 4 of reclamation. In order to reduce PM-10 emissions to below significance, it will be necessary for the Quarry to implement Mitigation Measures R4.2-1i or j for Phase 4 reclamation grading as well.~~

The application of Mitigation Measures R4.2-1a-h, ~~with Mitigation Measures R4.2-1i and j,~~ to Phase 4 reclamation grading will reduce this impact to less than significant.

Impact R4.2-3: Reclamation activities will generate greenhouse gas emissions that will contribute to climate change (Significant).

The proposed ARP would result in GHG emissions, primarily CO₂, emitted by trucks and earthmoving equipment associated with planned reclamation activities. Operation of diesel-powered equipment proposed to be used for reclamation activities (including five scrapers, four bulldozers, one front-end loader, one backhoe, a road grader, a water truck, and three light-duty trucks) over the 15 to 20 year phased reclamation period will result in considerable daily CO₂ emissions during each year's 8-10 week reclamation grading period. A small amount of GHGs would also be generated by employee vehicle trips (Table 4.2-12).

**TABLE 4.2-12
EMISSIONS OF GREENHOUSE GASES FROM PROPOSED RECLAMATION ACTIVITIES**

Emission Source	Emissions (tons eCO ₂ per year)			TOTAL
	CO ₂	CH ₄	N ₂ O	
Exhaust Emissions from On-Site Excavation and Transport Equipment	277	0.7	-	278
Worker vehicle trips (a)	10	0.0	0.4	10
Total Reclamation GHG Emissions	286	0.7	0.4	287
Project Lifecycle emissions (20 years)	5,720	13.7	8.4	5,742
<u>Estimated GHG emissions from ARP82</u>	<u>2,917</u>	<u>7</u>	<u>4</u>	<u>2,928</u>
<u>Increase in ARP04 GHG emissions over ARP82</u>	<u>2,803</u>	<u>7</u>	<u>4</u>	<u>2,814</u>

SOURCE: ESA

Emission factors for CO₂ for on road vehicles are available from the Emissions Factors (EMFAC2007) program of the CARB, while emission factors for N₂O and CH₄ are available from the California Climate Action Registry. Both CO₂ and CH₄ emission factors for reclamation truck and equipment may be calculated using the OFFROAD2007 model of the CARB, which shows no substantive emission of N₂O from these sources. Based on output from these models and emission data sources, GHG emissions from reclamation were estimated and are presented in Table 4.2-12. GHG emissions of the ARP04 from proposed reclamation activities are estimated to be 286 tons per year of CO₂, 0.687 tons per year of methane as eCO₂ and 0.421 tons per year of nitrous oxide as eCO₂.⁸ Over the lifecycle of the project (up to 20 years of reclamation activities), the total emissions of GHGs is estimated to be 5,742 tons of eCO₂. Based on Table 4.2-9.1, ARP82 grading volumes, and related air emissions, are estimated to be 51% of projected ARP04 emissions. For GHGs, this would be equivalent to 2,928 tons of eCO₂ as shown in Table 4.2-12. The increase in eCO₂ emissions attributable to increased reclamation grading activities under ARP04 is

⁸ N₂O has a global warming potential 298 times that of CO₂ over a 100 year period; CH₄ has a global warming potential 25 times that of CO₂ (IPCC, 2007). The unit of measure "eCO₂" is an expression of the CO₂ equivalent global warming potential of the emission. Thus one ton of CH₄ is equivalent to 25 tons of eCO₂.

2,814 tons (Table 4.2-12). Because these emissions are from a source that did not exist and was not planned for in 1990, the impact is significant.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure R4.2-3a: The applicant already uses a 20 percent biodiesel blend (B-20) in on-site mobile equipment; see Mitigation Measure R4.2-1a. The CO₂ produced by burning biodiesel is considered “biogenic,” that is, it is part of the natural cycling of carbon in the atmosphere and biosphere. Because it is not from a fossil source it is not included in GHG inventories.⁹ Therefore, the use of B-20 reduces CO₂ emissions that contribute to global climate change from on-site mobile equipment by approximately 20 percent.

Mitigation Measures Identified in This Report

Mitigation Measure R4.2-3b: Implementation of Mitigation Measure R4.2-1d, f, g, and h will reduce running time of diesel equipment, replace diesel equipment with less polluting equipment, and increase the use of biodiesel in on-site equipment. The amount of reduction in GHG emissions is estimated to be approximately an additional 65 percent.

Mitigation Measure R4.2-3c: Within one year of project approval, the applicant shall prepare and implement a GHG reduction plan. The plan will include a complete inventory of reclamation-related GHG emissions and will demonstrate how the Quarry will reduce or offset remaining un-mitigated GHG emissions. The plan will prioritize emission reduction through energy conservation and other measures; for those emissions that cannot be reduced, the plan shall specify how emissions will be offset. Offsets may take the form of installation of on-site alternative energy generation facilities (such as solar power) or off-site compensation, such as monetary contribution to a project that sequesters carbon. Examples of such projects include wetland restoration, purchase of carbon credits verified by the California Climate Action Registry, and reforestation. On-site offsets will be given higher priority than off-site offsets, and offsets with co-benefits, such as reduction of particulate emissions within the vicinity of the Quarry, and restoration of habitat for special status species, will be given higher priority. The plan must demonstrate how, at a minimum, the Quarry will reduce reclamation-related, non-biogenic GHG emissions consistent with the Marin County Greenhouse Gas Reduction Plan and Countywide Plan Update policies: ~~since no reclamation-related emissions were occurring in 1990, the plan must demonstrate how reclamation-related emissions are reduced or offset, such that there are no net emissions from reclamation.~~ total emissions

⁹ The California Air Resources Board currently is performing lifecycle analyses of biodiesel and other so-called “low-carbon fuels” as part of the AB32 regulatory process. Preliminary results indicate that biodiesel derived from soy beans grown conventionally (i.e., with synthetic pesticides and fertilizers) in the Midwest and used in California has a total “well to wheel” greenhouse gas emission rate about one third that of petroleum diesel: GHG emissions associated with biodiesel are calculated to be 35.26 grams of CO₂ equivalent per megajoule of energy content, versus 99.4 for California ultra-low sulfur diesel (CARB, 2008a, 2008b). Biodiesel derived from used vegetable oil can be expected to have substantially lower greenhouse gas emissions than soy-derived biodiesel, since about half of the GHG emissions associated with use of soy-derived biodiesel is from farming soy beans and extracting the oil from the beans (CARB, 2008b).

are 15% below the emissions associated with ARP82, or no more than 2,489 tons of eCO₂. The plan will include an implementation schedule. The plan will be submitted to the Marin Public Works Department for review and approval. In addition, the initial emissions inventory prepared as part of the plan will be reported to the California Climate Action Registry or a successor organization as a baseline inventory, and the Quarry will conduct and report additional inventories annually.

Mitigation Monitoring and Reporting

***Draft Mitigation Monitoring Measure R4.2-3:** In addition to Draft Mitigation Monitoring Measure R4.2-1, the Marin County Public Works Department will be responsible for reviewing and approving the GHG reduction plan, which must be submitted within one year of project approval. The Marin County Public Works Department will also be responsible for monitoring implementation of the GHG reduction plan.*

Level of Significance after Mitigation

Implementation of Mitigation Measures R4.2-3a, b, and c will together result in no net increase in GHG emissions related to reclamation activities compared to baseline levels, thus reducing the impact to less than significant.

- D-21 The commenter raises the question of whether a production limitation (Mitigation Measure P4.6-6b) is justified or legal given the decision found in the California Supreme Court case of Hansen Brothers Enterprise, Inc. involving a rock quarry, vested rights and recognition of varying levels of production. The issue from the case, in summary, is interpreted to mean that where there is a vested right to mine, an increase in extraction, unless substantial, does not intensify the non-conforming use, and is therefore allowed. What constitutes a “substantial” increase was not, however, clarified by the Court. The production limitation is further reviewed and explained as detailed below.

An examination of the historic record of mining at SRRQ, both prior to and since 1982, reveals considerable fluctuation in annual production level. As shown in Table D-20.1, in years for which data are available, production has fluctuated from a low of 692,000 tons in 1979, to a high of 1,873,231 tons in 1973. Data for the period 1984-1989 are missing, but recorded production levels since 1982 have fluctuated from a low of 706,000 in 2003, to a high of 1,593,512 in 2007. The annual average for all years for which data are available is 1,193,775 tons. Figure D-20.1 shows the information in the table in graphic format, and also shows the five-year rolling average production level.

As can be seen, both the average of the entire record, and each 5-year rolling average value, are lower than the 1980-82 level (1,414,667 tons) that is established as the baseline in the Final EIR. The five year rolling average is viewed as a way to normalize fluctuating production rates. The outlying data for the highest years recorded, 1973, 1974, 1982, 1983, and 2007, were, according to the applicant, all years in which the Quarry increased production to meet demand created by declared emergencies.

TABLE D-20.1
ANNUAL PRODUCTION LEVELS
(all figures in tons)

Year	Annual Production	5-year rolling average
1973	1,873,231.00	-
1974	1,839,791.00	-
1975	MISSING	-
1976	MISSING	-
1977	MISSING	-
1978	MISSING	-
1979	692,000.00	-
1980	1,467,000.00	-
1981	1,304,000.00	-
1982	1,473,000.00	-
1983	1,789,000.00	1,345,000.00
1984	MISSING	-
1985	MISSING	-
1986	MISSING	-
1987	MISSING	-
1988	MISSING	-
1989	MISSING	-
1990	836,541.00	-
1991	1,275,495.00	-
1992	846,256.00	-
1993	729,325.00	-
1994	766,624.00	890,848.20
1995	896,797.00	902,899.40
1996	1,320,567.00	911,913.80
1997	1,459,650.00	1,034,592.60
1998	1,000,000.00	1,088,727.60
1999	1,000,000.00	1,135,402.80
2000	1,000,000.00	1,156,043.40
2001	1,164,382.00	1,124,806.40
2002	966,014.00	1,026,079.20
2003	706,875.00	967,454.20
2004	1,361,457.00	1,039,745.60
2005	1,106,909.00	1,061,127.40
2006	1,470,562.00	1,122,363.40
2007	1,593,512.00	1,247,863.00
2008	1,099,169.00	1,326,321.80

Statistical Summary

Average of Total Record	1,193,775.27
Standard deviation	355,612.38
1980-82 avg	1,414,666.67
Stand. Dev as percent of 1980-82 avg	25%
Highest Recorded	1,873,231.00
As percentage of 1980-82 avg	132%
Lowest Recorded	692,000.00
As percentage of 1980-82 avg	49%

SOURCES: 1973-74, 2004-2008: CSW/ST2 comment D.1-8
1979-83: Merrill Lynch, 1984
1990-97: Marin County, 2000
1998-2003: Office of Mine Reclamation, 2007

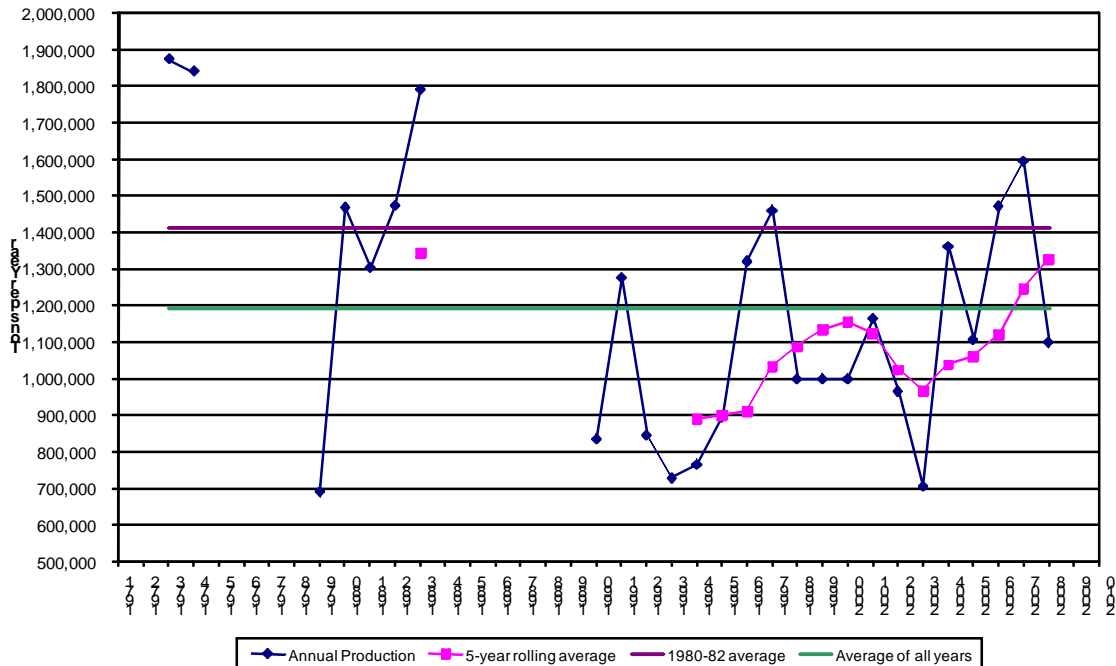


Figure D-20.1
Annual Production Levels at SRRQ

The Air Quality section in the Final EIR recognized and analyzed fluctuating production. Specifically, the baseline level of production was assumed to increase by 20 percent above the 1980-82 average. This is because the applicant proposed no limits on production. The analysis found that this level would contribute to potentially significant impacts. The mitigation measures proposed, in part, to limit production to the baseline level of production. However, providing some flexibility on an annual basis could be accomplished as long as total emissions are limited.

In recognition of the Hansen Brothers decision and the historic production data at SRRQ, and to give SRRQ the flexibility to respond to declared emergencies (as well as the public benefit derived from rapid emergency response), the discussion of the baseline for the AQP on page 3-66 in Chapter 3, Project Description, of the Final EIR is revised to include the following:

The level of production for the Quarry in 1982 was 1,473,000 tons of finished product; for the prior two years, the levels were 1,467,000 tons in 1980 and 1,304,000 tons in 1981. In 1979, production levels were about half of 1980 levels (Marin County Community Development Agency, 2000). The average annual production level for the period 1980–1982 was 1,414,667 tons (see Table 3-8). Records of annual production before 1979 are incomplete, but production was at times higher than in the period 1980-82, particularly in years in which the Quarry was providing materials for emergency repairs. Because the California Supreme

Court has ruled that where there is a vested right to mine, an increase in extraction, unless substantial, does not intensify the non-conforming use, the baseline (and the scope of non-conforming use) is defined as follows:

- The annual average production level is no greater than the 1980-1982 annual average of 1,414,667 tons. This is calculated by averaging each year's production with the prior four years' production (five-year rolling average).
- The maximum annual production level in any calendar year is the 1980-82 average (1,414,667 tons), plus 20 percent, or 1,697,600 tons.
- Daily production can also be expected to fluctuate, but is limited, at a minimum, by hours of operation and number of truck trips.

The applicant proposes no limits on production. Therefore, there is the possibility that production levels could rise in the future above the flexible baseline. This would occur if either of the following takes place:

- if production in any calendar year were to exceed 1,697,600 tons, or
- If production in any calendar year, averaged with the production in the prior four years, were to exceed 1,414,667 tons.

This is a change from the analysis performed in the Final EIR, which used a set baseline of 1,414,667 tons per year. This change in the interpretation of the baseline has minor effects on several impacts and mitigation measures, as shown below. These changes do not alter conclusions regarding significance, either before or after mitigation.

Revisions to the affected impacts, mitigation measures, and associated tables follow:

Impact P4.1-10: Visual impacts from McNear's Beach County Park (Less than Significant).

As shown in Figure 4.1-6, the Quarry's operations area and barge loading dock are visible from the pier at McNear's Beach County Park; this area of the Quarry is also visible to a lesser degree from other areas of the park. Ongoing operations of the Quarry under the AQP are not expected to change these views from their current industrial character. While the proposed AQP could result in increased production and increased use of barges for shipping material which could be considered by some to be an adverse aesthetic impact; however, Mitigation Measure 4.6-6b in Section 4.6, Land Use and Planning, would limit production to the 1982 baseline levels described in Chapter 3, Project Description; no increase in barge traffic above the levels associated with the baseline level of production is therefore expected.

Because the AQP would not degrade the character of views from McNear's Beach County Park, this impact is considered less than significant.

Impact P4.2-6: Future Quarry operations under the proposed Amended Surface Mining and Quarrying Permit could exceed baseline levels of production, with concomitant increases in emissions of criteria air pollutants above threshold values (Significant).

Current estimated emissions of criteria air pollutants from Quarry operations for the average annual baseline level of production (1,414,667 tons) are presented in Table 4.2-5. The level of production of the Quarry in recent years is within the baseline fluctuations (i.e., no more than 20 percent above the baseline annual average, or 1,697,600 tons per year). Estimates of emissions at a rate of 1,697,600 tons per year are shown in Table 4.2-13.1. similar to or less than production in the years leading up to 1982, when the Quarry became a legal nonconforming use. Since pollutant emissions from most sources have likely decreased on a unit basis since 1982 because of improvements in diesel engine technology and improved management practices to reduce fugitive dust emissions, it can be assumed that, given the same level of production now as in 1982, emissions would be lower now. The emissions presented in Tables 4.2-5 and 4.2-13.1 do not reflect emissions that would be generated by reclamation activities, which are considered under a separate impact statement.

**TABLE 4.2-13.1
PROJECTED EMISSIONS OF CRITERIA AIR POLLUTANTS FROM
QUARRY OPERATIONS UNDER THE AQP,
ASSUMING MAXIMUM ANNUAL PRODUCTION OF 1,697,600 TONS**

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10
Permitted Stationary Sources ^a	2	1.6	7	297
Exhaust Emissions from On-Site Excavation and Transport Equipment ^b	63.6	14.4	158.4	6.1
Fugitive Dust Emissions from On-site Excavation and Transport Equipment (controlled) ^{b,c}				124.6
Blasting ^d				4
Off-Site Truck Emissions (trucks hauling materials to and from the project site) ^e	254	48.8	761	32
Barge (Tugboat) Emissions ^f	131.3	12.48	1,345.5	28.99
Total Projected Quarry Operational Emissions under the AQP	450.9	77.28	2,271.9	492.71
Existing Quarry Operational Emissions	440	72	1,707	464.4
Projected Increase: AQP above Existing	40.9	5.28	474.9	28.31
BAAQMD Significance Criteria	550	80	80	80

BOLDED values indicate significance threshold is exceeded.

^a Currently actual emissions are well below permitted levels; therefore, no increase in emissions is projected for stationary sources.

^b Assumed to increase 20 percent above current emissions, due to 20% increase in production.

^c Controlled emissions of PM-10 assume on-site watering to reduce fugitive emissions by 70 percent.

^d Daily emissions from blasting assumed not to be a maximum of increase (would remain at one blast per day, maximum)

^e Assumes no increase in truck traffic.

^f Assumes maximum of three barge trips per day 50 percent increase in barge emissions (based on one additional barge trip per day).

SOURCE: Table 4.2-5, ESA and KB Environmental

For evaluating operational-phase emissions, the BAAQMD recommends that local agencies consider individual development projects that exceed a net increase in pollutant emissions of reactive organic gases (ROG), NO_x, or PM-10 exceeding 80 pounds per day or 15 tons per year to have a significant impact on the environment.

The proposed AQP imposes no limits on the annual rate of production for the Quarry. Therefore, SRRQ could, during the remaining life of the Quarry, increase production over baseline (1982) levels, as defined in Chapter 3, Project Description. Increases in production above the baseline would require increased use of stationary equipment and mobile on-site and off-site equipment, resulting in increases in emissions of criteria air pollutants. This analysis assumes that, in the absence of a limit on annual production levels, production could increase by up to more than the 20 percent fluctuation above 1982 levels that is considered within the above-baseline (i.e., above 1,697,600 tons). (i.e., 1982) levels. This is a conservative (i.e., worst case) assumption, because it is approximately equivalent to the highest single year production level reported by the Quarry, and is higher than any 5-year average since 1982. Projected emissions associated with increased production under the AQP are shown in Table 4.2-13.1. Different assumptions are used for different emissions sources, as explained in the table footnotes. Since truck trips would be limited to 250 per day, while barge trips would not be limited, an increase in production could be expected to increase the average number of daily barge shipments. The baseline condition, however, assumes some fluctuation in the number of barge trips, but a substantial increase in production above the baseline could increase the average daily number of barge trips to the extent that increased emissions from tug boats would exceed the significance threshold for NO_x and other criteria pollutants. The value of 897 pounds per day of NO_x from barge emissions shown in Table 4.2-5 for existing conditions is based on an assumption of two barge trips per day. One additional barge shipment per day would result in increased NO_x emissions of approximately 448 pounds per day, which itself would greatly exceed the BAAQMD significance threshold of 80 pounds per day. The AQP would also be expected to result in an increase of other criteria pollutants, but not above threshold values, as shown in Table 4.2-13.1.

Each blast at the Quarry is estimated to release about 4 pounds of PM-10 to the atmosphere. Since the Quarry does not set off more than one blast per day, increased production is not expected to increase the daily emission of PM-10 related to blasting, but more frequent blasting would be expected to increase the amount of dust experienced by neighbors of the Quarry.

An increase in production above the baseline level would be expected to result in an increase in daily and annual emissions of criteria pollutants, which could exceed the threshold levels established by the BAAQMD, thereby causing a significant impact.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure P4.2-6a: Mitigation measures R4.2-1a, R4.2-1b, and R4.2-1c apply to equipment used in ongoing quarrying operations as well.

Mitigation Measures Identified in This Report

Mitigation Measure P4.2-6b: Implement Mitigation Measures R4.2-1d through R4.2-1j for ongoing quarrying operations as well as reclamation activities.

Mitigation Measure P4.2-6c: Implement Mitigation Measure P4.6-6b (see Section 4.6, Land Use and Planning), which would limit Quarry operations to the ~~maximum level of annual production as of 1982~~ baseline level.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.2-6: The Marin County Department of Public Works (DPW) will be responsible for oversight and enforcement of these provisions. DPW will verify that a revised application for the AQP that contains the above provisions, including the Operational Dust Mitigation Plan/Program, and will approve said provisions prior to issuance of the AQP. After issuance of the AQP, DPW will conduct routine field inspection to verify implementation of these provisions. The Quarry must report its annual production to the County and to the State each year.

Level of Significance after Mitigation

The combination of Mitigation Measures P4.2-6a, b, and c would reduce this impact to less-than-significant. Mitigation Measure P4.6-6b, which limits production to ~~1982~~ baseline levels of production, would prohibit SRRQ from increasing its daily emissions resulting from any increase in intensity of extraction and processing. Therefore, emissions from off-site transport via barge would also remain within the 1982 baseline levels and thus result in no increase in daily emissions from this sources. With adoption of these measures, the AQP would not result in an increase in daily pollutant emissions over existing or ~~1982~~ baseline emission levels, and this impact would be mitigated to less than significant.

Impact P4.2-7: Proposed amendments to the Surface Mining and Quarrying Permit could result in an increase in greenhouse gas emissions, and contribute to global climate change (Significant).

GHG emissions within Marin County from existing SRRQ mining operations are estimated to be 32,612 tons per year of carbon dioxide (CO₂), 84 tons per year of methane (CH₄) as carbon dioxide equivalent (eCO₂) and 979 tons per year of nitrous oxide (N₂O) as eCO₂. Increases in GHG emissions associated with the proposed AQP would result from possible increases in production rates above baseline levels, as defined in Chapter 3, Project Description. The number of truck

trips in and out of the Quarry would not change from baseline levels. However, increases in GHG emissions would result from any increase in production above baseline (1982) levels, which would be expected to result in increases in use of on-site mining equipment and barge shipments. ~~Assuming that the AQP may result in a 20 percent increase in production above baseline levels, GHG emissions from on-site equipment would also increase by about 20 percent, and GHG emissions from tugboats would increase about 30 percent, as indicated in Table 4.2-14. The baseline for GHG emissions is considered the level of emissions associated with the baseline level of production (i.e., a maximum of 1,697,600 tons per year, and a maximum of 1,414,667 tons per year as a five-year rolling average). This also serves as the baseline for the purpose of application of the County's Greenhouse Gas reduction policies. Because the AQP could result in GHG emissions greater than 15 percent below levels allowed in 1990, levels the impact is significant.~~

TABLE 4.2-14
EXISTING AND PROPOSED COUNTYWIDE PROJECTED MAXIMUM ANNUAL EMISSIONS OF
GREENHOUSE GASES FROM QUARRY OPERATIONS
(assuming annual production level of 1,697,600 tons)

Emission Source	Emissions (tons eCO ₂ per year)			
	CO ₂	CH ₄	N ₂ O	<u>TOTAL</u>
Total Existing <u>Average Quarry Operational GHG Emissions (from Table 4.2-9)</u>	39,238 <u>32,612</u>	107 <u>84</u>	1,397 <u>979</u>	<u>33,675</u>
Maximum Annual Quarry Operational GHG Emissions (assumes 20% above average)	<u>39,134</u>	<u>101</u>	<u>1,175</u>	<u>40,410</u>
Increased Exhaust Emissions from On-Site Excavation and Transport Equipment	457	1,100	2	
Increased Generator Emissions	294	4.40	--	
Increased Barge (Tugboat) Emissions	6,550	21.0	411	
Total Increase in GHG Emission with AQP^b	<u>7,298</u>	<u>26.54</u>	<u>413.1</u>	
Percent Increase over existing Emissions	<u>18.6%</u>	<u>24.8%</u>	<u>29.6%</u>	

SOURCE: ESA

Mitigation Measures Proposed as Part of the Project

Mitigation Measure P4.2-7a: The applicant proposes to limit truck trips into and out of the Quarry to 250 trips per day, which is below the baseline level of truck trips. Therefore, GHG emissions from haul trucks would not increase above 1990 levels.

Mitigation Measure P4.2-7b: The applicant already uses a 20 percent biodiesel blend in on-site mobile equipment; see Mitigation Measure R4.2-1a. Biodiesel reduces CO₂ emissions that contribute to global warming, since biodiesel is derived from plant and animal sources, not fossil sources.

Mitigation Measures Identified in This Report

Mitigation Measure P4.2-7c: Mitigation Measure P4.2-6b will further reduce GHG emissions below 1990 levels from on-site mobile equipment used for Quarry operations.

Mitigation Measure P4.2-7d: Mitigation Measure P4.2-6b will limit production to baseline (1982) levels, which will ensure no increase in emissions from on-site mobile diesel equipment and tugboats.

Mitigation Measure P4.2-7e: The Greenhouse Gas Reduction Plan specified in Mitigation Measure R4.2-3c shall also include an inventory of operations-related GHG emissions and a plan to reduce these emissions ~~by to a level 15 percent below 1990 levels. The plan will include an inventory of 1990 and current GHG emissions related to Quarry operations; the values in Table 4.2-14 may be considered preliminary, and should be confirmed or revised in a new inventory.~~

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.2-7: See Draft Mitigation Monitoring Measures R4.2-1, R4.2-3, P4.2-6 and P4.2-6.

Level of Significance after Mitigation

The above mitigation measures will ensure that GHG emissions associated with quarrying operations do not exceed a level 15 percent below 1990 emissions; therefore, the impact will be mitigated to less than significant.

Impact C4.2-9: Reclamation activities under the Amended Reclamation Plan and Quarry operations under the Amended Surface Mining and Quarrying Permit would result in emissions of toxic air contaminants, including diesel particulate matter, increasing the risk of cancer for nearby sensitive receptors (Significant).

The results of the HRA were used to calculate increased risk of cancer from future TAC emissions associated with the proposed AQP and ARP combined, assuming project-related exposure would continue through 2024. Results of the HRA are summarized in Table 4.2-15.

For future Quarry operations and reclamation activities through 2024, the modeled receptor location with the highest exposure to TACs would have an incremental cancer risk at a rate of 13.9 cancer cases per million exposed persons, which is above the significance threshold of 10 per million. A hypothetical person at this location is termed the “maximum exposed individual” (MEI). The term MEI refers to a person residing in the location of the highest concentration of TACs from the projects during the entire period included in the modeling exercise. The MEI for future exposure is located to the north of the Quarry (Figure 4.2-4).

Figure 4.2-4 indicates that a slightly elevated risk of cancer due to future emissions of the AQP and ARP will be experienced by individuals along Point San Pedro Road and in the Peacock Gap neighborhood. However, the level of exposure does not result in a significant cancer health risk, except for a limited area around the Marin Bay Park development. Please note that, as previously discussed, the HRA examined only health risks associated with emissions from the Quarry, and did not include the health risks associated with regional or other local TAC emission sources.

As shown in Table 4.2-16, over 99 percent of the cancer risk at the location of the MEI as a result of the proposed projects is due to DPM emissions, and 89 percent is due to DPM from onsite mobile equipment operations associated with Quarry operations, not reclamation. Most of the exposure along Point San Pedro Road is from haul trucks.

Because the combined projects would increase the incremental risk of cancer at the location of the MEI by more than 10 per million exposed individuals, the impact is significant.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure C4.2-9a: As noted in Mitigation Measures R4.2-1 and P4.2-6, the applicant has taken measures to reduce DPM emissions from on-site equipment, including upgrading to lower emission engines and use of B-20 fuel.

Mitigation Measures Identified in This Report

Mitigation Measure C4.2-9b: Implement Mitigation Measure P4.6-6b, which would limit ~~proposed project aggregate multi-year annual average production levels and single-year maximum production levels~~ to baseline levels. ~~1982.~~

Mitigation Measure C4.2-9c: Implement Mitigation Measure R4.2-1 and Mitigation Measure P4.2-6 to further reduce DPM emissions from on-site mobile equipment used both for reclamation and for mining operations.

Mitigation Monitoring and Reporting

See Draft Mitigation Monitoring Measures R4.2-1, P4.2-6, and P4.6-6.

Level of Significance after Mitigation

As shown in Table 4.2-15 and illustrated in Figure 4.2-5, incorporation of Mitigation Measures C4.2-9a, b, and c would reduce the incremental increased cancer risk to 7.4 cases per million exposed persons at the site of the MEI, which is below the threshold value of 10. Therefore, the impact would be mitigated to less than significant.

Impact P4.6-6: The Amended Surface Mining and Quarrying Permit would allow for an intensification of quarry operations beyond 1982 levels, in excess of the Quarry's legal nonconforming use under Title 22 of the County Code (Significant).

The following components of the proposed project would potentially exceed the scope of SRRQ's permitted use of the property as a legal nonconforming use:

- The proposed AQP would impose no limits on annual production of quarry materials, allowing SRRQ to operate at an intensity ~~well beyond that of the~~ baseline level, as defined in the Project Description (Chapter 3); 1982;
- The proposed AQP would allow for noise-generating operations until 10 p.m. and on weekends. These would include barge loading and operation of the crushing plant. The 1982 Amended Reclamation Plan indicates that, "(n)oise generating operations in both the Quarry and the plant are generally limited to daylight hours on weekdays except in times of emergency (Gilroy, 1982, p. 9).
- The proposed AQP would allow blasting to occur at greater frequency than the "approximately two times per week" frequency extant in 1982 and cited in Salter, 1982 (reference 133 in Section IX).

Mitigation Measures Proposed as Part of the Project

Mitigation Measure P4.6-6a: The applicant proposes to limit daily truck traffic to 250 one-way trips per day (125 in and 125 out). This appears to be less than the daily average during the period 1980-1982 and within the baseline for Quarry operations.

Mitigation Measures Identified in this Report

Mitigation Measure P4.6-6b: Quarry operations shall be limited to the levels of intensity extant in 1982, at the time that the Quarry became a legal nonconforming use. This will include the following:

- Maximum annual production shall be limited to the fluctuating baseline level of production as defined in Chapter 3, Project Description in 1982, i.e., a 5-year rolling average of no more than 1,414,667 ~~1,473,000~~ tons per year, and a maximum level of production of 1,697,600 tons in any one year;
- Operations shall be limited to those in place in 1982, i.e., noise-generating operations will be limited to daylight hours on weekdays, except during a declared emergency;
- Blasting shall be limited to ~~approximately an annual (calendar year)~~ average of two times per week (104 times per year).

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.6-6: The specific requirements of these Mitigation Measures shall become conditions of approval of the AQP.

As such, responsibility for monitoring implementation of this mitigation measure shall lie with the Marin County Department of Public Works.

Level of Significance after Mitigation:

The above mitigation measures would ensure that SRRQ is operating within the scope of its permitted use, and would therefore fully mitigate Impact P4.6-6.

- D-22 On January 27, 2009, the Marin County Board of Supervisors adopted an amendment to the 2007 Marin Countywide Plan addressing a number of technical corrections, including changes to the location of the Baylands Corridor boundary at the San Rafael Rock Quarry site to more accurately reflect existing physical conditions and remove already developed areas. The boundary adjustment, which was pulled back to the edge of the existing marshlands, removed portions of the McNear's Brickyard facilities and other ancillary uses in the area identified as the Northwest Quadrant in the San Rafael Rock Quarry Amended Reclamation Plan. This change also served to remove the property's two access roads from the Baylands Corridor.

The comment posits that "the Final EIR should delete all references to the setbacks required at the marshes in light of the Supervisors' action amending the Baylands Corridor designation as it relates to the San Rafael Rock Quarry." This request is inconsistent with the Countywide Plan's Baylands conservation policies to preserve and enhance the diversity of the Baylands ecosystem. Specifically, Countywide Plan Policy BIO-5.1 requires adherence to development setbacks for areas qualifying for protection under the Wetland Conservation Area and Stream Conservation Area for large parcels over 2 acres in size. Under the Wetlands Conservation Area, a minimum 100-foot development setback is required for parcels more than 2 acres in size in the City-Centered Corridor. An additional buffer may be required for parcels within the Baylands Corridor. The San Rafael Rock Quarry property would be subject to the application of this policy. The aforementioned amendment to the location of the Baylands Corridor boundary did not eliminate responsibility to comply with this and related Baylands Corridor policies in the Countywide Plan. Mitigation Measures R-4.3-5b and R-4.3-12b are consistent with these policies.

The comment also states that "the Baylands Corridor was established to protect important Baylands and large adjacent undeveloped uplands along San Pablo and San Francisco Bays." (See also page 2-11 in the Marin Countywide Plan.) This statement is further described in Countywide Plan Goal BIO-5 (page 2-40), which states that an additional area of 300 feet or more of associated habitat is included, where applicable, for large parcels over 2 acres in size that are primarily undeveloped. This additional buffer was not included on the site in recognition of the site's historic use; however, the buffers described in BIO-5.1 would still apply as expressed above.

- D-23 Comment noted. Please see the responses to comments contained in comment letter E, below.

- D-24 Regarding economic feasibility of the Alternatives, the applicant has not conclusively demonstrated any of the alternatives is in fact economically infeasible. Under CEQA, greater cost does not equate to infeasibility. The following is taken from the introduction to Chapter 6, Alternatives, in the Final EIR:

The California Environmental Quality Act (CEQA) requires an evaluation of the comparative effects of a range of reasonable alternatives to a project that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project (CEQA Guidelines §15126.6[a]). The EIR is to consider a reasonable range of potentially feasible alternatives that will foster informed decisionmaking and public participation. The nature and scope of the alternatives to be discussed is governed by the “rule of reason.” The discussion of alternatives is to focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede, to some degree, the attainment of the project objectives, or would be more costly (CEQA Guidelines §15126.6[b]).

The alternatives presented in the Final EIR meet these requirements. Please see also Master Response 102, Alternatives, in Chapter 2, and the response to comments D.1-14 and D.3-1, below.

Regarding the Alternative Reclamation with Alternative Beneficial End Use Alternative, the points made in this comment regarding potential impacts of post-reclamation use of the Main Quarry Bowl as a park, amphitheater, or solar array, are acknowledged. The following revisions are made to the analysis and comparison of impacts of the Amended Reclamation Plan alternatives, on pages 6-8 through 6-10 in Chapter 6 of the Final EIR:

Geology, Soils, and Seismicity

The project itself would have the potential for significant environmental effects related to geology, soils, and seismicity, but these would be reduced to less-than-significant with the mitigation measures specified in Section 4.4. The No Project/Status Quo Alternative would be expected to have similar, but somewhat lesser impacts, since the final depth of the Main Quarry Bowl would be less than for the proposed project, and so would likely be more stable. The Alternative Reclamation with Alternative Beneficial End Use Alternative would specify low-impact land uses and so would likely result in lower levels of erosion and sedimentation. However, slope stability is a concern for use of the un-flooded Main Quarry Bowl for recreational uses. Slope stability evaluation would have to be performed to ensure an adequate factor of safety for the intended end uses, including recreational uses; if an adequate factor of safety could not be achieved, the end use would have to be limited to appropriate uses.

Hydrology and Water Quality

The project is expected to have significant effects on hydrology and water quality related to the potential for contaminated stormwater runoff and stratification of water in the flooded Main Quarry Bowl following reclamation, but these effects can be mitigated to less-than-significant with the measures specified in Section 4.2-5. The Alternative Reclamation with Alternative Beneficial End Use Alternative specifies broader buffers around marsh areas and low-density development, both of which would reduce the potential for contaminated stormwater runoff to reach the marshes and the Main Quarry Bowl, which would remain dry. However, rainwater collecting in the bottom of the Main Quarry Bowl would have to be managed, either by pumping it out, which could have implications for energy use and related air emissions, including greenhouse gases, or by managing it such that water quality does not deteriorate.

The No Project/Status Quo Alternative would not include the aeration or mixing system to prevent stratification, poor water quality, and potential deleterious effects on aquatic organisms in the flooded Main Quarry Bowl, this alternative could be expected to result in significant water quality impacts that would be mitigated or avoided under the Project and the other alternatives.

The Mitigated Alternative would include the aeration or mixing system to prevent stratification of the water column and resulting degraded water quality. This alternative, like the Alternative Reclamation with Alternative Beneficial End Use Alternative, would restore tidal action in the marshes, resulting in restoration of more natural hydrology, a benefit delayed until the cessation of quarrying by the project itself.

Noise

The only significant noise impact of the ARP project is associated with construction and later dismantling of the proposed berm on the northern side of the NE Quadrant. This impact, though temporary, would remain significant and unavoidable even with the incorporation of specified mitigation measures.

While each of the alternatives would be expected to have noise impacts associated with various reclamation activities, it is likely that these would either be less than significant, or could be mitigated to less than significant. ~~Therefore, the noise impacts of the alternatives would likely be less than the project.~~ The Alternative Beneficial End Use Alternative includes the possibility of using the un-flooded Main Quarry Bowl as a concert venue. This use could result in significant noise impacts.

Transportation and Traffic

The project is not expected to result in significant traffic impacts; see Section 4.10. This is due to the low traffic-generation predictions for reclamation activities, and the similarity of post-reclamation land uses under ARP04 and ARP82. None of the alternatives would be expected to have adverse traffic impacts. Reclamation activities would be similarly limited in their traffic generating potential. Post-reclamation land uses would be the same as the project, or, in the case of the Alternative Reclamation with Alternative Beneficial End Use Alternative, lower density.

However, the Alternative Beneficial End Use Alternative includes the possibility of using the un-flooded Main Quarry Bowl as a concert venue. This use could result in significant traffic impacts associated with large events.

Regarding the ability of alternatives to reduce significant impacts of the Projects as proposed, Table 6.1 is revised as follows (only the relevant portions of the table are reproduced below):

Furthermore, the conclusions of the alternatives analysis regarding the Environmentally Superior Alternative to the ARP contained in Chapter 6, Alternatives, and in Chapter 2, Summary, are revised as follows:

Chapter 6, pages 6-21 and 6-22 of the Final EIR is changed as follows:

Amended Reclamation Plan: Environmentally Superior Alternative

As described above and summarized in Table 6-1, each of the three alternatives would likely result in fewer significant impacts than the project. However, the No Project/Status Quo Alternative would result in impacts not associated with the project, notably interference with the extraction of the mineral resource. ~~The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.~~ The Alternative Reclamation with Alternative Beneficial End Use Alternative avoids or reduces most impacts associated with the project as proposed, but could result in significant impacts related to use of the un-flooded Main Quarry Bowl as a recreational area, including a large-event venue. The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.

In conclusion, the Mitigated Alternative ~~and the Alternative Reclamation with Alternative Beneficial End Use both~~ appears to have the ability to meet most of the project objectives, to reduce significant impacts associated with the project, and to result in additional benefits not realized by the project itself. Therefore, these Mitigated Alternative is determined to be ~~two alternatives are coequally~~ the Environmentally Superior Alternative.

TABLE 6-1
ABILITY OF ALTERNATIVES TO REDUCE OR AVOID SIGNIFICANT IMPACTS OF THE ARP PROJECT

Impact	Project	No Project / Status Quo Alternative	Mitigated Alternative	Alternative Reclamation with Alternative End Use Alternative
Geology, Soils, and Seismicity				
Impact R4.4-1: Prior to the completion of site reclamation, the project site could be subject to slope instability hazards, including landslides, debris flows, and rockfalls caused by seismic or non-seismic mechanisms	Impact can be reduced to less than significant	Existing permits do not contain mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be similar, assuming same geotechnical analysis applied. <u>Slope stability analysis would be required to determine whether the un-flooded Main Quarry Bowl would have an adequate factor of safety for the intended end-uses.</u>
Impact R4.4-2: Soil erosion of exposed cut or fill slopes, native slopes with removed vegetation, and soil stockpiles could result in soil erosion and loss of topsoil	Impact can be reduced to less than significant	Existing permits do not contain mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be the same, assuming mitigation measures would apply
Impact R4.4-3: Unstable slopes or soils could adversely affect post-reclamation land uses of the Quarry site	Impact can be reduced to less than significant	Existing permits do not contain protections of mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be the same or less, since end uses would be less intensive
Hydrology and Water Quality				
Impact R4.5-2: Grading associated with the proposed project would increase the potential for eroded sediments to degrade the quality of surface water sources including the San Francisco Bay	Impact can be reduced to less than significant	Existing permits contain weaker stormwater pollution prevention measures. Impact would be greater.	Impact can be reduced to less than significant	Impact would be the same, assuming similar mitigation measures would apply
Impact R4.5-6: Poor water quality conditions could occur in the deep water within the flooded Main Quarry Bowl due to long residence times and stratification at depth. The proposed project may result in degradation of water quality within the deep areas of the harbor basin	Impact can be mitigated to less than significant.	Under existing ARP, final depth of the Main Quarry Bowl would be shallower than proposed, reducing, but probably not eliminating, this impact	Impact can be reduced to less than significant.	Impact would be avoided. <u>However, rainwater collecting in the bottom of the Main Quarry Bowl would have to be managed to avoid deterioration of water quality.</u>
Impact R4.5-8: The project reclamation and post-reclamation activities would result in an increase in the possibility of inundation by a mudflow, seiche, tsunami, or sea level rise	Impact can be reduced to less than significant	Impact likely to remain significant and unavoidable	Impact can be reduced to less than significant	Impact would be avoided.

TABLE 6-1 (Continued)
ABILITY OF ALTERNATIVES TO REDUCE OR AVOID SIGNIFICANT IMPACTS OF THE ARP PROJECT

Impact	Project	No Project / Status Quo Alternative	Mitigated Alternative	Alternative Reclamation with Alternative End Use Alternative
Impact R4.5-10: Post-reclamation development could produce stormwater runoff that would result in a degradation of surface water quality	Impact can be reduced to less than significant	Existing permits do not contain mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be less or no impact
Noise and Vibration				
Impact R4.7-1: Construction of a berm along the northern property line of the NE Quadrant would result in temporary construction noise (Significant) but would also result in the creation of a noise buffer for daily operations (Beneficial).	Short-term impact would be significant and unavoidable	Similar impact would occur after cessation of mining	Lesser impacts would occur during early phased reclamation grading and restoration of natural areas; additional impact would occur after cessation of mining	Lesser impacts would occur during early phased reclamation grading and restoration of natural areas; additional impact would occur after cessation of mining, <u>including the possibility of significant noise impacts from use of the un-flooded Main Quarry Bowl as a concert venue.</u>
Transportation and Traffic				
	No significant impacts of the ARP	Alternative would not have significant impacts	Alternative would not have significant impacts	Alternative would not have significant impacts. <u>This Alternative could result in significant traffic impacts associated with use of the un-flooded Main Quarry Bowl as a venue for concerts and other events.</u>

SOURCE: Environmental Science Associates

Chapter 2, pages 2-12 and 2-13 of the Final EIR is changed as follows:

Comparison and Conclusion Regarding Alternatives to the Amended Reclamation Plan

As described in Chapter 6, each of the three alternatives would likely result in fewer significant impacts than the project. However, the No Project/Status Quo Alternative would result in impacts not associated with the project, notably interference with the extraction of the mineral resource. ~~The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.~~ The Alternative Reclamation with Alternative Beneficial End Use Alternative avoids or reduces most impacts associated with the project as proposed, but could result in significant impacts related to use of the unflooded Main Quarry Bowl as a recreational area, including a large-event venue. The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.

In conclusion, the Mitigated Alternative ~~and the Alternative Reclamation with Alternative Beneficial End Use both~~ appears to have the ability to meet most of the project objectives, to reduce significant impacts associated with the project, and to result in additional benefits not realized by the project itself. Therefore, these Mitigated Alternative is determined to be ~~two alternatives are coequally~~ the Environmentally Superior Alternative.

The statement regarding local supply of aggregate materials and greenhouse gas emissions is acknowledged. This point is also made in Chapter 2, Summary of the Final EIR, on page 2-19.

- D-25 The County disagrees with the contention that the Final EIR contains any substantive legal, factual, or analytical errors, as discussed in the prior responses.

ATTACHMENT 1

CSW/Stuber-Stroeh Engineering Group
Technical/Operational

CSW | ST2

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Date: March 16, 2009
File: 1.698.04

Mr. Brian Peer
San Rafael Rock Quarry
1000 Pt. San Pedro Road
San Rafael, CA 94901

**RE: SAN RAFAEL ROCK QUARRY
FINAL EIR FOR AMENDED RECLAMATION PLAN &
AMENDED SURFACE MINING & QUARRYING PERMIT**

Dear Mr. Peer:

On January 9, 2009, the Marin County Community Development Agency issued the Combined Final Environmental Impact Report (FEIR) for the Amended Reclamation Plan and Amended Quarrying Permit for San Rafael Rock Quarry. While many of the issues that were raised in our letter of April 14, 2008 on the Draft Environmental Impact Report (DEIR) were covered in the County's responses to comments, others were not. The following paragraphs outline our comments on the FEIR.

D.1-1

IMPACTS AND MITIGATIONS

Impact R-4.1-1 – Mitigation Measure R-4.1-1b requests that key historic structures be preserved. San Rafael Rock Quarry agrees with preserving the structures. However, the FEIR should recognize that preservation can be accommodated by relocation. All relocation would be completed under the direction of a qualified historic preservationist.

D.1-2

Impact R-4.1-2 – As mentioned above, historic structures will be preserved. The FEIR should be clear that preservation includes relocation.

Impact P-4.1-9 – As noted in our April 14, 2008 comments on the DEIR, lights were a part of the operations in 1982. The response to comments indicates that the County does not recognize that the lights existed in 1982, which is simply not the case. Those lights have been shielded, but no new lights have been added. Since the lights are shielded, there are no new sources of light and glare. Therefore, Mitigation Measure R4.1-9 is not necessary to mitigate any impact caused by the Project.

D.1-3

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Impact R-4.2-1 – Mitigation Measure R-4.2-1 requires that the intensity of future on-site mining and reclamation activities needs to be staggered so that cumulative air impacts are not exceeded. This was suggested in our April 14, 2008 letter. The FEIR should acknowledge that in 1982 reclamation activities were reasonably foreseeable and, indeed, anticipated and permitted by the County's approval of the Amended Reclamation Plan of 1982 (ARP82). While all of these reclamation activities have not yet taken place, activities permitted under ARP82 should be included in the baseline for reclamation activities and resulting air emissions under ARP04. This baseline should also be included in evaluating mitigation measures, if any, required under Impacts R-4.2-2, 4.2-3, R-4.2-5, P-4.2-6 – P-4.2-7, C-4.2-9 – C-4.2-10, and C-4.2-12.

D.1-4

Impact R-4.3-2 – Mitigation Measure, R-4.3-2b. This Mitigation Measure calls for the preservation of the small hill, consistent with ARP82. The FEIR should be explicit that ARP82 preserved only the north, west, and east faces of the "small hill" to which the FEIR refers. The top and south side of the hill were included within ARP82 reclamation grading activities, and the FEIR should explicitly acknowledge that this has not changed under ARP04.

Impact R-4.3-5 and R-4.3-12 – Refers to reclamation activities in phases, and Mitigation Measures R-4.3-5 and R-4.3-12b require setbacks from the Northwest Quadrant marshes consistent with the Baylands Corridor. Mitigation Measures R-4.3-5 and R-4.3-12b should be clarified to be consistent with the Baylands Corridor designation for San Rafael Rock Quarry adopted by the Supervisors in Countywide Plan Amendments on January 27, 2009. Specifically, the Supervisors excluded developed areas of San Rafael Rock Quarry from the Baylands Corridor designation, including access roads, the McNear's Brickyard and Marin Aggregates facilities, and pulled the boundary back to the edge of the existing marshlands while maintaining the 100-foot shoreline buffer along San Pablo Bay. See Resolution and Countywide Plan Amendments, as adopted by the Supervisors on January 27, 2009; see also Staff Report and Attachments for the January 27, 2009 Supervisors' hearing. No further mitigation is required for conformance with the Baylands Corridor. The FEIR should delete all references to the setbacks required at the marshes in light of the Supervisors' action amending the Baylands Corridor designation as it relates to San Rafael Rock Quarry.

D.1-5

Impact C-4.3-18 – Mitigation Measure 4.3-18b states that "The applicant shall prepare a Tidal Marsh Restoration plan and . . . shall complete the tidal marsh restoration . . ." The striking of "tidal" is in apparent recognition of earlier comments and assessments that the marshes have been isolated from the Bay for more than 100 years and have become a fresh water habitat. However, the word "tidal" appears in the first bullet, we believe inadvertently, and in two subsequent bullets under Mitigation Measure 4.3-18b. These remaining references to "tidal" should be stricken. As the FEIR response to comments makes clear, restoring the marsh to tidal flows would require further evaluation prior to being required as part of reclamation.

D.1-6

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Impact R-4.5-6 – Identifies the potential for poor water quality in the Main Quarry Bowl after flooding. Mitigation Measure R-4.5-6 has been modified to include the mechanical mixing or aeration system proposed in our comments on the DEIR. Based on this proposal, Mitigation Measure R-4.5-6 requires a concept engineering and economic report for such a system within one year of the approval of ARP04. In order to clarify that Mitigation Measure R-4.5-6 addresses only the potential for stratification affecting water quality, the language should be modified in the following way:

In the first sentence, the words “water quality degradation resulting from” should be added before the words “stratified water column.”

In the second sentence, add the words “prior to any requirement for implementation of a mechanical mixing or aeration system, further study of the water quality requirements will be made as a part of the Final Development Plan, which shall be submitted at least three years prior cessation of mining” to the end of the sentence.

These changes will clearly state that the intent of the Mitigation Measure are to preserve water quality, if degradation results from stratification after flooding of Main Quarry Bowl, based on measurable indicators.

Impact P-4.6-6 – As noted in our letter of April 14, 2008, annual production at the Quarry varies from year to year. Based on historical records, production levels increased during the 1970s and early 1980s due to customer needs and emergency response requirements: 1,873,231 tons in 1973, 1,839,791 in 1974, 1,473,000 tons in 1982, and 1,789,000 in 1983. An analysis of the production levels since the Quarry has been operating under the Court-ordered interim operating conditions – the same conditions that SRRQ has proposed to make permanent – shows limited fluctuations for similar reasons: 1,099,169 tons in 2008; 1,593,512 tons in 2007; 1,470,562 tons in 2006; 1,106,909 in 2005; and 1,361,457 tons in 2004.

Restricting annual production is not necessary, given operating conditions proposed by the Applicant that limit truck trips and days and hours of operation, and other mitigation measures. It would also be inconsistent with Project Objectives that include continued operation of a facility capable of meeting requirements for rock, aggregate, asphalt and other materials for public works and private construction projects in Marin County and the San Francisco Bay region. If any restriction on annual production is imposed, it should recognize that quarrying, aggregate and asphalt production at San Rafael Rock Quarry is cyclical, with production above and below 1982 levels from year to year, and should use 1982 production to set a multi-year average (i.e., “Maximum” should be changed to “Average” in Mitigation Measure P-4.6-6b.

D.1-7

D.1-8

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Additionally, given the FEIR's finding of less than significant impacts from noise, there is no substantial evidence to support the restriction of "noise-generating operations" to "daylight hours on weekdays, except during a declared emergency" under Mitigation Measure P-4.6-6b. This provision should be deleted.

↑
D.1-8
cont.

Impact 4.7-1 – It is noted in the April 14, 2008 letter that the temporary berm was added to ARP04 as a mitigation measure. The intent was for the temporary berm to screen Marin Bay Park residences from noise and visual impacts during the four phases of reclamation proposed by the County. As proposed in ARP04, construction of the berm will take 8 to 10 weeks during Phase 1 of reclamation, and removal will require a brief period years later during Phase 4. Such temporary construction noises are routinely dealt with in terms of hours of operation, time limits, and limits on peak noise. However, temporary construction noises should not be considered "significant and unavoidable" since they are temporary by nature and especially where, as here, they are for the beneficial purpose of mitigation. The FEIR response to comments at page 7.3-49 (19-61) fails to adequately address or correctly analyze noise impacts from the construction of the temporary berm.

D.1-9

Impact P-4.7-7 – The Applicant proposed to continue the existing limitations on blasting, including conducting blasting only between 11:30 a.m. and 1:30 p.m. on non-holiday weekdays, 36-hours advance notice of blasting, and blast vibrations limited to a maximum peak velocity of 0.5-inches per second beyond the property line. Mitigation Measure P-4.7-7b would impose further restrictions on blasting to reduce perceived impacts that are not identified by Revey & Associates, the EIR Consultant's expert on blasting. Therefore, Mitigation Measure P-4.7-7b, second bullet, ground motion should be limited to 0.25-inches per second, should be changed to 0.5-inches per second, beyond the property line. This is supported by the substantial evidence provided in Revey & Associates Report. There is no substantial evidence to support a 0.25-inches per second limit.

D.1-10

Impact P-4.8-3 – Hazardous Substances. Mitigation Measure P-4.8-3b. On page 7.3-50, response to comments 19-70 fails to justify why an additional blasting plan should be prepared since, as noted in our letter of April 14, 2009 and as acknowledged in the FEIR, the Quarry maintains a Hazardous Material Business Plan, which addresses blasting and which will be updated with the Revey & Associates recommendations to the extent they are not already contained in the Plan. A separate blasting plan is unnecessary, and given the restrictions on blasting and the requirement for adoption of the recommendations of Revey & Associates, there is no discernible purpose served by the additional requirement that a blasting plan be submitted for review and approval by the County.

D.1-11

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Impact R-4.12 – General Comment. Historic structures on the site are dispersed throughout the Northwest Quadrant. In order to proceed with reclamation activities, certain of the historic structures should be preserved by relocation rather than preserved in place. Mitigation Measures R-4.12-3a, R-4.3-3b, R-4.12-4a, R-4.12-5a, R-4.12-6b should be modified to specifically include relocation as an acceptable means of mitigation of the historic structures.

D.1-12

PROJECT DESCRIPTION

On Page 3-72, Table 3-9 continues to incorrectly state the hours of Maintenance Activities. SRRQ's Project Description and the interim operating conditions that have been approved by the County and the Court place no limit on the hours of Maintenance Activities on non-holiday weekdays. Maintenance Activities on weekends are limited to 7:00 a.m. to 5:00 p.m. on fifteen (15) Saturdays per year, and are prohibited on Sundays. Maintenance Activities are often required to be performed after hours, when equipment is not operating, and will pose no significant impacts given operating conditions and mitigation measures limiting noise and night-time lighting. Table 3-9 should be corrected to reflect this clarification.

D.1-13

ALTERNATIVES

The FEIR modified the Alternatives listed in the DEIR in response to the comments made by the Applicant regarding feasibility, among other comments on issues presented by the DEIR. The FEIR correctly acknowledges the adverse environmental impacts that would result from the Barge Only alternative and recognizes the infeasibility and ecological impacts of using dredge spoils to fill the Main Quarry Bowl. However, there continue to be a number of significant concerns with the Alternatives that are not addressed or resolved by the FEIR.

Proper analysis of potential impacts and feasibility must be performed in evaluating the alternatives and drafting CEQA findings. We therefore offer the following points and corrections, in addition to those contained in our April 18, 2008 letter that have not been fully addressed and are reincorporated in this letter.

D.1-14

Mitigated Alternative for the Reclamation Plan

The "Mitigated Alternative" for the Reclamation Plan (or "Mitigated ARP04") appears to suggest that all of the work in the Northeast Quadrant should occur during Phase 1 of Reclamation. This is infeasible for several reasons.

First, the Mitigated Alternative states that the existing berm in the Northeast Quadrant would be left in place until the cessation of mining, but it also says that the areas of the Northeast Quadrant should be re-graded to rough final grades, re-soiled, and re-vegetated. However, the existing berm must be removed before final grading and vegetation occurs as the material in that berm must become part of the final grade.

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Second, there does not appear to be any advantage to leaving the existing Northeast Quadrant berm in place. The Northeast Quadrant construction will occur on the side of the existing Northeast Quadrant berm that faces residential areas; thus, it provides no buffer. The temporary berm proposed to be constructed in Northeast Quadrant will provide a buffer from reclamation activities in the Northeast Quadrant. Thus, leaving the Northeast Quadrant berm in place until mining has ceased would serve no purpose.

Finally, due to the limitations imposed by the other mitigation measures, and due to seasonal constraints, completion of the grading and re-vegetation activities in the Northeast Quadrant is likely going to take several construction seasons to complete.

SRRQ is a finite site and the material that is classified by the FEIR as "overburden, pond fines, and mining wastes" needs to be placed in a stable fill location to satisfy the intent of SMARA and ARP04 for material reuse, slope stability and contouring as mining operations are completed. The only feasible location at San Rafael Rock Quarry at which these fills can be placed is in the Northeast Quadrant.

The Mitigated Alternative suggests that the Main Quarry Bowl could be used to deposit overburden, pond fines (which are no longer produced by the operation), and other mining wastes from the South Hill and elsewhere. This Alternative would significantly and unnecessarily increase GHG emissions from the Project. The large volume of material to be delivered to the bottom of the Main Quarry Bowl would need to be loaded with excavators into haul trucks (rather than the more efficient self loading scrapers) and be driven in the haul trucks to the bottom of the 400 foot deep bowl, with the haul trucks then returning to the top of the Quarry. All of this would unnecessarily consume fuel and produce GHG emissions. In contrast, reclaiming the Northeast Quadrant with native materials would be considerably more efficient and not involve any back and forth trips into the bottom of the Main Quarry Bowl.

The Mitigated Alternative also requires that a mechanical mixing or aeration system be installed in the flooded bowl. Although the Applicant proposed this in response to the DEIR as a measure that *could* be implemented *if* stratification occurred affecting water quality after flooding, it is unknown whether or not this is necessary at this time. Mitigation Measure R4.5-6 requires that an engineering report be prepared to confirm the feasibility of a mixing or aeration system should the RWQCB determine that water quality standards cannot be met. As noted above, further study at the time of filing the Final Development Plan (three years before the cessation of mining) will be done to determine whether stratification will result in degraded water quality that would require implementation of a mechanical mixing or aeration system. Other than such further study, no requirement for implementation of a mechanical mixing or aeration system should be imposed at this time.

D.1-14
cont.

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The alternative suggests that the marsh in the Northwest Quadrant would be returned to tidal circulation in the first phase of reclamation. As pointed out in the comments submitted in response to the DEIR and in this response, the marshes have been isolated from the Bay for more than 100 years and have become a fresh water habitat. As the FEIR response to comments makes clear, and as recognized in Mitigation Measure 4.3-18b, restoring the marsh to tidal flows would require more study.

Alternative Reclamation with Alternative Beneficial End Use

The suggestion that the Main Quarry Bowl not be flooded and instead be used for recreational activities such as an amphitheater, a rock climbing venue, or for solar energy generation, is awkward at best, and ignores reclamation slope stability data in the record and common sense concerning feasibility. Furthermore, these proposals have not been the subject of a CEQA impacts analysis, and would present a host of adverse impacts, safety issues, and other concerns.

A primary safety consideration that must be included in any discussion of use of the Main Quarry Bowl after mining operations cease comes directly from a statement made in the State Office of Mine Reclamation's January 11, 2005 comments on ARP04, which said that the "minimal acceptable factor of safety (1.15) under seismic loads can only be achieved under flooded conditions that equalize groundwater pressures." Thus, from a post-mining slope stability standpoint, flooding of the Main Quarry Bowl is an essential part of reclamation. It has been contemplated by the reclamation plans approved by the County for more than thirty (30) years.

The specific alternative uses are addressed below:

An amphitheater would generate noise and traffic significantly greater than the current mining operation or the marina/residential second use proposed under ARP04. One only has to read about the complaints of residents in the vicinity of Shoreline Amphitheater in Mountain View to understand that San Rafael Rock Quarry is a very unlikely place to put such a facility. Shoreline Amphitheater also has areas for parking and better access to public transportation and major arteries, and does not pose the obvious safety concerns about thousands of concert goers in and around a 350 foot deep excavation.

Rock climbing is one of the most dangerous individual outdoor activities. This use of the Main Quarry Bowl would have limited public appeal and would pose obvious safety concerns for enthusiasts ascending and descending a 350 foot deep excavation. The likelihood that such a facility could be insured is remote. An open pit would have to be protected with significant safety fencing to prohibit visitors from walking off the edge. This could be a particular problem at night and at other times when the facility would not be open.

D.1-14
cont.

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Placing a solar facility in a deep hole is, at best, not preferable from the standpoint of operation of the solar array, and at worst would likely be unproductive. The deep hole would cast shadows during much of the day, especially during the winter months, and would limit the hours of sun exposure to the array.

Lastly, the rainwater which would collect in the bottom of pit would need to be managed to prevent it becoming a mosquito breeding pond and the water would have to be removed periodically from the pit by pumping it over 400 feet since it is unlikely that it would evaporate at a rate that would offset annual inflow.

Mitigated Alternative for the Quarrying Permit

The Mitigated Alternative suggests further limiting hours and days of operation. A quarrying facility operates most efficiently on a 24 hour, 7 days per week basis. The hours of operation are already severely constrained in the interim operating conditions, proposed to continue in the Project Description, but San Rafael Rock Quarry has adapted its operations to meet these requirements. Further limitations would reduce the effectiveness of the operation and would be inconsistent with Project Objectives under the FEIR, which include

- Adoption of operating conditions that allow SRRQ to remain economically viable, continued operation of a facility capable of meeting requirements for rock, aggregate, asphalt and other materials for public works and private construction projects in Marin County and the region;
- Reducing the need for additional truck traffic into Marin County by maintaining a local source of these materials, and by maintaining a facility that is capable of delivering materials by barge; and
- Maintenance of operations capable of producing and rapidly delivering, by barge and truck, rip-rap, aggregate and other materials necessary to respond to public emergencies in Marin County, the San Francisco Bay region, and the San Joaquin/Sacramento River Delta.

Furthermore, it is not clear that such a limit does anything to reduce the few remaining significant impacts identified by the FEIR.

D.1-14
cont.

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Reduced Alternative

The reduced alternative would severely limit SRRQ's ability to produce and deliver product to its customers. The existing and proposed limit of 250 truck trips per day on non-holiday weekdays, which the FEIR acknowledges is less than the truck trips occurring during the baseline year of 1982, means that during the construction season many customers are already forced to go elsewhere for aggregate and asphalt materials. Reducing the truck trips by half would require that San Rafael Rock Quarry turn away more customers. The FEIR correctly notes that this could result in increased air quality impacts and GHG emissions as customers would likely be required to obtain such materials from distant sources.

Finally, as we pointed out in comments on the DEIR, the Reduced Alternative would limit blasting to a vibration level below that proposed by the County's own expert. The reasoning for this requirement is still not identified, and neighbors' complaints still cannot provide substantial evidence for support under CEQA. The current and proposed blasting limit of 0.5 ips does not exceed the 1982 baseline levels, and there is no significant unmitigable impact from blasting. Thus there is no need for a more stringent standard.

Similar flaws exist with the proposal to reduce noise through enclosure of the crushing plant. Noise is not identified as a significant impact in the DEIR, except for the temporary construction noise of the berm which will ultimately mitigate noise further and would not be addressed by enclosure of the crushing plant. Without any need for further environmental mitigation, these proposals exceed the scope of "reasonable alternatives" to the proposed project and should be removed from the Reduced Alternative.

For many of the measures in the Reduced Alternative, it is also not clear what environmentally beneficial purpose they will serve. For example, the Reduced Alternative includes a requirement that San Rafael Rock Quarry enclose aggregate processing equipment, pave roads and implement other dust control measures above and beyond BAAQMD permit requirements, despite FEIR findings that dust emissions are less than significant. It is not clear how these measures are required by the record or why they would be any more protective of the level of dust emissions than the currently required mitigation measures that include watering of the roads, street sweeping and tarping of intra-site trucks. CEQA requires that the discussion of alternatives provide enough information so that their comparison to the proposed project can be meaningful. *See, e.g., Laurel Heights Improvement Association v. Regents of the University of California*, 47 Ca.3d 376 (1998).

D.1-14
cont.

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Thus, although the FEIR made some improvements to the DEIR Alternatives, there continue to be a number of significant concerns with the technical and operational feasibility of the Alternatives that are not addressed or resolved by the FEIR. Furthermore, the Alternatives have not been shown to be more environmentally beneficial than the Project as proposed, and if properly analyzed under CEQA, they would clearly present adverse environmental consequences including traffic impacts and increased GHG emissions. As noted in our response to the DEIR, San Rafael Rock Quarry is the only major quarry operating in the County, one of the few in the region, and the only one in Northern California with barge access. Most of the material produced by the Quarry is used locally. Without this important source of aggregate, local customers including the County would be forced to source materials from remote locations at greater cost and increased environmental impacts to the County and the region, including increased GHG emissions from such distant sourcing of as much as 6,000 tons of additional CO₂ per year. See April 11, 2008 comments of ENVIRON on DEIR, at 10-13 and Table 5.

D.1-14
cont.

For all of these reasons, the Alternatives identified in the FEIR should be rejected, and San Rafael Rock Quarry's operating conditions and ARP04 should be approved as proposed.

CONCLUSION

We appreciate the opportunity to comment on the FEIR for the Amended Reclamation Plan of 2004 and operating conditions under the Amended Quarrying Permit. If you have any questions, please feel free to contact me.

D.1-15

Sincerely,

CSW/STUBER-STROEH ENGINEERING GROUP, INC.



Al Cornwell
R.C.E. #27577, Expires 12/31/09

AC:sef

Comment Letter D.1: Project Sponsor – Al Cornwell, CSW/ Stuber-Stroeh Engineering Group, Inc. (Engineering consultants for San Rafael Rock Quarry and the Dutra Group)

- D.1-1 This commenter's letter commenting on the Draft EIR is included in Volume II of the Final EIR, as Comment Letter 19.
- D.1-2 The commenter is correct that in certain cases, relocation of historic resources may be an acceptable form of mitigation when the resource is threatened by demolition or substantial alteration, but typically only as a last resort. Preservation in place is the preferred method, as relocation permanently severs the resource from its historic setting, resulting in reduced historical significance. The National Park Service's National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation* states that structures that have been moved from their original locations shall not be considered eligible for the National Register. In addition, the NPS states that, "The National Register criteria limit the consideration of moved properties because significance is embodied in locations and settings as well as in the properties themselves. Moving a property destroys the relationships between the property and its surroundings and destroys associations with historic events and persons. A move may also cause the loss of historic features such as landscaping, foundations, and chimneys, as well as loss of the potential for associated archeological deposits" (US Department of the Interior, 2002). Because relocation efforts suggested by the commenter could reduce or eliminate the historical significance of the identified historic resources on the project site, such efforts were not identified as acceptable mitigation measures. In addition, the commenter does not identify which of the historic resources should be relocated, or whether they would be relocated on-site or off-site. As such, the mitigation measures identified in the Draft EIR are deemed appropriate to mitigate the impacts to historic resources to a less-than-significant level, and the Final EIR should not be amended to include additional measures regarding relocation of historic structures.

Relocation of historic structures at the project site could reduce their potential historic status to a point where they are no longer considered historic resources for CEQA purposes, resulting in a significant new impact to historic resources. Mitigation measures identified in the Final EIR, which do not include relocation of historic structures, would reduce all impacts to historic resources to less-than-significant levels, and are retained unchanged. If, at a later date (such as at the time of submittal of the final post-reclamation Development Plan, due to be submitted three years prior to the anticipated cessation of mining), the applicant wishes to propose moving a historic structure, this would have to be evaluated on its own terms, and in a separate CEQA document.

- D.1-3 Please see the response to comment 19-23 in Volume II of the Final EIR.

- D.1-4 Regarding Impact R4.2-1, please see the response to comment D-20. Regarding Impact R4.3-2 and Mitigation Measure R4.3-2b, the text of the mitigation measure is clear that the preservation of the small hill in the NW Quadrant is consistent with ARP82.
- D.1-5 Please see the response to comment D-22.
- D.1-6 The commenter is incorrect in stating that the remaining uses of the word “tidal” in Mitigation Measure C4.3-18b are inadvertent; analysis of the effects of tidal restoration, and preference for tidal restoration, are retained in this mitigation measure.
- D.1-7 The text of Mitigation Measure R4.5-6 on page 4.5-16a of Volume I of the Final EIR is revised as follows:

Within one year of approval of the Amended Reclamation Plan, the applicant shall submit a concept engineering and economic report for use and future maintenance of a mechanical mixing or aeration system, or another engineered approach, that will result in avoidance or elimination of water quality degradation resulting from a stratified water column within the Main Quarry Bowl after it is flooded. The report will be conducted by qualified limnologists and water quality engineers. The system design will be at a schematic level and will be stamped by a California professional engineer, and will include calculations that demonstrate that the system will maintain water quality objectives established in the San Francisco Bay Regional Water Quality Control Board’s Basin Plan. The report will include an analysis of operating and maintenance costs for the system, as well as predicted energy requirements and greenhouse gas emissions, and a plan for minimizing both of these; and will identify a funding source to ensure continued operation of the system after reclamation. The need for, and design of a mechanical mixing or aeration system shall be subject to further study and review as part of the final Development Plan, which shall be submitted at least three years prior to cessation of mining.

- D.1-8 Please see the response to comments D-16 and D-9, above.
- D.1-9 The commenter is mistaken in stating that the County proposed four phases of reclamation. Phased reclamation was proposed by the applicant. Please see the response to comment D-17, above.
- D.1-10 The commenter is mistaken in stating that the Revey and Associates report recommends limiting ground motion to 0.50 inches per second (ips) beyond the property line. The report, which is included as Appendix J in Volume III of the Final EIR, recommends designing blasts so that peak ground motion does not exceed 0.25 ips at nearby residences. This can be achieved by using a minimum scaled distance of 52.8 ft-lb. See page J-23 (page 18 of the report) in Appendix J. These recommendations are incorporated into Mitigation Measure P4.7-7.
- D.1-11 Please see the response to comment 19-70 in Volume II of the Final EIR. Mitigation Measure P4.8-3b, which requires the applicant to prepare and maintain a blasting plan, is

necessary to reduce Impact P4.8-3 (Transport, storage, and use of explosives could result in accidental explosions or exposure to hazardous substances) to less than significant.

D.1-12 Please see response to Comment D.1-1.

D.1-13 This clarification from the applicant on their proposal for allowable time during which maintenance activities could take place under the revised AQP requires an alteration of the project description for the AQP and minor changes to three project impacts. However, none of these changes affects conclusions regarding significance of impacts, nor requires any new mitigation measures. The revised text of the project description and the three impacts appears below.

**TABLE 3-9
PROPOSED HOURS OF OPERATION**

Activity	Monday-Friday	Saturday, Sunday, Holidays	Declared Public Emergencies
Crushing Plant	December 1 – April 30: 7:00 a.m. to 5:00 p.m.; 7:00 a.m. to 10 p.m. on up to 30 calendar days during this period May 1-November 30: 7:00 a.m. to 10:00 p.m.	None.	Restrictions suspended
Maintenance Activities	7:00 a.m. to 5:00 p.m. <u>No restrictions</u>	Up to 15 Saturdays per year, 7:00 a.m. to 5:00 p.m.	Restrictions suspended
Barge Operation or Loading	7:00 a.m. to 10:00 p.m.	7:00 a.m. to 10:00 p.m.	Restrictions suspended
Truck Access at SRRQ Gate	7:00 a.m. to 5:00 p.m.	No trucks hauling mineral resources	Restrictions suspended
Blasting	11:30 a.m. to 1:30 p.m., with 36 hours advance notification	None	Restrictions suspended
Other mining activities, including drilling, materials handling and transport, etc., other than blasting	7:00 a.m. to 10:00 p.m.	7:00 a.m. to 10:00 p.m.	Restrictions suspended
Office operations	7:00 a.m. to 5:00 p.m.	None	Not specified

Impact P4.1-9: Proposed nighttime operations would introduce new sources of light and glare (Significant).

Under the existing Surface Mining and Quarrying Permit and Amended Reclamation Plan, there are no permit restrictions on Quarry hours of operations, nor a record of hours of operations in 1982. ARP82 states, however, that noise generating operations (presumably including barge loading, quarrying activities, and operation of the crushing plant) are generally limited to daylight hours on weekdays, except in

case of emergencies. Proposed hours of operation for barge loading, quarrying activities other than blasting, maintenance, and operation of the crushing plant include nighttime and weekends (see Table 3-9 in the Project Description). These activities would be visible from public vantage points, including the Bay and some vantage points across the Bay, from public roadways, from McNear's Beach County Park, and from nearby residences. Visible activities that would cause nighttime light and glare would include mining operations on South Hill, operation of the crushing plant, some maintenance activities, and barge loading operations. Some of these activities, including operation of trucks and mobile equipment, would produce light sources that could not be shielded effectively. Therefore, the proposal would have a significant negative aesthetic effect on existing nighttime visual resources.

Mitigation Measures Proposed as Part of the Project

None.

Mitigation Measures Identified in this Report

Mitigation Measure P4.1-9: The AQP will restrict operations that have the potential to cause nighttime sources of light and glare and that are visible from public vantage points (including the Bay and vantage points across the Bay), roadways, and residences to daytime hours, except during emergency operations. See Mitigation Measure 4.6-6b in Section 4.6, Land Use and Planning.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.1-9: The Marin County DPW will verify SRRQ's compliance with Mitigation Measure P4.1-9. See also Mitigation Monitoring Measure 4.6-6 in Section 4.6, Land Use and Planning.

Level of Significance with Mitigation

This Mitigation Measure would reduce Impact P4.1-9 to a less-than-significant level.

Note: the following impact is further revised in the response to comment D-21

Impact P4.6-6: The Amended Surface Mining and Quarrying Permit would allow for an intensification of quarry operations beyond 1982 levels, in excess of the Quarry's legal nonconforming use under Title 22 of the County Code (Significant).

The following components of the proposed project would potentially exceed the scope of SRRQ's permitted use of the property as a legal nonconforming use:

- *The proposed AQP would impose no limits on annual production of quarry materials, allowing SRRQ to operate at an intensity well beyond that of 1982;*
- *The proposed AQP would allow for noise-generating operations until 10 p.m. and on weekends. These would include barge loading and operation of the crushing plant. In addition, the currently proposed AQP would allow maintenance activities, some of which can be expected to generate noise, 24 hours per day on non-holiday weekdays, and on up to 15 Saturdays per year from 7:00 a.m. to 5:00 p.m. The 1982 Amended Reclamation Plan indicates that, “(n)oise generating operations in both the Quarry and the plant are generally limited to daylight hours on weekdays except in times of emergency (Gilroy, 1982, p. 9).*
- *The proposed AQP would allow blasting to occur at greater frequency than the “approximately two times per week” frequency extant in 1982 and cited in Salter, 1982 (reference 133 in Section IX).*

Impact P4.7-5: Continued operation of the Quarry under the proposed Amended Surface Mining and Quarrying Permit would result in increased ambient noise levels above baseline levels (Less than Significant).

The baseline for current operations is considered to be the scope of the Quarry’s use of the SRRQ site at the time the Quarry became a legal nonconforming use in 1982. At that time, noise-generating operations occurred generally during daylight hours on weekdays, except during times of declared emergencies, as stated in the 1982 Amended Reclamation Plan. Noise monitoring in 1982 at the location of the then-nearest residences indicated that noise from Quarry operations was not audible, with the exception of mobile equipment back-up alarms.

Under the proposed AQP, the Quarry would conduct noise-generating operations, including rock crushing, barge loading, and mining operations other than blasting, up until 10:00 p.m. (see Table 3-9 in Chapter 3, Project Description). In addition, maintenance activities, some of which generate noise, could occur 24 hours per day on non-holiday weekdays, and on up to 15 Saturdays per year from 7:00 a.m. to 5:00 p.m. Trucks would be restricted from entering the facility prior to 7:00 a.m., as they are under the Marin County Superior Court order.

Noise monitoring conducted for this EIR found that noise at the now-nearest residences on Marin Bay Park Court (Site LT-1) ranged from 52 to 55 dBA, Ldn over the course of three days, and that conveyor loading of materials at the Quarry was the single most substantial noise source, with secondary noise sources including back-up alarms from mobile quarry equipment.

The noise levels monitored at Site LT-1 do not exceed established County noise standards for land use compatibility for residences (i.e., 60 dBA, Ldn), so from this perspective the impact is considered less than significant.

Noise from the quarry's stationary equipment, including rock crushing and sorting, conveyors, and barge-loading, exceeds the County's 50 dBA daytime (7:00 a.m. to 10:00 p.m.) benchmark for allowable noise exposure from stationary sources (see Table 4.7-2). Daytime noise in excess of an hourly Leq of 50 dBA was monitored at Site LT-1: monitored noise levels ranged from 48 to 55 dBA. However, as stated in the Countywide Plan Noise Element guidelines for using the Table 4.7-2 standards, "The allowable noise level standard shall be raised to the ambient noise level in areas where the ambient level already exceeds the standards shown in this table. For example, if the neighborhood already experiences daytime hourly noise levels of 60 dBA as an ambient condition, the noise level standard shall be raised to 60 dBA."

Future Quarry operations are expected to produce less noise than past operations. As part of reclamation grading, the applicant plans to construct a berm in the NE Quadrant, as well as a surcharge berm in the NW Quadrant, both of which will act as noise buffers for nearby residents. In addition, the applicant has already implemented best management practices for noise reduction from operations, including use of rubberized barge feeders and transfer boxes, and installation of directional/reduced noise back-up alarms on all rolling stock (Peer, 2008).¹⁰

Furthermore, Mitigation Measure P4.6-6b which will limit production levels and hours of operation of the Quarry will further reduce noise levels relative to those currently experienced by neighbors of the Quarry.

Because future Quarry operations are not expected to produce noise that exceeds that which already is experienced at the site of nearby residences, and current noise levels do not exceed the compatibility standards for residential land uses, the impact is less than significant.

Mitigation: None required.

¹⁰ The Quarry reports that they now voluntarily delay start of operations on Saturdays until 9:00 a.m. if they are loading barges, and that they have voluntarily suspended barge loading on Sundays except during a declared emergency (Peer, 2008).

D.1-14 Regarding the Mitigated Alternative to the ARP, this alternative includes an alternative reclamation scheme for the NE Quadrant, because several impacts of ARP04 are associated with planned phased reclamation in this Quadrant, including noise, dust, and toxic air contaminant emissions. The intent of this alternative is to minimize noise and dust-creating activities in the NE Quadrant until the cessation of mining, including not constructing the large new berm specified in ARP04. The existing berm would be left in place during the remaining life of the Quarry to continue to shield operations from neighbors to the north. The description of the Mitigated Alternative provides sufficient flexibility, and does not specify immediate reclamation of the entire quadrant; the text of the relevant part of the description is repeated below. The applicant's concerns regarding feasibility are therefore not founded:

The NE Quadrant would not be used as a staging area for storage and processing of materials for phased reclamation grading. Instead, areas of the NE Quadrant that are to be left in a natural condition, including the Grassy Knoll and the eucalyptus grove, would in the first phase of reclamation be restored to their final condition. Other areas of the NE Quadrant would be left in their current condition or re-graded to rough final grades, re-soiled, and re-vegetated appropriately to allow for eventual development after cessation of quarrying activities. Stockpiled material would either be left in place or moved to the NW Quadrant for use in constructing the surcharge berm if needed for that purpose. The existing berm in the NE Quadrant would be left in place until the cessation of quarrying.

It is not the intent of this alternative to deposit all mining wastes in the finished Main Quarry Bowl, but only materials that are not required for reclamation elsewhere on the property. This is made clear in the description of the alternative.

The County agrees that a restoration plan would have to be prepared prior to restoration of the NW Quadrant marshes.

The County disagrees with the commenter's position that an evaluation of water quality effects of flooding the Main Quarry Bowl, and design of an aeration or mixing system, should be put off to a later date. This mitigation measure is retained both in Section 4.5, Hydrology, and in the description of the Mitigated Alternative to the ARP. The engineering and economic report is also required for financial assurance needed to ensure final reclamation, pursuant to SMARA.

Regarding comments on the Alternative Reclamation with Alternative Beneficial End Use Alternative, please see the response to comment D-24, above.

Regarding the comments on the Mitigated Alternative to the AQP, please refer to Chapter 6 of the Final EIR for a comparison of impacts of the alternatives with the proposed projects. Also, as noted in the response to comment D-24, an alternative should not be rejected from consideration even if it would impede, to some degree, the attainment of the project objectives, or would be more costly.

Regarding the Reduced Alternative to the AQP, please note that in the Final EIR, the lower limit on blast vibrations specified for this alternative in the Draft EIR was removed. In the Final EIR, in both the AQP and Mitigation Measure P4.7-7b, peak particle velocity is limited to 0.25 inches per second, as recommended in the Revey Associates report (Appendix J of the Final EIR). See also Master Response 8 in Volume II of the Final EIR.

The requirements in this alternative to investigate and implement measures to further reduce noise and dust, and to limit traffic, are intended to reduce the incompatibility of quarrying operations with the surrounding residential land uses, which is identified in the Final EIR as a significant unavoidable impact (Impact C4.6-7 in Section 4.6, Land Use).

The point regarding local supply of aggregate resources and minimization of greenhouse gasses and other air pollutants is also made in Chapter 2, Summary, of the Final EIR, on page 2-17.

D.1-15 Comment noted.

ATTACHMENT 2

ENVIRON International Corporation

Air Quality/Health Risk

ENVIRON

March 16, 2009

Mr. Brian Peer
The Dutra Group
San Rafael Rock Quarry
1000 Point San Pedro Road
San Rafael, CA 94901

Re: **Comments on the San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit Combined Final Environmental Impact Report**

Dear Mr. Peer:

The following are our comments on the Combined Final Environmental Impact Report (FEIR) for the San Rafael Rock Quarry (SRRQ) Amended Reclamation Plan of 2004 (ARP04) and Amended Surface Mining and Quarrying Permit (AQP) prepared for the County of Marin (County) by Environmental Science Associates (ESA) and dated January 2009 (ESA 2009). The FEIR was issued based on comments submitted in response to the Draft EIR (DEIR) that ESA prepared in February 2008 (ESA 2008).

Our comments focus on Section 4.2, Air Quality Impacts, and the related appendices, Appendix C (Air Quality Calculations), Appendix D (Health Risk Assessment) and Section 7, Comments and Responses.

Overall, we appreciate the effort that ESA and the County have made in addressing our comments on the DEIR and incorporating many of our suggestions into the FEIR. We continue to agree with the major FEIR conclusions, some of which have been revised in response to comments on the DEIR, including:

- Mitigation measures and equipment upgrades already in place have reduced dust and diesel emissions.
- The highest concentrations of dust (PM10) occur when the winds are blowing from locations other than the Quarry.
- There is no discernible change in dust emissions due to blasting.
- Diesel emissions from ongoing operations pose no significant risk.
- Crystalline silica poses no significant risk.
- Staggering mining and reclamation activities will mitigate impacts from dust, carbon monoxide (CO), and nitrogen oxides (NOx).

However, there are some issues on which we commented in our April 11, 2008 letter on the DEIR and with which we continue to disagree with the FEIR, as well as new issues presented by the FEIR with which we disagree, including:

D.2-1

- Calculating cumulative risk by including emissions from past operations is inappropriate under the California Environmental Quality Act (CEQA) and is not consistent with agency risk assessment guidance.
- Analyses based on an assumed 20% increase in operations is inconsistent with the Quarry's proposal for continued operations subject to existing restrictions, and results in significantly overstated emission estimates.
- An incorrect project baseline is considered in the evaluation of air emissions, including those involving Phase 4 reclamation activities.
- The use of Bay Area Air Quality Management District (BAAQMD) emission reduction credits under mitigation measure R4.2-1i is unnecessary and inappropriate for emissions associated with reclamation activities.

D.2-2

This letter is divided into four sections to address in more detail the selected topics discussed above: 1) historical risk impacts, 2) assumed 20% increase in mining operations, 3) evaluation of project baseline for reclamation emissions, and 4) use of BAAQMD emission reduction credits to offset reclamation emissions.

1) HISTORICAL RISKS

The health risk assessment (HRA) results presented in the FEIR indicate that health risks associated with the ARP and AQP would be less than significant when mitigation measures providing for staggered mining operations and reclamation activities are in effect. The estimated maximum incremental cancer risk associated with mitigated future mining operations conducted concurrently with the reclamation activities is 7.4 in a million, which is below the BAAQMD CEQA significance threshold of 10 in a million (BAAQMD 1999). Estimated chronic and acute non-cancer health impacts are less than the BAAQMD CEQA significance threshold (i.e., a hazard index greater than 1.0 for noncancer impacts, BAAQMD 1999) without mitigation.

Therefore, the FEIR shows that the current and proposed operations of the Quarry, as mitigated, present no significant risk to the surrounding populations. This is consistent with ENVIRON's findings based on site-specific meteorological data, sampling and analysis, as presented in the Health Risk Assessment of Diesel Exhaust and Crystalline Silica, San Rafael Rock Quarry, January 9, 2009 (ENVIRON 2009), a copy of which was previously furnished to the County and is attached to this letter as Attachment 2.

D.2-3

Despite the data showing no significant risk, the FEIR proceeds to identify Impact C4.2-12, calculating "cumulative" impacts by combining impacts from estimated past operations (1982 through 2007) with those of the current/proposed operations, and concluding that the "cumulative" impact is significant and unavoidable. As noted above, the current/proposed operations, as mitigated, present no significant risks. This "cumulative" impact is based solely on the estimated exposures/risks from past operations. Calculating cumulative risk by including past operations is inappropriate under CEQA and is not consistent with agency risk assessment guidance.



a. The purpose of an EIR is to inform decision-makers and the public of significant environmental effects of a project. In the Quarry FEIR, the project is described in Section 3. Past facility emissions are not part of the project and should not be included in the FEIR.

- As discussed in CEQA¹ – Article 9, 15121(a), “An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.”
- As noted in the FEIR, Pg 3-17, Section 3.3, Environmental Baseline, “The fundamental purpose of an EIR is to inform the public and decision makers of the potential effects of a proposed project on the physical environment. With an existing facility that is seeking to amend its existing permits, however, both the project, and the baseline against which impacts are to be measured, must be defined carefully to avoid confusion and to ensure that the environmental analysis properly focuses on the proposed changes that constitute the project.”
- As also noted in the FEIR, Pg 3-18, Section 3.2.2, Environmental Baseline Used in the Final Environmental Impact Report, “In summary, the impacts to be considered are those which could potentially occur due to the changes proposed in ARP04 and in the application for an Amended Surface Mining and Quarrying Permit, as described below, and compared to existing permitted conditions. These impacts will be evaluated in relation to the existing environment at the time of the NOPs [Notice of Preparation].” The NOP for the ARP was issued in 2005 and the NOP for the AQP was issued in 2007.
- As noted in CEQA – Article 9, 15125(a), “This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant”
- CEQA – Article 9, 15126.2(a), “An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.”

As defined in CEQA, and as acknowledged elsewhere in the FEIR, the “project” has nothing to due with past emissions. “Impact C4.2-12” is not a significant impact resulting from the proposed project.

b. Past conditions exist regardless of the project or project alternative selected (including a no action alternative).

- As noted in the FEIR, Pg 6-1, “The California Environmental Quality Act (CEQA) requires an evaluation of the comparative effects of a range of reasonable

¹ Title 14. California Code of Regulations. Chapter 3. Guidelines for Implementation of the California Environmental Quality Act. Article 9. Contents of Environmental Impact Reports.

D.2-3
cont.

alternatives to a project that would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project (CEQA Guidelines 15126.6[a]).

- By definition, the past emissions/exposures have already occurred. Any past emission/exposures are not unique to the proposed project, but also apply to all potential alternatives. Assuming, as stated in the FEIR, that past emissions/exposures lead to risks above the significance thresholds, the “cumulative” impacts from past emissions/exposures would make the impact significant for not only the proposed project but all alternatives, including the ‘no project’ alternative.

If this standard were applied to all proposed projects, very few environmental improvements would be approved for existing facilities, as most would have historical air quality impacts that are significant and unavoidable. For example, it would be unlikely that any freeway could be modified or new emissions control technology could be installed at a refinery or chemical plant. Application of this standard to all projects would be antithetical to the intent of CEQA.

- c. It is not appropriate to determine past risks using the Office of Environmental Health Hazard Assessment (OEHHHA) health risk assessment methodology which was intended for evaluation of current or future risks.

- According to the FEIR, the risk assessments (for both current/proposed operations and for past operations) were conducted according to OEHHHA methodology.
- The OEHHHA risk assessment methodology was not intended to address past exposures as noted below (OEHHHA Pg 3)²:

The term “health risk assessment” is often misinterpreted. People sometimes think that a health risk assessment will tell them whether a current health problem or symptom was caused by exposure to a chemical. This is not the case. Scientists who are searching for links between chemical exposures and health problems in a community may conduct an epidemiologic study. These studies typically include a survey of health problems in a community and a comparison of health problems in that community with those in other cities, communities or the population as a whole.

Although they are both important, health risk assessments and epidemiologic studies have different objectives. Most epidemiologic studies evaluate whether *past* [emphasis added] chemical exposures may be responsible for documented health problems in a specific group of people. In contrast, health risk assessments are used to estimate whether *current or future* [emphasis added] chemical exposures will pose health risks to a broad population, such as a city or community. Scientific methods used in health risk assessment cannot

² <http://oehha.ca.gov/pdf/HRSguide2001.pdf>

D.2-3
cont.

be used to link individual illnesses to past chemical exposures, nor can health risk assessments and epidemiologic studies prove that a specific toxic substance caused an individual's illness.

Health risk assessment methodology is intended to be conservative and provide a theoretical risk estimate for the conservative assumptions used. Since the past already took place, there is no need to use conservative assumptions. This is acknowledged in the FEIR, pg 4.2-44: "According to CalEPA guidelines, the results of an HRA should not be interpreted as the expected rates of cancer or other potential human health effects, but rather as estimates of potential risk or likelihood of adverse effects based on current knowledge, under a number of highly conservative assumptions and the best assessment tools presently available."

- d. Because an inappropriate methodology was applied to calculate past exposures/risk, all the FEIR provides is highly theoretical risk estimates based on the very conservative assumptions used.

There is no health information provided to conclude that past exposures in the surrounding community have adversely affected the health of the community. Therefore, it is inappropriate to claim significant health impacts from past exposures and premature to be discussing mitigation for an impact which has not been shown to have occurred.

D.2-3
cont.

2) ASSUMED 20% INCREASE IN MINING EMISSIONS

As we noted in our comments on the DEIR, the air quality assessment presented in the DEIR assumed a 20% increase in mining production over 1982 levels. This assumption, perpetuated in the FEIR, is inconsistent with the project description presented Section 3.5 of the FEIR. Furthermore, this assumption is inconsistent with the air quality analysis presented in the FEIR, which goes on to conclude that several impacts are significant and proposes Mitigation Measures P4.2-6c, P4.2-7d, P4.2-9b (which by reference, all implement Mitigation Measure P4.6-6b), which would restrict the Quarry's annual production to the tonnage that occurred in 1982.

Though limiting annual production to 1982 levels would contribute to reductions in some air quality impacts, it is unnecessary to reduce such impacts to below significance (e.g., criteria emissions from the AQP, increased greenhouse gas (GHG) emissions from the AQP, and increased health risks from the ARP and AQP), given the other operating conditions and mitigation measures in place and assuming the analyses are corrected as noted in this letter.

Additionally, limiting annual production to the 1982 level may have the unintended consequence of preventing the Quarry from continuing to meet market demands and respond to public emergencies. The aggregate market is cyclical and depending on whether emergency orders are received, production during a particular year could exceed the 1982 level. To provide the Quarry with the flexibility to meet market demands and

D.2-4

emergency response requirements, the mitigation measure limiting production to 1982 levels should be based on averages over multiple years and not judged on an individual year basis. As the air quality impacts this mitigation measure is designed to address are either 1) long term impacts (e.g., health risks or GHG emissions over the entire project) or 2) daily thresholds (e.g., criteria emissions), measuring compliance with this mitigation measure can be evaluated over multiple years without diminishing the effectiveness of the measure in mitigating significant impacts. Additionally, the FEIR presents Mitigation Measure R4.2-1j which limits total daily emissions below significance thresholds and requires that SRRQ record and report daily activities to show compliance with this measure. Implementing such a compliance program ensures that the daily thresholds will not be exceeded even in years with a high market demand for aggregate.

It is also important to note that current operations at SRRQ would have lower impacts than those reflective of 1982 operations as more material is being shipped via barge rather than via truck, and limits on truck trips will remain in place. As discussed on Pg 3-66 of the FEIR, between 1980-1982 the average number of truck trips hauling material from SRRQ was approximately 295 per day. The same page of the FEIR indicates that one of the conditions of approval for ARP82 indicated that all increases in production would be shipped by barge. Since ARP82 was approved, a series of Superior Court Orders in 2004 have imposed interim operating conditions on SRRQ that limited the total number of truck trips to 250 on non-holiday weekdays, restricted days and hours of operation, and imposed other restrictions. SRRQ is proposing to continue the current restrictions on truck trips, days and hours of operation and other limitations, and has upgraded equipment for lower emissions and will continue to do so under the AQP. With the decrease in the total number of trucks, any additional material above what can be hauled by 125 trucks (e.g., 250 one-way trips) is hauled from the SRRQ by barge, which on a per ton basis is more efficient than hauling by truck. For all of these reasons, current and proposed operations at SRRQ have much lower impacts than those associated with 1982 operations.

D.2-4
cont.

3) EVALUATION OF PROJECT BASELINE FOR RECLAMATION EMISSIONS

As discussed earlier, Pg 3-17 of the FEIR acknowledges that “[t]he fundamental purpose of an EIR is to inform the public and decision makers of the potential effects of a proposed project on the physical environment. With an existing facility that is seeking to amend its existing permits, however, both the project, and the baseline against which impacts are to be measured, must be defined carefully to avoid confusion and to ensure that the environmental analysis properly focuses on the proposed changes that constitute the project.”

When evaluating GHG and criteria pollutant emissions from all four phases of reclamation activities, the FEIR indicates that emissions were only estimated for the activities that were not contemplated in ARP82. However, based on the levels of activities and concomitant emissions reported for these reclamation activities, it appears that all reclamation activity emissions were enumerated and not only emissions for those

D.2-5

Mr. Brian Peer

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activities which differ from ARP82. As such, an incorrect baseline condition was established such that total emissions, as opposed to incremental emissions, are being compared to significance thresholds.

As a result, the FEIR determined that impacts from Phase 4 emissions (Impacts R4.2-2, criteria emissions, and R4.2-3, GHG emissions) are significant. This conclusion is incorrectly predicated, however, on the faulty baseline assumptions. A calculation of GHG emissions from reclamation activities under ARP82 can be performed to the same extent as the calculation of such emissions from reclamation activities under ARP04. This analysis must be performed to determine the appropriate baseline for evaluation of adverse changes, if any, posed by ARP04. If the baseline were corrected, the incremental impacts would be lower and less than significant. In fact, it is possible that emissions from reclamation activities under ARP04 would be lower than those associated with reclamation activities under ARP82, and lower than GHG emissions permitted to occur in 1990 under ARP82.

The appropriate incremental criteria pollutant and GHG emissions for the ARP04 must be calculated and evaluated against the significance thresholds to determine if Mitigation Measure R4.2-1i (offsets) is required, and if so, the level to which GHG emissions need to be mitigated in accordance with Mitigation Measure R4.2-3c.

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cont.

4) USE OF BAAQMD EMISSION REDUCTION CREDITS TO OFFSET RECLAMATION EMISSIONS

In their comment letter on the DEIR (Comment Letter 2 of the FEIR Volume 2, Section 7), BAAQMD recommended an “offsite mitigation program to achieve contemporaneous emission reduction from sources offsite that are not required to reduce their emissions due to existing regulations, with an emphasis on emissions reduction occurring near the project site.” In the FEIR, this comment was implemented as Mitigation Measure R4.2-1i, which would require that the SRRQ “acquire BAAQMD off-site emissions offset credits in sufficient quantity to reduce emissions from grading to levels below significance thresholds” in the case that staggered mining and reclamation emissions (as required by Mitigation Measure R4.2-1j) exceed BAAQMD significance thresholds.

As discussed earlier, the improper calculation of the baseline for ARP04 reclamation activities under the FEIR resulted in a determination that mitigation measure R4.2-1i may be necessary. The appropriate incremental criteria pollutant emissions for ARP04 must be calculated and evaluated against the ARP82 baseline and significance thresholds to determine if Impact R4.2-1 and R4.2-2 are significant. If this analysis shows the impacts are not significant (either without mitigation or with Mitigation Measures R4.2-1a-h, j), then Mitigation Measure R4.2-1i would not be required.

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Additionally, BAAQMD Emission Reduction Credits (ERCs) are typically reserved for reducing the impact of stationary source emissions, not mobile source emissions which will be used in the reclamation project. From a review of their letter, it appears that BAAQMD was suggesting a mitigation program apart from their stationary source ERCs as their carefully worded response made no mention of the ERC program or offsets. It is

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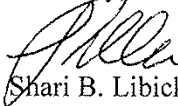
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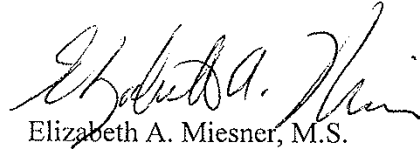
not typical that BAAQMD would be the entity responsible for administering an offsite mitigation program such as described in Draft Mitigation Monitoring Measure R4.2-1, because this type of source is not subject to BAAQMD rules and regulations. It is also not appropriate for ERCs to be used to offset temporary emissions, such as reclamation activities. ERCs are designed to permanently offset emissions from operations occurring for an indefinite time period.

↑
D.2-6
cont.

If you have any questions regarding the above comments, please contact either of us at your convenience.

Sincerely,


Shari B. Libicki, Ph.D.
Principal


Elizabeth A. Miesner, M.S.
Principal

y:\San Rafael Rock Quarry\EIR Comments\Comment Letter.doc

cc Chris Locke, Farella Braun + Martel LLP
Aimi Dutra Krause, The Dutra Group
Al Cornwell, CSW/Stuber-Stroeh Engineering Group, Inc.

Attachments:

Attachment 1: References
Attachment 2: *Health Risk Assessment of Diesel Exhaust and Crystalline Silica, San Rafael Rock Quarry*, prepared by ENVIRON and dated January 9, 2009.

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Attachment 1: References

Bay Area Air Quality Management District (BAAQMD). 1999. BAAQMD CEQA Guidelines. Assessing the Air Quality Impacts of Projects and Plans.

ENVIRON International Corp. 2009. Health Risk Assessment of Diesel Exhaust and Crystalline Silica, San Rafael Rock Quarry, January 9.

Environmental Science Associates (ESA). 2008. Draft San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit Combined Environmental Impact Report. Volume I. February.

Environmental Science Associates (ESA). 2009. Final San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit Combined Environmental Impact Report. Volume I. January.

OEHHA. 2001. Proposition 65. Process for Developing Safe Harbor Numbers. Reproductive and Cancer Hazard Assessment Section, Office of Environmental Health Hazard Assessment. February.

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Attachment 2:

Health Risk Assessment of Diesel Exhaust and Crystalline Silica, San Rafael Rock Quarry, prepared by ENVIRON and dated January 9, 2009.

ENVIRON



Health Risk Assessment of
Diesel Exhaust and
Crystalline Silica
San Rafael Rock Quarry
San Rafael, California

D.2-8

Prepared for:
San Rafael Rock Quarry, Inc.
San Rafael, CA

Prepared by:
ENVIRON International Corporation
San Francisco, California

Date:
January 9, 2009

Project Number:
03-18011A

ENVIRON

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List of Acronyms

ACGIH	American Conference of Governmental Industrial Hygienists
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AERMET	Meteorological data preprocessor for AERMOD
AMS	American Meteorological Society
AQP	Amended Surface Mining and Quarrying Permit
ARB	Air Resources Board
ARP	Amended Reclamation Plan
BAAQMD	Bay Area Air Quality Management District
Cal/EPA	California Environmental Protection Agency
CEQA	California Environmental Quality Act
CPF	Cancer Potency Factor
DHS	Department of Health Services
DPM	Diesel Particulate Matter
EIR	Environmental Impact Report
EMFAC	EMission FACtor model
ESA	Environmental Science Associates
HHDV	Heavy-Heavy-Duty Vehicles
HI	Hazard Index
HRA	Health Risk Assessment
HRSA	Health Risk Screening Analysis
IARC	International Agency for Research on Cancer
ISCST3	Industrial Source Complex Short Term Model
ISO	International Organization for Standardization
MEI	Maximally Exposed Individual
MEIR	Maximally Exposed Individual Resident
NIOSH	National Institute for Occupational Safety and Health
NCDC	National Climatic Data Center
NTP	National Toxicology Program
OEHHA	Office of Environmental Health Hazard Assessment
PM ₁₀	Particulate Matter Less than 10 Microns in Diameter
PMI	Point of Maximum Impact
REL	Reference Exposure Level
RH	Relative Humidity
SRRQ	San Rafael Rock Quarry
TAC	Toxic Air Contaminants
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VMT	Vehicle Miles Traveled
WD	Wind Direction

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cont.

List of Units

°F	degrees Fahrenheit
kg	kilogram
l	liters
m ³	cubic meter
mph	miles per hour
mg	milligram
µg	microgram
µm	micrometer or micron

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cont.

Executive Summary

At the request of San Rafael Rock Quarry, Inc., ENVIRON International Corporation (ENVIRON) performed a health risk assessment (HRA) of diesel particulate matter (DPM) emissions and crystalline silica in dust associated with operations at the San Rafael Rock Quarry (SRRQ or Quarry).

The purpose of the HRA is to evaluate potential impacts of these constituents in response to community concerns, as well as public comments received on the draft Environmental Impact Report (EIR) for the San Rafael Rock Quarry Amended Reclamation Plan (ARP) and Amended Surface Mining and Quarrying Permit (AQP) prepared by Environmental Science Associates (ESA) on behalf of the Marin County Community Development Agency in February 2008 (ESA 2008).

Quarry operations that can produce DPM emissions and dust consist of customer and contractor/interplant trucks traveling to and from the Quarry, mobile equipment on the Quarry site carrying out mining operations, blasting, rock crushing, screening and sizing, loading of aggregate onto trucks and barges, and tug boat operations in the area of the Quarry pier.

Our analysis found that Quarry operations do not pose a significant human health risk to offsite receptor locations under reasonable, as well as highly conservative, maximum exposure assumptions. Applying site-specific data and conservative assumptions, including the unlikely assumption that residents will continue to live in the same home for seventy (70) years, and be present at the home for nearly the entire 70 years, the results of the HRA show that risks from exposure to DPM and to crystalline silica in dust related to Quarry operations are less than significant, based on Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) thresholds. More realistic assumptions of residency periods of thirty (30) years (United States Environmental Protection Agency's [USEPA's] estimate for 90% of the population) or nine (9) years (USEPA's estimate for 50% of the population) demonstrate risks to be much lower, and less than the significance threshold.

It should be noted that, as to diesel emissions, the Quarry has converted all equipment to biodiesel and upgraded most equipment to the highest level of diesel emission control currently available. Additional upgrades will be implemented for further reductions in emissions as new technologies become available and as new regulatory requirements are implemented or adopted. As to crystalline silica, it should be noted that this is a naturally occurring substance in soil and rock, and the levels calculated for the Quarry in this HRA are below USEPA estimates for average background concentrations in ambient air in the United States (USEPA 1996).

The methods, data, assumptions, analytical models and conclusions of this HRA are summarized below and discussed in detail in the attached report.

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Process

ENVIRON performed this HRA using methods, protocols and analytical models approved by local, state, and federal agencies for use in regulatory decision-making, including those used in HRAs conducted for CEQA purposes. This HRA reflects the fact that we utilized conservative methodologies for:

- the estimation of DPM emissions;
- the calculation of airborne DPM and crystalline silica concentrations at neighboring off-site receptor locations; and,
- the estimation of excess lifetime cancer risks and noncancer hazard indices at these receptor locations.

Using established emission estimation models developed by the California Air Resources Board (ARB), ENVIRON estimated DPM emissions for the on-road customer and contractor/interplant trucks traveling to and from SRRQ. On-site equipment and tug DPM emissions were estimated using USEPA and ARB emissions estimation models and emissions standards applicable to each piece of equipment. DPM concentrations at residential receptor locations were then conservatively estimated using the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) version 07026 (USEPA 2005) with meteorological data from an on-site station at SRRQ.

Ambient air concentrations of crystalline silica were estimated based on two data sets:

- particulate matter measurements collected as part of dust sampling conducted by Applied Meteorological Science (AMS) under the direction of ENVIRON over a period from August 21, 2007 through December 10, 2007, and,
- the percentage of crystalline silica as part of Quarry materials (e.g., drilling fines, baghouse dust, aggregate) as determined in samples of Quarry materials collected by ENVIRON in conjunction with ESA on November 7, 2007.

The first data set was analyzed to determine the concentration of particulate matter less than 10 microns in diameter (PM_{10} , also referred to as "respirable dust") that is potentially attributable to operations at the Quarry. This estimated PM_{10} concentration was combined with the fraction of crystalline silica in Quarry materials to estimate the potential ambient air concentration of crystalline silica associated with Quarry operations.

Modeled DPM concentrations and estimated crystalline silica concentrations were then combined with information from exposure and toxicity assessments to estimate excess lifetime cancer risks and chronic non-cancer hazards associated with potential residential exposure to DPM and crystalline silica. The exposure assessment was conducted using methods and assumptions consistent with CEQA guidelines and involved identifying the potential types and magnitude of human exposure to DPM and crystalline silica. The toxicity assessment consisted of identifying an

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agency-recommended toxicity value for DPM and crystalline silica. The HRA results are presented as estimated cancer risks and non-cancer hazard indices.

As part of this assessment, the estimated human health risks and hazard indices were compared to the thresholds for significance for toxic air contaminants (TACs) in the BAAQMD CEQA Guidelines for a maximally exposed individual (MEI). According to the BAAQMD CEQA Guidelines, the threshold for significance for TACs is an excess cancer risk greater than ten in one million (1×10^{-5}) and a non-cancer hazard index of greater than one for the MEI (BAAQMD 1999).

Findings

The results of our analysis demonstrate that potential excess lifetime cancer risks for off-site residents from sources of emissions associated with Quarry operations are below the BAAQMD CEQA threshold for significance (i.e., ten in one million) for any residential receptors using three residency periods which assume a resident is at home for 24 hours per day for 350 days per year: 1) an average residency period of nine (9) years (USEPA's estimate for 50% of the population), 2) a reasonable maximum residency period of thirty (30) years (USEPA's estimate for 90% of the population) or, 3) a lifetime (70-year) residency period, which is the most conservative exposure duration. There is no reason to believe that individuals will actually live in the same home, and remain at home nearly all the time, and therefore be exposed to Quarry emissions for the conservative exposure duration of 70 years. However, even if they were, the HRA concludes that this would pose no significant risk. The chronic non-cancer hazard indices estimated for both DPM and crystalline silica, at 0.3, are well below the BAAQMD CEQA non-cancer hazard index threshold of significance of 1.0.

The many conservative assumptions that have been used in this assessment regarding the identification of traffic and associated emissions, estimation of ambient air concentrations, and exposure assumptions likely lead to an overestimate of potential risks, the magnitude of which could be substantial. The use of conservative assumptions provides greater confidence in an HRA's finding of no significant risk. The USEPA (1989a) explains the effect of using conservative parameters in regulatory risk assessments as follows:

"These values are upper-bound estimates of excess cancer risk potentially arising from lifetime exposure to the chemical in question. A number of assumptions have been made in the derivation of these values, many of which are likely to overestimate exposure and toxicity. The actual incidence of cancer is likely to be lower than these estimates and may be zero."

Risks quantified in this HRA are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions (i.e., health-protective assumptions) tends to produce upper-bound estimates of risk. Although it is difficult to quantify the uncertainties associated with all the assumptions made in risk assessment, the use of conservative assumptions is likely to result in substantial overestimates of exposure, and hence, risk. Specifically, the BAAQMD states that "the methods used [to estimate risk] are conservative; meaning that the real risks from the source may be lower than the calculations, but it is unlikely that they will be higher" (BAAQMD 2008).

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The estimated excess cancer risks at the residential MEI for average (9-year), reasonable maximum (30-year), and highly conservative lifetime (70-year) exposure scenarios are all below the BAAQMD CEQA threshold of significance of ten in one million. Similarly, the chronic non-cancer hazard index (HI), comprised of hazard indices estimated for both DPM and crystalline silica, was evaluated at a point of maximum impact (PMI) offsite of the Quarry and estimated to be well below the BAAQMD CEQA threshold of significance of 1.0. Therefore, our analysis concludes that SRRQ operations do not pose a significant risk to offsite receptors, as defined under the BAAQMD CEQA Guidelines.

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cont.

1 Introduction

At the request of San Rafael Rock Quarry, Inc., ENVIRON International Corporation (ENVIRON) performed a health risk assessment (HRA) of the diesel particulate matter (DPM) emissions and crystalline silica in dust associated with operations at the San Rafael Rock Quarry (SRRQ or Quarry). The Quarry is located at 1000 Point San Pedro Road in San Rafael, California.

Quarry operations that can produce DPM emissions and dust consist of customer and contractor/interplant trucks traveling to and from the Quarry, mobile equipment on the Quarry site carrying out mining operations, blasting, rock crushing, screening and sizing, loading of aggregate onto trucks and barges, and tug boat operations in the area of the Quarry pier.

In February 2008, Environmental Science Associates (ESA) released a draft Environmental Impact Report (EIR) for the San Rafael Rock Quarry Amended Reclamation Plan (ARP) and Amended Surface Mining and Quarrying Permit (AQP) on behalf of the Marin County Community Development Agency (ESA 2008). In that document, ESA presented results of a HRA that considered DPM emissions from trucks, tugs and on-site equipment; asphalt and brickyard emission sources; and crystalline silica from fugitive dust. The ESA HRA concluded that with mitigation, including conversion to biodeisel and upgrades to on-site equipment that SRRQ had already performed or proposed, estimated excess lifetime cancer risks and chronic non-cancer health hazards were below the Bay Area Air Quality Management District (BAAQMD or District) California Environmental Quality Act (CEQA) thresholds of significance.

To respond to community concerns relating to Quarry operations and public comments on ESA's analysis, SRRQ requested that ENVIRON conduct an HRA utilizing data collected at the site (e.g., site-specific meteorological, fugitive dust and crystalline silica measurements) to evaluate whether off-site exposure to DPM emissions and crystalline silica in dust associated with the Quarry operations pose any significant cancer risk or chronic non-cancer hazard, evaluated in accordance with BAAQMD CEQA guidelines.

1.1 Objectives and Methodology

The purpose of this report is to present the results of the HRA of the DPM emissions and crystalline silica dust associated with Quarry operations. The methodology used in this HRA is consistent with the following California Environmental Protection Agency (Cal/EPA), BAAQMD and United States Environmental Protection Agency (USEPA) risk assessment guidance:

- *Air Toxics Hot Spots Program Risk Assessment Guidelines: Part IV Technical Support Document for Exposure Assessment and Stochastic Analysis* (Cal/EPA 2000),
- *Air Toxics Hot Spots Program Risk Assessment Guidelines* (Cal/EPA 2003),
- *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (BAAQMD 1999),
- *BAAQMD Bay Area Air Quality Management District Staff Report* (BAAQMD 2005a),

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- BAAQMD Air Toxics NSR Program Health Risk Screening Analysis (HRSA) Guidelines (BAAQMD 2005b),
- USEPA Risk Assessment Guidance for Superfund: Volume 1- Human Health Evaluation Manual (Part A). Interim Final. (USEPA 1989b), and
- USEPA Exposure Factors Handbook (USEPA 1997).

Potential health effects—including excess lifetime cancer risks and chronic non-cancer hazards—associated with DPM emissions and crystalline silica in dust are evaluated for offsite receptors surrounding SRRQ and the expected travel routes of trucks calling on the Quarry. ENVIRON evaluated potential exposures to DPM and crystalline silica at these locations using conservative exposure parameters consistent with BAAQMD risk screening guidance (BAAQMD 2005a, 2005b).

1.2 Report Organization

This HRA report is divided into seven sections as follows:

Section 1.0 – Introduction: describes the purpose and scope of the HRA and outlines the report organization.

Section 2.0 – Facility Operations Description: presents a description of facility operations, including mining, rock processing and loading, barge operations, and customer and contractor/interplant trucks traveling on Point San Pedro Road to and from the SRRQ.

Section 3.0 – Estimated DPM Air Concentrations: summarizes the methods used to estimate the ambient air concentrations of DPM emissions associated with Quarry operations. This section covers the DPM emissions estimates used for dispersion modeling, the selection of the dispersion model, the data used in the dispersion model (e.g., terrain, meteorology, source characterization), and the identification of receptor locations evaluated in this HRA.

Section 4.0 – Estimated PM₁₀ and Crystalline Silica Air Concentrations: summarizes the methods used to estimate the ambient air concentrations of crystalline silica and the potential contribution from dust associated with Quarry operations. This section covers the methodology used to determine the ambient air concentration of particulate matter less than 10 microns in diameter (PM₁₀, also referred to as “respirable dust”) that is potentially attributable to operations at the Quarry, the percentage of the PM₁₀ estimated to be crystalline silica, and the resulting ambient air concentration of crystalline silica potentially attributable to operations at the Quarry.

Section 5.0 – Health Risk Assessment: presents the methodology for conducting the HRA and estimating the excess lifetime cancer risks and non-cancer hazard indices related to DPM and crystalline silica emissions. This section also presents the results of the HRA and describes the uncertainties associated with the risk estimates and discusses how these uncertainties may affect the HRA conclusions.

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Section 6.0 – Conclusions: summarizes the conclusions of the HRA.

Section 7.0 – References: includes a listing of all references cited in this report.

The appendices include supporting information as follows:

Appendix A: discusses processing of meteorological data. This section also includes AERMOD-ready meteorological data files (provided electronically).

Appendix B: presents AERMOD modeling files (provided electronically).

Appendix C: presents the database created to perform the HRA calculations based on modeling dispersion results, emission estimation, exposure parameters and chemical toxicity values (provided electronically).

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2 Facility Operations Description

SRRQ is located at 1000 Point San Pedro Road in San Rafael, California, on a point overlooking the San Pablo and San Rafael Bays. The location of SRRQ and a map of the general vicinity are shown in **Figure 2-1**.

SRRQ has been the site of quarrying and related activities for over 100 years. The Main Quarry Bowl is located in the Quarry's southeast sector. It is flanked to the south and east by the operations area and barge loading facilities, where materials are crushed, sorted, washed, stockpiled, and loaded onto trucks and barges. Nearer to the western edge of Quarry property lies McNear's Brickyard, which consists of brick manufacturing facilities, warehouses, and open storage of products and raw materials. Between the Main Quarry Bowl and McNear's Brickyard is the South Hill, at the southeast base of which the SRRQ administrative offices are located (ESA 2008).

The purpose of this HRA is to evaluate the potential health risks associated with exposure to DPM emissions and crystalline silica in dust associated with operations at SRRQ. Quarry operations that can produce DPM and dust emissions consist of customer and contractor/interplant trucks calling on the Quarry, mobile on-site equipment carrying out mining operations, blasting, rock crushing, screening and sizing, loading of aggregate onto trucks and barges, and tug boat operations in the area of the Quarry pier.

Trucks going to and from SRRQ are limited by court order to 125 "truck trips" (round trips) per day, between 7:00 a.m. and 5:00 p.m., on non-holiday weekdays.¹ Diesel fueled, mobile on-site equipment, such as rock drills, loaders and haul trucks, are used in mining and transport within Quarry property. On-site equipment crushes aggregate and distributes the aggregate material into desired customer sizes. Tug boats are used to propel barges to and from the Quarry's pier, and to transport material on the barges to customers and other plant facilities.

The HRA was performed to evaluate whether potential offsite exposures to DPM emissions and crystalline silica in dust associated with Quarry operations exceed the BAAQMD CEQA thresholds of significance.

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¹ See April 19, 2004 and July 15, 2004 Orders of the Marin County Superior Court in *Point San Pedro Road Coalition v. San Rafael Rock Quarry, Inc.*, No. CV 014584 (and Consolidated Actions); see also the draft EIR for the AQP (2008), at 2-7, which proposes to continue these restrictions.

3 Estimated DPM Air Concentrations

This section describes the estimation of DPM air concentrations at residential and other offsite receptor locations potentially exposed to diesel emissions from SRRQ operations. Section 3.1 describes the emission estimation, including the estimation of emission factors and assumptions for truck counts and equipment inventory. Section 3.2 details the air dispersion modeling, including model selection, source configuration, use of site-specific meteorological data and identification of receptor locations. The modeled concentrations were then used to estimate potential exposures and health risks, as described in Section 5.

3.1 Emission Estimation

This section describes the methodology for estimating DPM emissions from SRRQ operations, which consist of: customer and contractor/interplant trucks traveling to and from SRRQ, diesel fueled, mobile on-site equipment, and tug boats.

3.1.1 Estimated DPM Emissions for Trucks

Customer and contractor/interplant truck DPM emission factors were estimated using emission factors for PM₁₀, as generated by the California Air Resources Board (ARB) 2007 Emission FACtor model (EMFAC 2007) and modified to account for the On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation that was approved by the ARB on December 11, 2008.

EMFAC 2007 is a mathematical model that was developed to calculate emission rates from motor vehicles that operate on highways, freeways, and local roads in California, and is commonly used by ARB to project changes in future emissions from on-road mobile sources. The most recent version of this model, EMFAC 2007 (version 2.30), incorporates regional motor vehicle data, such as model year distribution, and information and estimates regarding the distribution of vehicle miles traveled (VMT) by speed, and number of starts per day. The EMFAC 2007 model generates emission factors based on the vehicle weight class.

For this analysis, annual average PM₁₀ emission factors (in gram/vehicle-mile) for heavy-heavy-duty vehicles (HHDV) were generated by running EMFAC 2007 in "Emfac Mode" for Marin County, California. Emfac Mode, also called "Area Fleet Average Emissions", generates emission factors in terms of grams of pollutant emitted per vehicle activity and can calculate a matrix of emission factors at specific values of temperature, relative humidity, and vehicle speed. The model was run for vehicle speeds between 0 miles per hour (mph), for idling, and 35 mph, the posted speed limit on Point San Pedro Road. In addition, the model was run using a temperature of 59 degrees Fahrenheit (°F) (the mean annual average at San Rafael Civic Center, 1948-2006²)

² Meteorological data for San Rafael Civic Center was obtained from Weather Underground (<http://www.weatherunderground.com>)

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and a relative humidity (RH) of 76% (average of UC Richmond, years 2000 through 2005³, and San Francisco Airport, years 2001 through 2005⁴). These conditions are in good agreement with the five-year average (2002-2006) temperature and RH at nearby Oakland Airport, which were 57°F and 75%, respectively.⁵

EMFAC 2007 was run for each year between 2009 and 2040, inclusive. This range was selected because 2009 is the first year in the modeled scenario, corresponding to commencement of an approved amended reclamation plan, and 2040 is the latest year for which EMFAC 2007 will project emission rates. However, as discussed in Section 5, modeled scenarios were evaluated for exposure durations of 9, 30 and 70 years. The 30 year exposure duration would run from 2009 through 2038, inclusive. The 70 year exposure duration would run from 2009 through 2078. For the years 2041 through 2078, the emission factors EMFAC 2007 generated for 2040 were used. This is a conservative estimate since emission factors follow a downward trend over time. Emission factors generated by EMFAC are shown in **Table 3-1**. The raw EMFAC 2007 output file is provided in Appendix A.

Emissions reductions resulting from the On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation approved by the ARB on December 11, 2008 were estimated from ARB's Private Fleet Database,⁶ which lists statewide emissions with and without the approved truck rule. The percent emission reduction was estimated by taking the difference between emissions estimates with and without the rule and is shown in **Table 3-2**.

Customer and contractor/interplant truck traffic was modeled from US Highway 101 to the SRRQ via Point San Pedro Road, along the Quarry's truck roads, and back to US-101 via Point San Pedro Road. On Quarry property, trucks were assumed to idle at certain areas along their route: queuing for cargo pickup, during cargo pickup, weighing at the scale house, tarp fastening, and queuing at the metering light during peak hours prior to leaving the Quarry. This haul route, complete with idling areas, is shown on **Figure 3-1**. In order to account for different road parameters (e.g., speed) along different portions of this route, the overall route was broken down into multiple road segments. Along the first route, which follows Point San Pedro Road from US-101 to the Quarry entrance, trucks were assumed to average 25 mph due to a combination of the road's winding nature and the presence of multiple stoplight-controlled intersections nearer to US-101. On on-site road segments, trucks were assumed to travel between 5 and 15 mph⁷. Each road segment's length and assumed speed were used in conjunction with the appropriate average emission factor to find an associated emission rate. In addition, trucks were assumed to idle at

³ Meteorological data for the UC Richmond meteorological site was obtained from the Bay Area Air Quality Management District.

⁴ Meteorological data for San Francisco International Airport was obtained from the National Climatic Data Center (NCDC).

⁵ Meteorological data for Oakland International Airport (Station 72493) was obtained from the NCDC.

⁶ <http://www.arb.ca.gov/regact/2008/truckbus08/emissinv.xls>

⁷ Truck speeds on on-site roads were provided by The Dutra Group in a 2007-10-30 e-mail correspondence with ENVIRON.

D.2-8
cont.

certain points along their travel route. A summary of the parameters for each truck travel segment and each truck idling location is shown in **Table 3-3** and their locations are shown in **Figure 3-1**.

Total emissions were estimated based on two possible annual truck counts: the actual historical truck count, which is the more likely scenario, and the maximum truck count. The first was based on historical truck count data from July 12, 2007 through July 11, 2008, a 12-month period during which 23,525 trucks visited the SRRQ.⁸ The second was a maximum truck count scenario based on a court-ordered maximum of 125 trucks per day, each truck representing two one-way trips, on non-holiday weekdays,⁹ which at 242 days per year (365 days less the number of weekend days and holidays in the historical truck data) yields 30,250 trucks per year or 60,500 one-way trips per year. The customer and contractor/interplant trucks were assumed to operate between 7 A.M. and 5 P.M., in accordance with the Court's Orders and proposed in the draft EIR as referenced above. Year-by-year and 70-year average emissions for the maximum allowable truck count scenario are shown in **Table 3-7**.

3.1.2 Estimated DPM Emissions for On-Site Equipment

An inventory of diesel-fueled equipment used on-site at the Quarry (e.g., rock drills, haul trucks, loaders), including their location of use (i.e., Main Quarry Bowl, South Hill, Operational Area), engine size, load factor and USEPA Tier Certification levels is summarized in **Table 3-4**. ENVIRON conservatively assumed that each piece of on-site equipment would have an emission factor equal to its USEPA Tier Certification level's standard emission factor¹⁰, even if the equipment might actually emit at a lower rate. ENVIRON also assumed that the on-site equipment fleet would comply with ARB's In-Use Off-Road Diesel Vehicle Rule (approved on July 26, 2007), which will come into effect in 2010 and sets increasingly stringent fleet-average emission rates year-by-year through 2021. This estimate assumes that all equipment will meet Tier 4 or greater standards by 2021 in order to meet the requirements of the Off-Road Diesel Rule. For estimating emissions past 2021, ENVIRON used emission rates for 2021, which is conservative as new technologies and fuels with lower emissions will likely become available and incorporated into the fleet. A detailed table of emission factors used for on-site equipment can be found in **Table 3-5**. The areas where on-site equipment operates are shown in **Figure 3-1**.

For its on-site fleet, SRRQ currently uses 20% biodiesel blended with California low sulfur diesel fuel to form B20 biodiesel. USEPA estimates that using biodiesel blends can reduce PM₁₀ emissions (USEPA 2002a). A calculator provided by the USEPA (USEPA 2008a) estimated a 7% reduction in particulate matter emissions assuming 20% clean soybean-based oil is blended with California fuel. As a result, ENVIRON assumed a 7% reduction in PM₁₀ from the on-site sources.

⁸ SRRQ truck logs provided to Sonoma County, pursuant to the Court Order.

⁹ See April 19, 2004 and July 15, 2004 Orders of the Marin County Superior Court in *Point San Pedro Road Coalition v. San Rafael Rock Quarry, Inc.*, No. CV 014584 (and Consolidated Actions); see also the draft EIR for the AQP (2008), at 2-7, which proposes to continue these restrictions.

¹⁰ Emission standards for USEPA Tier Certification was taken from USEPA's Tier 2 and Tier 3 Emission Standards (40 CFR § 89.112).

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cont.

On-site equipment other than barge loading was assumed to operate from 7 A.M. to 10 P.M., Monday through Friday, excluding holidays, as provided in the Court's Orders and proposed in the draft EIR referenced above. This is again a conservative assumption, as operation of the crushing plant is restricted to 7 A.M. to 5 P.M. during December 1 – April 30 each year, under the Court's Orders and as proposed in the draft EIR. Year-by-year and 70-year average emissions can be found in **Table 3-7**.

3.1.3 Estimated DPM Emissions for Tug Boats

Based on engine specifications and usage activity for the tug boat SRRQ owns and operates at the Quarry, ENVIRON conservatively assumed that tug engines would comply with their USEPA Tier Certification levels' standard emission factors (reference), even if the equipment might actually emit at a lower emission rate. This emission rate was assumed to stay constant over time, which is conservative as new technologies and fuels with lower emissions will likely become available and utilized. Barge loading and operation of tugs was assumed to occur from 7 A.M. to 10 P.M. at the Quarry, without restriction on days of operation, as provided in the Court's Orders and proposed in the draft EIR referenced above. A detailed table of tug equipment is given in **Table 3-6** and areas where they operate are shown in **Figure 3-1**. Tug emissions are shown in **Table 3-7**.

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cont.

3.2 Air Dispersion Modeling

Air dispersion modeling was performed to estimate airborne DPM concentrations for use in the HRA using one year of hourly meteorological data collected on-site. Yearly concentrations were estimated using emissions presented in **Table 3-7** and these concentrations were used to assess excess lifetime cancer risks and chronic non-cancer hazards resulting from these emissions.

3.2.1 Model Selection

ENVIRON used the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) version 07026, the USEPA recommended air dispersion model (USEPA 2005). AERMOD was developed as a replacement for USEPA's Industrial Source Complex Short Term (ISCST3) air dispersion model to improve the accuracy of air dispersion model results for routine regulatory applications and to incorporate the progress in scientific knowledge of atmospheric turbulence and dispersion.

3.2.2 Source Configuration

DPM emissions were modeled for customer and contractor/interplant trucks, on-site equipment, and tug boats. The source parameters and operating schedule are presented below. The physical locations of the modeled sources are shown in **Figure 3-1**.

Customer and Contractor/Interplant Trucks

Customer and contractor/interplant trucks travel to and from the facility via Point San Pedro Road. ENVIRON modeled this off-site travel path as a 4.2-mile segment from US Highway 101 to the metering light at the SRRQ entrance. Upon reaching the Quarry entrance, these trucks travel in a loop: they enter the Quarry area, load their cargo, pass through the scale house, and then leave the facility via the same road on which they entered. ENVIRON modeled on-site customer and contractor/interplant truck travel paths as six separate segments.

The truck movement was modeled by representing the mobile sources as line sources (i.e., a series of volume sources) and as area sources for truck idling. **Figure 3-1** shows the locations of the modeled sources. Based on information from a previous ARB study (ARB 2006) characterizing risk at the Ports of Los Angeles and Long Beach and recommendations by ARB staff in 2006, the release height of HHDVs was assumed to be 4 meters during daytime. As discussed in **Section 3.1.1**, travel sources were broken down into separate road segments. The length of side used for each segment's volume sources was set according to width of the road segment, as estimated from aerial photos. Source parameters used in the dispersion modeling for the volume sources representing vehicle traffic and for the area sources representing vehicle idling and maneuvering are shown in **Table 3-8**.

ENVIRON assumed that the operating schedule of off-site haul trucks is from 7 A.M. to 5 P.M. Monday through Friday, excluding holidays. On-site haul trucks were assumed to operate from 7 A.M. to 5 P.M. Monday through Friday, excluding holidays, as provided in the Court's Orders and proposed in the draft EIR referenced above.

On-Site Equipment

On-site equipment was modeled as several area sources on SRRQ facility property, corresponding to the operational area (e.g., crushing, storage piles, truck loading) and the two excavation areas, South Hill and the Main Quarry Bowl. These are the areas where SRRQ either currently operates their equipment or plans to operate with the approval of the amended reclamation plan (ESA 2008).

On-site equipment other than barge loading was assumed to operate from 7 A.M. to 10 P.M. Monday through Friday, excluding holidays, as provided in the Court's Orders and proposed in the draft EIR referenced above. This is again a conservative assumption, as operation of the crushing plant is restricted to 7 A.M. to 5 P.M. during December 1 – April 30 each year, under the Court's Orders and as proposed in the draft EIR. Details on source parameters (e.g., release height) for on-site equipment can be found in **Table 3-8**.

Tug Boats

Under typical operations, a tug arrives with a raft of barges; however, the SRRQ pier can only accommodate up to two barges at a time for loading. Therefore, the tug will break the raft of barges and tie them up at the buoys in San Pablo Bay for staging. The tug then ferries barges to the pier for loading and back to the buoys. Once all barges are loaded, the tug will build a raft of the barges and transport it to a customer location or other Dutra facility. Therefore, tug boats were

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cont.

modeled as an area source encompassing an area between the SRRQ pier and buoys in San Pablo Bay where barges are staged during loading. Barge loading and operation of tugs was assumed to occur at the Quarry from 7 A.M. to 10 P.M. without restriction on days of operation, as provided in the Court's Orders and proposed in the draft EIR referenced above. Details on source parameters (e.g., release height) for tugs can be found in **Table 3-8**.

3.2.3 Meteorological Data

The USEPA and Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) typically recommend using a minimum of one year of on-site meteorological data or five years of representative meteorological data from a nearby site for refined regulatory air dispersion modeling applications (USEPA 2005, Cal/EPA 2003).

For this assessment, one-year of site-specific meteorological data was used, collected from August 28, 2007 through August 27, 2008. The meteorological station was installed in August of 2007 by American Meteorological Society (AMS), under the supervision of ENVIRON, and is located on the ridge immediately north of the Main Quarry Bowl (**Figure 3-2**). Due to a few instances of equipment malfunction, the data had some gaps. To bridge these data gaps, ENVIRON used synchronous data from the BAAQMD's Point San Pablo station, located in nearby Richmond, California. Prior to this substitution, the Point San Pablo data was first transformed by AMS to improve its correlation with the site-specific data. Details on this entire data substitution process can be found in Section A.1.1 of Appendix A.

This substituted, complete one-year span of meteorological data was then processed in AERMET in combination with synchronous National Climatic Data Center (NCDC) upper air meteorological data from Oakland Airport. A description of this processing, as well as processed meteorological data ready for use in AERMOD, is available in Appendix A. Included in Appendix A are wind roses for the entire one-year period for all hours (**Figure A-1**) and for the hours of operation of the customer and contractor/interplant trucks (**Figure A-2**).

3.2.4 Receptor Locations

Receptors were placed over residential communities and other non-residential locations in the vicinity of the Quarry and along the truck route on Point San Pedro Road to US Highway 101, including San Pedro Elementary School and San Rafael High School. These receptors were spaced 50-meters apart in a square grid pattern, as shown in **Figure 3-3**. Annual average concentrations were estimated for all receptor locations.

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4 Estimated PM₁₀ and Crystalline Silica Air Concentrations

At SRRQ's request, ENVIRON directed a meteorological and dust monitoring campaign to investigate the predominant wind patterns and fugitive dust on and around its facility. Over a period from August 21, 2007 through December 10, 2007, AMS, under the direction of ENVIRON, collected meteorological and/or PM₁₀ measurements at six locations on or around the Quarry property (of the six stations, five measured meteorological data and four measured PM₁₀). A listing of the monitoring sites and the measurements recorded at each site are summarized in **Table 4-1**, and their locations are shown in **Figure 4-1**. Data collected as part of this campaign were used to evaluate the concentration of PM₁₀ that is potentially attributable to operations at the Quarry based on an analysis of particulate measurements coupled with contemporaneous wind direction measurements, discussed in detail below. The PM₁₀ potentially attributable to the Quarry was then combined with the percentage of crystalline silica as part of Quarry materials (e.g., drilling fines, baghouse dust, aggregate) to estimate the concentration of crystalline silica in PM₁₀ potentially attributable to the Quarry. The methodologies for estimating PM₁₀ and crystalline silica are described below.

4.1 Estimated PM₁₀ Air Concentrations

Data collected during the August to December 2007 sampling campaign was used to estimate the contribution of the Quarry to PM₁₀ levels measured at several sites on and surrounding Quarry property. The data collected during this campaign are considered a conservative estimate for long term average air concentrations as they were collected during a dry period of the year when fugitive dust from all sources (both on-Quarry and offsite) is expected to be at the highest levels.

4.1.1 Monitoring Stations

PM₁₀ levels were measured at four monitoring stations, three of which (Sites 2, 3 and 5, as shown in **Figure 4-1**) were included in this analysis. Data collected at the fourth site (Site 6) are discussed below.

Data for Site 5 (both PM₁₀ data and meteorological data) were available for this analysis in the form of hourly averages. Data for Sites 2 and 3 (both PM₁₀ data and meteorological data) were available in 10-minute averages, and were converted to hourly averages. A vector averaging scheme was used to generate hourly averages of wind-direction. Only hours with at least four 10-minute measurements were included in the averaging (which caused a 2.8% data loss for Site 2, and 0.5% loss for Site 3). **Table 4-2** provides a general summary of PM₁₀ levels measured at Sites 2, 3 and 5.

Data were also collected at an additional monitoring location, Site 6, which was located just north of Site 2 on a resident's deck in the Marin Bay Park neighborhood. Unfortunately, due to the configuration of the property and the wishes of the resident, the sensor could only be placed on their deck in an area directly adjacent to the wall of the home and below the roofline so that it was shielded for approximately 180 degrees (between 270 to 0 to 90 degrees). Due to the shielding from the roofline, this was not a suitable location for placement of an anemometer so wind speed

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cont.

and wind direction measurements were not recorded at this location. Additionally, this monitor was situated such that it likely experienced significant eddy formation around the roof which can interfere with PM₁₀ measurements.

In an attempt to validate data collected at Site 6, **Figure 4-2** shows several outliers in the data collected at Site 6, when plotted against data from the nearby Site 2. The correlation between the two sites is very poor ($R^2=0.05$), and improves only slightly when these outliers are excluded ($R^2=0.14$, excluding all values over 120 $\mu\text{g}/\text{m}^3$). Therefore, due to the lack of representative wind speed/direction measurements and the potential for spurious results from potential localized sources (such as fireplace, outdoor grills, fugitive dust from landscaping or lawn blowers) and/or eddy formation in the lee of the roof, data from Site 6 were excluded from this analysis.

4.1.2 PM₁₀ Methodology

To estimate the PM₁₀ contribution from the Quarry, hourly concentrations records were analyzed based on wind direction (WD) data. For each monitoring station, three sectors were identified, according to the upwind 'source':

- Quarry – wind directions where the Quarry is located upwind of the monitoring station,
- Water – wind directions where the bay is located upwind of the monitoring station, and
- Land – wind directions where land, other than the Quarry, is located upwind of the monitoring station.

The corresponding wind-sector definitions are given in **Table 4-3** and shown in **Figure 4-3**.

Next, average PM₁₀ concentrations associated with each of these wind-sectors were calculated. The difference between the average PM₁₀ concentration for the 'Quarry' sector and each of the other sectors provides an indication of the Quarry's potential contribution. These results are presented in **Table 4-4**. Compared to all non-Quarry wind-sectors, the Quarry's potential contribution to PM₁₀ at Sites 2 and 3 is estimated to be 1.6 and 1.1 $\mu\text{g}/\text{m}^3$, respectively. The results for Site 5 (negative contribution of the Quarry) are not reliable due to the extremely low frequency of winds blowing from the Quarry to the monitoring station (15 hours out of 2,139 hours included in the analysis). This is due, in part, to the physical layout of the Quarry and its location relative to the monitoring station. These result in a narrow wind sector in which the Quarry is upwind of the monitoring station (30-75, 45 degrees in total compared to 95 and 75 degrees for Sites 2 and 3 respectively). In addition, trees located on the South Hill, east and northeast of the monitor, may be blocking those winds blowing from the direction of the Quarry. Finally, there are no receptors downwind from the Quarry and Site 5. For all of these reasons, Site 5 was not further considered for this analysis.

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cont.

4.1.3 PM₁₀ Results

As previously mentioned, the evaluation of Sites 2 and 3 indicate the Quarry's potential contribution to overall PM₁₀ in the area is approximately 1.1 to 1.6 µg/m³, respectively, when comparing to all non-Quarry wind sectors. However, this estimate is subject to several uncertainties, as differences in PM₁₀ concentrations between different wind directions are not all due to the Quarry. In general, the area east of the Quarry (Richmond) is more densely populated than that west of the Quarry (San Rafael). Given the locations of the monitoring stations on the west side of the Quarry, a positive bias may exist when calculating the difference between concentrations during eastern winds components and western ones.

Uncertainties in this analysis can also be attributed to different meteorological conditions present during each of the periods for which concentrations are averaged. Different meteorological conditions during times when the Quarry is upwind or downwind of the monitoring stations might affect the estimate of the Quarry's contribution to PM₁₀ levels. An analysis of frequency of winds (divided into 'Quarry' upwind and 'Land or Water' upwind) as a function of time of day (**Figure 4-4**) indicates that the Quarry is more often upwind of Site 2 during daytime, while for Site 3 the distribution is more homogeneous. Though pollutants tend to disperse more during the daytime (i.e., causing lower concentrations), it is not likely the Quarry's contribution to PM₁₀ concentrations measured at Site 2 is underestimated, as the dilution effect is offset by stronger daytime winds which may increase the suspension of fugitive dust from the site.

Comparing PM₁₀ concentrations when the Quarry is upwind with those when each of the 'Land' and 'Water' areas are upwind shows that the estimate of the Quarry's contribution to PM₁₀ levels is sensitive to choice of wind-sectors to be included. The estimate for Site 2 varies from 1.6 µg/m³ (Row [5] in **Table 4-4**) to 1.0 µg/m³ if only land areas are considered (Row [6]) and to 2.5 µg/m³ if only water areas are included (Row [7]). In this case, however, it seems reasonable to include both 'Land' and 'Water' sectors in the analysis, and that the value of 1.6 µg/m³ is the most representative estimate of the Quarry's contributions to PM₁₀ levels at Site 2.

A similar analysis for Site 3 revealed unexpectedly higher PM₁₀ concentrations from the 'water' sector (Row [7]). These are likely due to the presence of a local source, located between the shoreline and Site 3 (e.g., McNear's Brick plant). Hence, for Site 3, it seems that the estimate of 1.1 µg/m³ may be on the low end of the range (as it is influenced by the presence of the source just south of Site 3), and 2.2 µg/m³ may be a better indication as to the Quarry's contributions to PM₁₀ levels at the monitoring station.

In summary, estimating the contribution of the San Rafael Quarry to PM₁₀ levels measured at two nearby monitoring stations, based on differences in concentrations between different wind sectors, provides estimates in the range of 1.0 to 2.5 µg/m³, with values more likely in the range of 1.6 to 2.2 µg/m³.

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4.2 Estimated Crystalline Silica Air Concentrations

For the development of the draft EIR for the ARP and AQP, on November 7, 2007, ESA collected samples of Quarry materials for analysis to determine crystalline silica content. ENVIRON collected split samples concurrent with ESA, and five samples were analyzed for crystalline silica using a modified National Institute for Occupational Safety and Health (NIOSH) 7500 quantitative method, including calibration using calcium fluoride as an internal standard. As shown in **Table 4-5**, the crystalline silica content ranged from 25.4% to 29.1%, which is consistent with data reported as Warters (2007) and cited in ESA (2008) that found Quarry material contained up to 25.3% crystalline silica.

This is not consistent, however, with data presented by ESA for the split samples they collected concurrently with ENVIRON, which reported semi-quantitative quartz content in the 40 to 60% range. As noted earlier, ENVIRON's samples were analyzed using a modified NIOSH 7500 quantitative method, including calibration using calcium fluoride as an internal standard. ESA's results (2008) were obtained using a semi-quantitative method, and the laboratory analytical report does not indicate that an internal standard was used (Technology of Materials 2008). Instead, it appears that the results were estimated by comparing sample X-ray diffraction patterns to reference diffraction patterns in a computerized database. Because matrix effects interfere with the X-ray diffraction pattern characteristics of a specific mineral, these semi-quantitative results are not expected to be as accurate as those obtained by quantitative methods.

For example, both the ESA and ENVIRON samples of Quarry materials contained feldspar and mica, minerals that act as positive interferents for the detection of crystalline silica due to the presence of silicon dioxide in both substances. That interference yields overlapping X-ray diffraction peaks that cannot be resolved by pattern matching alone, particularly if the reference standard does not contain similar interferences (Lopano 2008). Without the use of an interference-free crystalline silica reference standard, determination of sample composition by peak comparisons is likely to be inexact.

Table 3 provides a list of locations of the ESA and ENVIRON samples, as well as the semi-quantitative (ESA) and quantitative (ENVIRON) results. Due to the likelihood of positive interference by other constituents in the samples analyzed, it is believed that the fraction of crystalline silica was overestimated by ESA.

Therefore, for this analysis, the crystalline silica content of Quarry dust was based on the quantitative analysis results, ranging from 25.4% to 29.1%. Assuming the samples analyzed for crystalline silica are representative of the airborne particulate matter that is potentially generated by Quarry activities, the percentage of crystalline silica can be combined with the estimated PM₁₀ concentrations discussed in Section 4.1 to develop estimated airborne crystalline silica concentrations potentially associated with Quarry activities. Assuming a PM₁₀ concentration of 1.6 to 2.2 µg/m³, using a conservative estimate for crystalline silica content of 29.1%, the estimated crystalline silica concentration that results from Quarry activities is 0.47 to 0.64 µg/m³. Even considering the upper-end estimated PM₁₀ concentration of 2.5 µg/m³, the maximum crystalline silica concentration would be 0.73 µg/m³. This upper end PM₁₀ concentration was generated

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using data measured at a monitor on Quarry property and is therefore likely to be higher than PM_{10} and corresponding crystalline silica concentrations that would be expected at residential receptors which are further away from the Quarry.

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cont.

5 Health Risk Assessment

This HRA was conducted to evaluate the potential health impacts associated with exposure to DPM emissions and crystalline silica in dust related to Quarry operations. The HRA was performed in accordance with the June 2005 BAAQMD Toxic Evaluation Section Staff Report (BAAQMD 2005a) and consistent with BAAQMD's Risk Evaluation Procedure and Risk Management Policy (BAAQMD 2000), as well as methodologies presented in the Cal/EPA's Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (Cal/EPA 2003) and Technical Support Document for Exposure Assessment and Stochastic Analysis (Cal/EPA 2000). The methods applied in this HRA are also consistent with risk assessment guidance from USEPA (1989b; 1997).

As part of this assessment, estimated excess lifetime cancer risks and non-cancer hazard indices were compared to the thresholds for significance for toxic air contaminants (TACs) identified in the BAAQMD CEQA Guidelines for a Maximally Exposed Individual (MEI). OEHHA's Guidance defines the maximally exposed individual (either a resident or an offsite worker) as the existing off-site location with the highest acute, chronic (non-cancer) or cancer health impacts (Cal/EPA, 2003). Analysis of the MEI is required by OEHHA. The BAAQMD CEQA Guidelines' thresholds correspond to the level that would pose no significant health risk to offsite populations. The thresholds of significance for TACs are a cancer risk of ten in one million (1×10^{-5}) and a non-cancer hazard index (HI) of one for the MEI (BAAQMD 1999).

Consistent with OEHHA Guidance (Cal/EPA 2003), risks were estimated at the point of maximum impact (PMI) and the location of the maximally exposed individual resident (MEIR). The MEIR is defined as the off-site receptor locations where individuals may reside with the highest estimated cancer risk, acute HI, or chronic non-cancer HI (Cal/EPA 2003). The PMI is defined as "a location, with or without people currently present, at which the total cancer risk, or total non-cancer risk, has the highest numerical value" (Cal/EPA 2003). Consistent with OEHHA Hot Spots Guidance (Cal/EPA 2003) and District HRSA Guidelines (BAAQMD 2005b), the chronic non-cancer HI at the PMI was calculated assuming individuals are located there for extended periods; however, individuals do not currently reside at this location (at a location on McNear's Beach recreational area). Consequently, the chronic non-cancer HI results estimated at the PMI location do not reflect actual hazards to a specific population.

The following sections discuss the various components required for conducting the HRA in detail. Section 5.1 identifies the chemicals that have been included in this assessment. Section 5.2 presents the exposure assessment and includes a discussion of the human populations that may potentially be exposed to DPM emissions and crystalline silica dust and the pathways through which exposure may occur. Section 5.3 presents information related to the toxicity of DPM and crystalline silica. Section 5.4 explains the methodology for calculation of cancer risk and chronic non-cancer hazard indices. Section 5.5 presents the estimated cancer risks and the chronic non-cancer hazards calculated as part of this HRA. Uncertainties that may result from the various assumptions used in the estimation of risk are discussed in Section 5.6.

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cont.

5.1 Chemical Selection

At the request of SRRQ, and based on community concerns and public comments on ESA's draft EIR and HRA, DPM and crystalline silica were evaluated in this HRA.

5.1.1 DPM

DPM is generated when an engine burns diesel fuel and consists of a mixture of gases and fine particles (also known as soot) that can penetrate deeply into the lungs, where they contribute to a range of health problems. In 1998, OEHHA listed DPM as a TAC based on its potential to cause cancer and other adverse health effects (Cal/EPA 1998).

Diesel exhaust is a complex mixture that includes hundreds of individual constituents (ARB 1998). Under California regulatory guidelines, diesel exhaust, as a mixture, is identified by the State of California as a known carcinogen (Cal/EPA 1998, 2005). However, under California regulatory guidelines (Cal/EPA 1998, 2007), DPM is used as a surrogate measure of exposure for the mixture of chemicals that make up diesel exhaust as a whole. Cal/EPA and other proponents of using the surrogate approach to quantifying cancer risks associated with the diesel mixture indicate that this method is preferable to use of a component-based approach. A component-based approach involves estimating risks for each of the individual components of a mixture. Critics of the component based approach believe it will underestimate the risks associated with diesel as a whole mixture because the identity of all chemicals in the mixture may not be known and/or exposure and health effects information for all chemicals identified within the mixture may not be available. Further, Cal/EPA (2003) has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multipathway cancer risk from the speciated components."

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5.1.2 Crystalline Silica

Crystalline silica is a naturally occurring material that is ubiquitous in many rock types. Crystalline silica exists in seven different forms or polymorphs, with quartz, cristobalite, and tridymite the three most common (United States Geological Survey [USGS] 1993). Overall, quartz is the most prevalent form of crystalline silica; it is abundant in most rock types, and is the second most common mineral in the world (USGS 1993; National Toxicology Program [NTP] no date). As a result, all soils contain at least trace amounts of crystalline silica (USGS 1993).

Ambient crystalline silica is emitted into the environment as a fractional component of many types of particulate emissions, generally measured as PM₁₀. Fugitive sources are the major contributors to ambient PM₁₀, with typically less than a quarter of fugitive dust PM₁₀ emissions occurring from construction, mining, or quarrying activities (USEPA 1996). The remainder of ambient PM₁₀ comes from agriculture activities, traffic, and wind erosion (USEPA 1996). Because crystalline silica is present in nearly all types of soil, typical activities that result in soil-based dust emissions also result in crystalline silica emissions. As a result, average background concentrations of crystalline silica ambient outdoor air in the United States have been estimated to be 3 µg/m³ (USEPA 1996).

5.2 Exposure Assessment

The USEPA (1989b) defines exposure as "the contact with a chemical or physical agent" and defines the magnitude of exposure as "the amount of an agent available at human exchange boundaries (i.e., lungs, gut, skin) during a specified time." Exposure assessments are designed to determine the degree of contact a person has with a chemical. The components of the exposure assessment include the identification of potentially exposed populations, the identification of exposure pathways, and the selection of exposure assumptions to quantify chemical intakes.

Identification of the potentially exposed populations requires evaluating the human activity and land-use patterns in the vicinity of the Quarry and along Point San Pedro Road between US Highway 101 and the Quarry. The potentially exposed populations consist of nearby residents who may be exposed to DPM emissions and crystalline silica in dust associated with Quarry operations, including diesel exhaust from contractor/interplant trucks, on-site equipment and tugs, and fugitive dust. The receptor locations evaluated are shown on **Figure 3-3**. For purposes of this HRA, it was conservatively assumed that individuals at the non-residential receptor locations are residential receptors. Because residents incur greater exposure than non-resident receptors, it may be assumed that if the risks estimated for the residential receptors are less than the significance thresholds, then risks estimated for the non-resident receptors would also be below the BAAQMD CEQA significance threshold.

Once potentially exposed populations are identified, the complete exposure pathways by which individuals in each of these populations may contact chemicals from the SRRQ are determined. An exposure pathway is defined as "the course a chemical or pollutant takes from the source to the organism exposed (USEPA 1988, 1989b)." A complete exposure pathway requires the following four key elements:

- Chemical source,
- Migration route (i.e., environmental transport),
- An exposure point for contact (e.g. air), and
- Human exposure route (e.g. inhalation).

An exposure pathway is not complete unless all four elements are present.

Only the inhalation exposure pathway was considered in the evaluation of DPM and crystalline silica. Selection of additional pathways for a multipathway analysis is specific to the chemical and land use designations in the area potentially impacted by the Quarry. Cal/EPA (2003) has identified chemicals that must be evaluated in a multipathway analysis. Neither DPM nor crystalline silica is listed by Cal/EPA as multipathway chemicals. Thus, for this HRA, ENVIRON only conducted an evaluation of inhalation exposures.

For determining exposure to carcinogenic chemical, the dose estimated for the inhalation pathway is a function of the concentration of a chemical in the air, C_i , and the intake of that chemical. The dose for inhalation, $Dose_{inh}$, can be calculated as follows:

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$$Dose_{inh} = \frac{Ca \times IR \times EF \times ED}{BW \times AT} \quad 5.1$$

Where:

$Dose_{inh}$ = Dose of a chemical (milligrams [mg] chemical/kilogram [kg] body weight-day),

Ca = Annual average concentration of chemical in air (micrograms [μ g]/ m^3)

CF = Conversion Factor (mg/ μ g)

IR = Inhalation Rate (m^3 / day)

EF = Exposure Frequency (days/year)

ED = Exposure Duration (years)

BW = Body Weight (kg)

AT = Averaging Time (days)

This HRA evaluated three exposure scenarios:

- A 9-year exposure duration using median inhalation rates and body weights based on USEPA values (USEPA 1997) which represents an average exposure scenario for a child (e.g., birth through 8 years old),
- A 30-year exposure duration using median inhalation rates and body weights based on USEPA values (USEPA 1997) which represents a reasonable maximum exposure scenario (e.g., birth through 29 years old), and
- A 70-year exposure duration, as specified by State and local agencies for risk management purposes, which represents a hypothetical lifetime exposure scenario.

Excess lifetime cancer risks estimated assuming a residential exposure duration of 70-years are used by State and local agencies for risk management and public notification purposes (BAAQMD 2005b). Specifically, OEHHA Hot Spots Guidance states that "Lifetime or 70-year exposure is the historical benchmark for comparing facility impacts on receptors for evaluating the effectiveness of air pollution control measures (Cal/EPA 2003)." Use of the 70-year exposure duration in risk assessments is intended to produce a hypothetical estimate of risk that does not underestimate risks and that can be viewed as an upper-bound estimate. To illustrate the conservative nature of the assumption, it is worth noting that the USEPA has estimated that 50% of the U.S. population lives in the same residence for only nine years, while only 10% remain in the same house for 30 years (USEPA 1997). A 30-year exposure duration is still conservative; however, it represents a more reasonable maximum exposure (USEPA 1989b, 1991).

For all exposure scenarios, it is conservatively assumed that exposure occurs for 24 hours/day (USEPA 1989b, 1991; Cal/EPA 1992, 1994). Adults spend only 68 to 73% of their total daily time

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at home (USEPA 1997), rather than the 100% assumed in this HRA. Accordingly, the actual risks to residents in the vicinity of the Quarry are likely to be significantly lower than those estimated in this HRA. Consistent with USEPA (1991) and Cal/EPA (1992, 1994, 2003) risk assessment guidance, an exposure frequency of 350 days per year is assumed. This assumes that residents are present in their home seven days a week for 50 weeks a year (or approximately 96 percent of the time). Approximately two weeks (or 15 days) are spent away from home.

In accordance with BAAQMD guidance, a daily breathing rate of 302 liters/kilogram (l/kg) body weight-day (the OEHHA 80th percentile value) was used in place of inhalation rate and body weight for the 70-year exposure duration scenario (BAAQMD 2005b). The 70-year exposure duration scenario exposure parameters are shown in **Table 5-1**.

As the 9- and 30-year exposure scenarios are intended to represent reasonable average and maximum exposure durations, respectively, USEPA estimates of median breathing rate and body weight of an individual from birth to 29 years of age (USEPA 1997) were used to calculate a year-by-year dose. The year-by-year parameters used to calculate the doses were taken from USEPA exposure parameters (USEPA 1997) and are presented in **Tables 5-2** for the 9-year exposure scenario, **Table 5-3** for the 30-year exposure scenario and **Table 5-4** for the 70-year exposure scenario. The year-by-year intake factors are shown in **Table 5-5**.

5.3 Toxicity Assessment

The toxicity assessment examines the potential for a chemical to cause adverse health effects in exposed individuals. Toxicity values used to estimate the likelihood of adverse effects occurring in humans at different exposure levels are identified as part of the toxicity assessment component of a risk assessment. Toxicity values selected for use in this risk assessment are presented in **Table 5-6**.

Consistent with Cal/EPA risk assessment guidance, we used the Cal/EPA cancer potency factor (CPF) for DPM to estimate cancer risks associated with exposure to diesel emissions resulting from Quarry operations (Cal/EPA 2008a). Under California regulatory guidelines, DPM is used as a surrogate measure of exposure to the mixture of chemicals that make up diesel exhaust. Use of this surrogate approach likely yields a higher, more conservative estimate of risk than would result from risks estimated for the individual components of diesel, as recognized by Cal/EPA in their conclusion that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multipathway cancer risk from the speciated components". The chronic reference exposure level (REL) for DPM, presented in **Table 5-6**, represents the average daily exposure concentrations at (or below) which no adverse health effects are anticipated (Cal/EPA 2008b).

Cal/EPA has not published a CPF for crystalline silica. Cal/EPA has concluded that there is no statistical evidence for the induction of lung cancer by crystalline silica exposure in the absence of silicosis (Cal/EPA 2005). Silicosis develops after chronic exposure to crystalline silica at concentrations > 50 µg/m³ – conditions typical of certain occupational settings, rather than ambient exposures.

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Importantly, as discussed further below, there are no data that link ambient concentrations of crystalline silica to disease (Cal/EPA 2005; International Agency for Research on Cancer [IARC] 1997). Data from sand and quarry industry workers indicate that there may be an increased risk of silicosis in individuals with time-weighted average silica exposures above 1,500 $\mu\text{g}/\text{m}^3/\text{year}$ (Hughes et al. 2001) and cumulative exposures above 100 $\mu\text{g}/\text{m}^3$ (Steenland and Sanderson 2001). Occupational studies also suggest that workers with silicosis also have an increased risk of lung cancer (Pelucchi et al. 2006).

In summary, there are no published epidemiological studies indicating that ambient (or non-occupational) levels of crystalline silica increase the risk of lung cancer or silicosis. Although IARC (1997) concluded that exposures to crystalline silica in some occupations can increase lung cancer risk, the studies cited by IARC indicate that the silica concentrations linked to lung cancer are considerably higher than typical ambient levels. Additionally, evidence of carcinogenicity has not been detected in all industrial settings. **Table 5-6** presents the chronic REL developed by Cal/EPA for crystalline silica (Cal/EPA 2008b). The REL is used in this risk assessment to estimate chronic non-cancer hazard indices for silica.

5.4 Methods Used to Estimate Cancer Risks and Non-cancer Hazard Indices

Excess lifetime cancer risks are estimated as the upper-bound incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a unitless probability. The cancer risk attributed to a chemical is calculated by multiplying the chemical intake or dose at the human exchange boundaries (e.g., lungs) by the chemical-specific CPF. The equation used to calculate the potential excess lifetime cancer risk for DPM is as follows:

$$\text{Risk} = \text{Dose}_{\text{inh}} \times \text{CPF} \quad 5.2$$

Where:

Risk = Cancer Risk; the incremental probability of an individual developing cancer as a result of exposure to a particular cumulative dose of a potential carcinogen (unitless)

Dose_{inh} = Dose of a chemical (mg chemical/kg body weight-day)

CPF = Cancer Potency Factor (mg chemical/kg body weight-day)⁻¹

The potential for exposure to result in chronic non-carcinogenic effects is evaluated by comparing the estimated annual average air concentration (which is equivalent to the average daily air concentration) to the chemical-specific non-cancer chronic RELs. When calculated for a single chemical, the comparison yields a ratio termed a hazard quotient. To evaluate the potential for adverse non-carcinogenic chronic health effects from simultaneous exposure to multiple chemicals, the hazard quotients for all chemicals are summed, yielding a hazard index. As DPM and crystalline silica were evaluated for this HRA, the hazard index is the sum of the hazard quotients for DPM and crystalline silica.

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The equations used to calculate the chemical-specific hazard quotients and the overall hazard index are:

$$HQ_i = C_i / REL_i \quad 5.3$$

$$HI = \sum HQ_i \quad 5.4$$

Where:

HI	=	Hazard Index
HQ _i	=	Hazard Quotient for Chemical _i
C _i	=	Average Daily Air Concentration for Chemical _i (µg/m ³)
REL _i	=	Non-cancer Reference Exposure Level for Chemical _i (µg/m ³)

5.5 Results of the Health Risk Assessment

5.5.1 Estimated Carcinogenic Risks Associated with DPM

The estimated excess lifetime cancer risks for the 9-, 30- and 70-year exposure duration scenarios are presented in **Tables 5-7a** and **5-7b**, and the locations of the PMI and MEIR are shown in **Figure 5-1**. As shown in **Figure 5-1**, the PMI is located over an uninhabited park at McNear's Beach, to the northeast of SRRQ, where residential or other sensitive receptors, such as a school child, are not expected to be located for the entire exposure duration of 9-, 30- or 70-years; therefore, risk for residential receptors was not estimated at this location. The excess lifetime cancer risk estimated for the MEIR is 6 in one million (6×10^{-6}) for the 9-year exposure duration scenario, 7 in one million (7×10^{-6}) for the 30-year exposure duration scenario, and 8 in one million (8×10^{-6}) for the 70-year exposure duration scenario. An isopleth showing a hypothetical cancer risk of 10 in one million for the 70-year exposure duration scenario is presented in **Figure 5-2**; however, the area which exceeds 10 in one million does not cover any residential locations. The only area that exceeds the 10 in one million threshold, using residential exposure assumptions consists of portions of the McNear's Beach recreational area. However, there are no residences at that location, and therefore no potential for an individual to reside for 24 hours per day, 350 days per year for 70 years.

The estimated excess lifetime cancer risks for all exposure scenarios, including the most conservative exposure scenario (a 70-year lifetime exposure duration), are below the BAAQMD CEQA threshold for all residential receptors. Additionally, the estimated excess lifetime cancer risks for the more realistic 9- and 30-year exposure durations are well below the BAAQMD CEQA threshold for all off-site receptors. Accordingly, using site-specific data and conservative assumptions the HRA concludes that potential off-site exposures to DPM emissions associated with Quarry operations pose no significant risk.

To provide perspective for the results of an HRA, the Cal/EPA OEHHA indicates that the estimated cancer risks can be "compared to the overall risk of cancer in the general U.S.

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population” or “to the risk posed by all harmful chemicals in a particular medium, such as air. The cancer risk from breathing current levels of pollutants in California’s ambient air over a 70-year lifetime is estimated to be 760 in one million (Cal/EPA 2001).” Furthermore, the California Department of Health Services (DHS) reports that two in five Californians will be diagnosed with cancer during their lifetime, corresponding to a background cancer risk of 400,000 in one million (DHS 2006).

5.5.2 Estimated Chronic Non-Carcinogenic Hazards Risks Associated with DPM and Crystalline Silica

Using the highest estimated offsite DPM air concentration (estimated at the PMI for 2009, the year with the highest emissions with the maximum truck count scenario) and the highest estimated crystalline silica concentration estimated for a location on Quarry property, the estimated chronic non-cancer HI was estimated at 0.3 (as shown in **Table 5-8**), below the BAAQMD threshold of significance of 1.0 (BAAQMD 1999) and a level below which adverse health effects are not likely to occur (Cal/EPA 2003). This estimated HI is likely overly conservative as it estimated DPM concentrations using the maximum possible number of trucks and a theoretical maximum crystalline silica concentration based on data measured on-site at the Quarry. It is likely that both these concentrations would be lower if estimated using a more realistic number of trucks and if the crystalline silica concentrations were evaluated at the location of the PMI rather than the on-site location of the monitoring station.

Chronic non-cancer hazards, comprised of hazards for both DPM and crystalline silica, were similarly less than BAAQMD CEQA threshold of significance of 1.0.

5.6 Uncertainties Associated with the Calculated Risks and Hazards

In any risk evaluation, a number of assumptions must be made in order to estimate human exposure and to calculate potential risks. These assumptions may, however, introduce uncertainty in risk calculations. Regulatory guidance requires that conservative assumptions be used to provide an upper-bound estimate of the risk and to avoid underestimating the potential exposures and associated health risks. The key sources of uncertainty in this HRA include:

- Estimation of emissions,
- Estimation of exposure concentrations,
- Exposure assumptions, and
- Chemical toxicity criteria.

In all of these cases, conservative assumptions were used in this HRA. By compounding conservative assumptions, the estimated excess cancer risks are upper-bound estimates and the actual incidence of cancer is likely to be lower (USEPA 1989a).

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5.6.1 Estimation of Diesel Particulate Matter Emissions

A source of uncertainty in estimating customer and contractor/interplant truck emissions is that traffic volumes and emission factors were only estimated through the year 2040, the latest year for which EMFAC2007 can generate emission factors. ENVIRON used 2040 emission factors for 2041 through 2076, which is conservative. In fact, emission factors are expected to decrease rather than remain constant over this period of time, which would result in lower risks for the 70-year scenario.

Along the same lines, the on-site equipment fleet-wide emission factor was assumed to decrease over time up through 2021, the last year indicated in the ARB In-Use Off-Road Diesel Vehicle Rule (approved July 26, 2007). ENVIRON used the 2021 emission factor for the years 2022 through 2078, which is conservative given that the actual emission factor would likely decrease over that period as new technology becomes available. The emission factor for tugs was assumed to stay constant for all the years of the analysis (2009 through 2078), which is similarly conservative. Additionally, for both on-site equipment and tugs, ENVIRON's use of the regulatory standard emission factors is conservative because equipment that meets a standard could actually be emitting at a rate below the standard's requirement. ENVIRON also assumed that the maximum number of trucks allowable would be calling at the facility. Historical data indicate that is highly unlikely.

Additionally, it is highly unlikely that fossil-fuel based diesel will continue to be used on-site for the next 30 or 70 years. The Quarry has already implemented the use of biodiesel which has lower DPM emissions than does traditional diesel (approximately 7% lower for the biodiesel blend current in use at the Quarry). Synthetic diesel fuels are currently in development which can reduce DPM emissions by as much as 50%. It is likely that off-road equipment will use these lower emission fuels over time due to regulatory requirements and as fossil fuels become less prevalent.

5.6.2 Estimation of Exposure Concentrations

In addition to uncertainty associated with emission estimates, there is also uncertainty associated with the estimated exposure concentrations. The limitations of the air dispersion model provide a source of uncertainty in the estimation of exposure concentrations. According to USEPA, errors due to the limitation of the algorithms implemented in the air dispersion model in the highest estimated concentrations of +/-10% to 40% are typical (USEPA 2005).

Although there are uncertainties in the estimate of crystalline silica concentrations, these are anticipated to result in a conservative estimate. As noted in the discussion about the estimation of crystalline silica concentrations, the measurements were taken during the warm, dry season. Fugitive dust emissions, which are the main source of crystalline silica emissions, would be expected to be higher during dry periods. Furthermore, the upper bound estimates of crystalline silica concentrations that result from Quarry operations were derived from an on-site monitoring station. Offsite concentrations from Quarry operations would be lower due to the dilution that results from the distance between the on-site monitoring station and offsite locations. The

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uncertainties in the PM₁₀ measurements are expected to neither over-estimate nor underestimate concentrations.

There are some data gaps in the meteorological data that could lead to uncertainty regarding the DPM and crystalline silica concentrations. These uncertainties are not expected to bias the estimated concentrations of DPM and crystalline silica.

5.6.3 Exposure Assumption

Numerous assumptions are made in the estimation of human exposure to chemicals. These assumptions include parameters such as inhalation rates and human activity patterns. Most of the exposure assumptions used in the calculation of risks are default assumptions recommended by USEPA and Cal/EPA, and are often the upper 90th or 95th percentile values. The combination of several upper-bound estimates used as exposure parameters to calculate chemical intake may substantially overestimate chemical intake. The risks calculated in this HRA are therefore likely to be greater than levels to which the evaluated populations would be exposed.

5.6.4 Toxicity Assessment

A primary uncertainty associated with the toxicity assessment is related to the derivation of the toxicity values for DPM and crystalline silica. These values were derived by applying conservative (*i.e.*, health-protective) assumptions and are intended to protect the most sensitive individuals in potentially exposed populations.

DPM

The CPF and chronic REL established by Cal/EPA were used to estimate potential carcinogenic and non-carcinogenic health effects, respectively, from exposure to DPM in the vicinity of the Quarry. Public health and regulatory organizations such as the IARC, World Health Organization (WHO), and USEPA agree that diesel exhaust may cause cancer in humans. However, after thorough evaluation of the animal test data and epidemiological data on diesel exhaust, and in contrast to the approach used in California, the USEPA concluded that the existing data did not provide an adequate basis for quantitative risk assessment (USEPA 2002b, 2008b). The USEPA specifically felt that quantitative exposure data from the epidemiology studies were lacking and that problems associated with adequately controlling for smoking and other lifestyle confounders were sufficiently severe that even the best available epidemiological studies may not be used to develop a CPF for DPM. Despite the findings of USEPA, Cal/EPA derived a CPF for DPM based on epidemiological studies of railroad worker. As concluded by USEPA, these data are highly uncertain in both estimation of exposure and dose.

Crystalline Silica

The chronic REL established by Cal/EPA was used to evaluate non-carcinogenic health effects associated with potential exposure to crystalline silica in the vicinity of the Quarry. The technical basis for and uncertainties associated with the crystalline silica REL are described in the *Chronic Toxicity Summary for Silica (Crystalline, Respirable)* prepared by Cal/EPA (2005) in support of the

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chronic REL. The chronic REL for crystalline silica is based on an epidemiological study of silicosis in South African gold miners (Hnizdo and Sluis-Cremer 1993).

Based on the 1993 study, Cal/EPA developed an inhalation REL for crystalline silica of $3 \mu\text{g}/\text{m}^3$, assuming 30 percent (%) silica in mine dust. One significant uncertainty of the crystalline silica REL relates to the appropriateness of comparing the REL to PM_{10} data. Cal/EPA (2005) explicitly states that the REL is meant to be applied only to particles of crystalline silica of respirable size, as defined by the occupational hygiene methods described by American Conference of Governmental Industrial Hygienists ([ACGIH] 2004)/ International Organization for Standardization ([ISO]1995) which has a 50% cut-point at $4 \mu\text{m}$ particle diameter. This occupational definition of respirable differs from the environmental definition of respirable, which is PM_{10} . Consequently, use of the PM_{10} sampling procedures used in the Quarry risk assessment would overestimate the relevant exposure to silica.

5.6.5 Uncertainties in Risk

The USEPA (1989a) notes that the conservative assumptions used in a risk assessment are intended to assure that the estimated risks do not underestimate the actual risks posed by a site and that the estimated risks do not necessarily represent actual risks experienced by populations at or near a site. By using standardized conservative assumptions in a risk assessment, USEPA further states that:

"These values [risk estimates] are upperbound estimates of excess cancer risk potentially arising from lifetime exposure to the chemical in question. A number of assumptions have been made in the derivation of these values, many of which are likely to overestimate exposure and toxicity. The actual incidence of cancer is likely to be lower than these estimates and may be zero."

The estimated risks in this risk assessment are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions tends to produce upper-bound estimates of risk. Although it is difficult to quantify the uncertainties associated with all the assumptions made in this risk assessment, the use of conservative assumptions is likely to result in substantial overestimates of exposure, and hence, risk.

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6 Conclusions

ENVIRON performed a HRA examining potential exposure to potential DPM emissions and crystalline silica in dust associated with operations at the Quarry to determine whether such emissions exceed levels of significance under BAAQMD CEQA guidelines. Potential excess lifetime cancer risks resulting from DPM emissions (e.g., customer and contractor/interplant trucks, on-site equipment, tugs) and for crystalline silica in dust associated with Quarry operations were calculated for residential and other offsite receptors in the vicinity of the Quarry and along Point San Pedro Road for exposure durations of 9-, 30-, and 70-years.

The estimated excess lifetime cancer risks for the most conservative exposure scenario, a 70-year assumed residency and exposure duration, are below the BAAQMD CEQA threshold for all receptors. The estimated excess lifetime cancer risks for the more realistic 9- and 30-year exposure durations are well below the BAAQMD CEQA threshold for all receptors. Accordingly, using site-specific data and conservative assumptions, the HRA concludes that DPM emissions associated with Quarry operations pose no significant risk. Chronic non-cancer hazards, comprised of hazards for both DPM and crystalline silica, were similarly less than BAAQMD CEQA threshold of significance of 1.0.

To provide perspective for the results of a risk assessment, Cal/EPA OEHHA indicates that the cancer risks estimated in a risk assessment can be "compared to the overall risk of cancer in the general U.S. population" or "to the risk posed by all harmful chemicals in a particular medium, such as air. The cancer risk from breathing current levels of pollutants in California's ambient air over a 70-year lifetime is estimated to be 760 in one million" (Cal/EPA 2001). Furthermore, the California DHS reports that two in five Californians will be diagnosed with cancer during their lifetime, corresponding to a background cancer risk of 400,000 in one million (DHS 2006).

The many conservative assumptions that have been used in this assessment regarding the estimation of emissions, ambient air concentrations, exposure assumptions, and carcinogenic potency lead to an overestimate of potential risks, the magnitude of which could likely be substantial. As noted above the USEPA (1989a) explains the effect of using conservative assumptions in regulatory risk assessments as follows:

"These values are upper-bound estimates of excess cancer risk potentially arising from lifetime exposure to the chemical in question. A number of assumptions have been made in the derivation of these values, many of which are likely to overestimate exposure and toxicity. The actual incidence of cancer is likely to be lower than these estimates and may be zero."

Risks quantified in this HRA are based primarily on a series of conservative assumptions related to predicted environmental concentrations, exposure, and chemical toxicity. The use of conservative assumptions (i.e., health-protective assumptions) tends to produce upper-bound estimates of risk. Although it is difficult to quantify the uncertainties associated with all the assumptions made in risk assessment, the use of conservative assumptions is likely to result in substantial overestimates of exposure, and hence, risk. Specifically, the Bay Area Air Quality

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Management District states that "the methods used [to estimate risk] are conservative, meaning that the real risks from the source may be lower than the calculations, but it is unlikely that they will be higher" (BAAQMD 2008).

The estimated excess cancer risks at the MEIR for reasonable average and maximum exposure scenarios of 9-year, 30-years and 70-years, respectively, are below the BAAQMD CEQA threshold of significance of ten in one million. Similarly, the chronic non-cancer HI at the PMI, comprised of hazards for both DPM and crystalline silica, is less than BAAQMD CEQA threshold of significance of 1.0. Therefore, our analysis demonstrates that Quarry operations do not pose a significant human health risk impact to offsite receptor locations, as defined under the BAAQMD CEQA Guidelines.

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cont.

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Tables

D.2-8
cont.

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Table 3-1
Customer and Contractor/Interplant Truck DPM Emission Factors
San Rafael Rock Quarry
San Rafael, CA

Year(s)	Idling EF ^a [g/hr]	Driving EF ^a [g/mi] by Speed [mph]			
		5	10	15	25
2009	1.94	2.45	1.66	1.09	0.64
2010	1.75	2.14	1.46	0.96	0.57
2011	1.58	1.88	1.28	0.84	0.50
2012	1.43	1.63	1.12	0.74	0.44
2013	1.29	1.41	0.97	0.64	0.39
2014	1.16	1.21	0.84	0.56	0.34
2015	1.03	1.04	0.72	0.49	0.30
2016	0.93	0.89	0.62	0.42	0.27
2017	0.83	0.76	0.53	0.37	0.24
2018	0.74	0.65	0.46	0.32	0.21
2019	0.66	0.55	0.39	0.28	0.19
2020	0.58	0.46	0.34	0.24	0.17
2021	0.52	0.39	0.29	0.21	0.15
2022	0.47	0.33	0.25	0.19	0.13
2023	0.42	0.28	0.22	0.16	0.12
2024	0.37	0.24	0.19	0.15	0.11
2025	0.33	0.21	0.17	0.13	0.10
2026	0.30	0.18	0.15	0.12	0.09
2027	0.27	0.16	0.13	0.11	0.09
2028	0.25	0.14	0.12	0.10	0.08
2029	0.22	0.13	0.11	0.09	0.08
2030	0.20	0.12	0.10	0.09	0.07
2031	0.19	0.11	0.09	0.08	0.07
2032	0.17	0.10	0.09	0.08	0.07
2033	0.16	0.10	0.09	0.08	0.07
2034	0.15	0.09	0.08	0.08	0.07
2035	0.15	0.09	0.08	0.07	0.07
2036	0.14	0.09	0.08	0.07	0.07
2037	0.14	0.09	0.08	0.07	0.06
2038	0.13	0.09	0.08	0.07	0.06
2039	0.13	0.09	0.08	0.07	0.06
2040-2078 ^b	0.13	0.09	0.08	0.07	0.06
70-Year Average (2009-2078)	0.40	0.39	0.28	0.20	0.14

D.2-8
cont.

Notes:

- Emission factors were generated with the ARB's Emission Factor 2007 (EMFAC 2007) model, run for HHDVs in "Emfac Mode" for Marin County, CA, for the years 2009 through 2040.
- The emission factors for 2040 were used for years 2041 through 2076, since EMFAC 2007 does not generate emission factors beyond year 2040.

Abbreviations:

ARB California Air Resources Board

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DPM	Diesel Particulate Matter
EF	Emission Factor
g	gram
HHDV	Heavy Heavy-Duty Vehicle
hr	hour
mi	mile
mph	miles per hour

D.2-8
cont.

Table 3-2
Customer and Contractor/Interplant Truck DPM Emissions Reductions
From ARB Diesel Truck Rule
San Rafael Rock Quarry
San Rafael, CA

Year(s)	Percent Emissions Reduction ^a
2009	0%
2010	0%
2011	10%
2012	14%
2013	70%
2014	79%
2015	77%
2016	74%
2017	70%
2018	67%
2019	64%
2020	61%
2021	59%
2022	55%
2023	51%
2024	47%
2025	43%
2026-2078 ^b	43%

Notes:

- Emissions reductions were estimated from ARB's Private Fleet Database (<http://www.arb.ca.gov/regact/2008/truckbus08/emissinv.xls>), which lists statewide emissions with and without the ARB Truck Rule approved on December 11, 2008. The percent emission reduction was estimated by taking the difference between emissions estimates with and without the rule.
- The percent emissions reduction for 2025 was used for the years 2026 through 2078 as the ARB worksheet did not calculate reduction for years past 2025.

Abbreviations:

ARB California Air Resources Board
DPM Diesel Particulate Matter

D.2-8
cont.

Table 3-3
Customer and Contractor/Interplant Truck Travel and Idling Parameters
San Rafael Rock Quarry
San Rafael, CA

ID ^a	Activity Type	Description	Segment Length [mi]	Travel Speed ^b [mph]	Idling Time ^c [min]
1	Travel	US 101 to SRRQ metering light	4.16	25	
2	Travel	Metering Light to First Y	0.20	15	
3	Travel	Scale House to just before Asphalt	0.36	5	
4	Travel	Asphalt trucks back to Scale House	0.28	5	
5	Travel	Interplant trucks back to Scale House	0.40	5	
6	Travel	Scale House to First Y	0.22	10	
7	Travel	First Y to Scale House	0.19	10	
A	Idling	Staging Idle			10
B	Idling	Asphalt Idle			5
C	Idling	Interplant Idle			5
D	Idling	Scale House Idle			5
E	Idling	Tarping Idle			10
F	Idling	Traffic Metering Idle			2
G	Idling	Asphalt Loading Idle			5

Notes:

- Figure 3-1 shows the locations these road segments, along with matching IDs.
- Speed for Segment 1 is assumed to be 25 mph based on posted speed limits. Speeds for Segments 2 through 7 are based on data provided by SRRQ.
- Idling times were estimated by SRRQ.

Abbreviations:

mi mile
min minute
mph miles per hour
SRRQ San Rafael Rock Quarry

Table 3-4
On-Site Equipment Parameters
San Rafael Rock Quarry
San Rafael, CA

Equipment Type	Quantity in Each Location				Rated Power [bhp]	USEPA Tier	Load Factor	Annual Operating Hours (per vehicle)
	Main Quarry Bowl	South Hill	Ops Area	Total				
Wheeled Loader	1	1	5	7	475	3	60%	2,100
Bulldozer	---	---	1	1	520	3	50%	700
Excavator	---	---	3	3	374	3	60%	1,300
Rock Drill	0.5	0.5	---	1	475	3	60%	1,900
Haul Truck, Tier 2	0.25	0.25	2.5	3	730	2	60%	1,696
Haul Truck, Tier 3	0.25	0.25	4.5	5	453	3	60%	1,100

Notes:

SRRQ provided ENVIRON with on-site equipment inventories prepared during the past two years. ENVIRON conservatively chose the highest rated power, load factor, and operating hours for each equipment type from these inventories.

Abbreviations:

bhp brake horsepower
USEPA United States Environmental Protection Agency
SRRQ San Rafael Rock Quarry

D.2-8
cont.

Table 3-5
On-Site Equipment Fleet Average DPM Emission Factors
San Rafael Rock Quarry
San Rafael, CA

Year(s)	Fleet Average Emission Factor ^a [g/bhp-hr]		
	By EPA Tier ^b	By ARB Rule ^c	EF Used ^d
2009	0.15	N/A	0.15
2010	0.15	0.18	0.15
2011	0.15	0.18	0.15
2012	0.15	0.14	0.14
2013	0.15	0.14	0.14
2014	0.15	0.11	0.11
2015	0.15	0.11	0.11
2016	0.15	0.08	0.08
2017	0.15	0.08	0.08
2018	0.15	0.06	0.06
2019	0.15	0.06	0.06
2020	0.15	0.03	0.03
2021	0.15	0.03	0.015
2022-2038 ^e	0.15	0.03	0.015
2039-2078 ^e	0.15	0.03	0.015
70-Year Average (2009-2078)			0.03

Notes:

- The fleet average emission factor is a factor which, when multiplied by the total activity (in bhp-hr) of the on-site equipment fleet, gives the total fleet emissions.
- These emission factors are based on equipment EPA Tier specifications (shown in Table 3-4). The Tier specification for all pieces of equipment was 0.15 g/bhp-hr, as specified in EPA's Tier 2 and Tier 3 Emission Standards (40 CFR § 89.112).
- These emission factors are based on ARB Off-Road Diesel Rule, as calculated using ARB's Fleet Average Calculator spreadsheet for medium/large fleets (accessed Sep. 2008, reflecting the Jan. 2008 rule). See <http://arb.ca.gov/msprog/ordiesel/ordiesel.htm> for more information regarding the Rule and the spreadsheet.
- ENVIRON used the emission factor from the ARB rule except in cases where they did not exist or were higher than the EPA Tier emission factors (i.e., 2009 through 2011). This estimate assumes that all equipment will be Tier 4 or greater by 2021.
- The ARB Off-Road Diesel Rule only gives emission factors through 2021. For the years 2022 through 2078, ENVIRON conservatively used the 2021 emission factor.

Abbreviations:

bhp	brake horsepower
ARB	California Air Resources Board
DPM	diesel particulate matter
EF	emission factor
EPA	United States Environmental Protection Agency
g	gram
hr	hour

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D.2-8
cont.

**Table 3-6
Tug Boat Engine Parameters and Emission Factors
San Rafael Rock Quarry
San Rafael, CA**

Engine ^a	Qty ^a	EPA Tier ^a	Rated Power ^a [kW]	Displacement ^a [L/cylinder]	Load Factor ^a	Annual Operating Hours ^a	Emission Factor ^b [g/kW-hr]
Cummins KTA38	2	2	671	1	50%	800	0.3
Detroit Diesel 4-71	1	2	98	0.4	31%	800	0.4

Notes:

- Engine make/model, quantity, EPA Tier, rated power, displacement, load factor, and annual operating hours were provided by SRRQ.
- Emission factors were based on EPA Tier certification levels for marine diesel engines of the same ranges of rated power and displacement, as specified here:
<http://www.epa.gov/otaq/regs/nonroad/marine/ci/fr/fr122999.pdf>

Abbreviations:

EPA United States Environmental Protection Agency
g gram
hr hour
kW kilowatt
L liter
SRRQ San Rafael Rock Quarry
Qty quantity

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Table 3-7
Annual Emissions by Source Category
San Rafael Rock Quarry
San Rafael, CA

Year(s)	Emissions ^a [lbs/yr]			
	Customer and Contractor/ Interplant Trucks	On-Site Equipment	Tugs	Total
2009	690	2,862	377	3,929
2010	609	2,862	377	3,848
2011	486	2,862	377	3,725
2012	410	2,672	377	3,458
2013	127	2,672	377	3,175
2014	75	2,099	377	2,551
2015	75	2,099	377	2,551
2016	74	1,527	377	1,977
2017	74	1,527	377	1,977
2018	71	1,145	377	1,593
2019	68	1,145	377	1,590
2020	65	572	377	1,014
2021	60	286	377	723
2022	58	286	377	721
2023	57	286	377	720
2024	56	286	377	719
2025	54	286	377	717
2026	49	286	377	712
2027	45	286	377	708
2028	41	286	377	704
2029	39	286	377	702
2030	36	286	377	699
2031	34	286	377	697
2032	33	286	377	696
2033	32	286	377	695
2034	31	286	377	694
2035	31	286	377	693
2036	30	286	377	693
2037	30	286	377	693
2038	30	286	377	693
2039-2078	29	286	377	692
70-Year Average (2009-2078)	68	581	377	1,025

Notes:

- a. Emissions are calculated using the values given in Tables 3-1 through 3-6, using the formula:

D.2-8
cont.

$$emissions [g \text{ year}^{-1}] = quantity \times emission \text{ factor } [g \text{ activity}^{-1}] \times activity [activity \text{ year}^{-1}]$$

where "activity" is *miles traveled* for truck travel, *idling hours* for truck idling, *brake horsepower-hour* (load factor included) for on-site equipment, and *kilowatt-hour* (load factor included) for tugs.

Abbreviations:

g	gram
lbs	pounds
yr	year

D.2-8
cont.

Table 3-8
Model Source Parameters
San Rafael Rock Quarry
San Rafael, CA

Activity	Source Type	Release Height ^a [m]	Initial Lateral Dimension ^b [m]	Initial Vertical Dimension ^c [m]
Customer and Contractor/Interplant Trucks	Volume	4	[varies] ^b	0.93
On-Site Equipment	Area	4	N/A	0.93
Tug Boats	Area	6	N/A	1.4

Notes:

- ENVIRON used the daytime release height for heavy-heavy-duty vehicle as suggested by the ARB (2006).
- For volume sources representing trucks on roads, initial lateral dimension was calculated as the length of side divided by 2.15, based on USEPA guidance (USEPA 2004). The length of side for each road segment was set to the width of the road as depicted in aerial photos. Resulting initial lateral dimensions ranged from 2.9 m to 10.14 m. Area sources do not have an initial lateral dimension parameter.
- Initial vertical dimension was calculated as the release height divided by 4.3, based on USEPA guidance (USEPA 2004).

Abbreviations:

ARB California Air Resources Board
m meter
USEPA United States Environmental Protection Agency

References:

Air Resources Board (ARB). 2006. Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach. Final Report. April.
United States Environmental Protection Agency (USEPA). 2004. User's Guide for the AMS/EPA Regulatory Model – AERMOD. Office of Air Quality Planning and Standards. Emissions Monitoring and Analysis Division. Research Triangle Park, North Carolina. EPA-454/B-03-001.

Table 4-1
Summary of Data Collected
San Rafael Rock Quarry
San Rafael, CA

Site	Location Description	Dates of Operation	Height of Sensor	Meteorological Information Collected	Particulate Matter Measured
1	Ridge	8/27/07 – present ^a	10 m	WS, WD, T	No
2	Field	8/21/07 – 12/10/07	2 m	WS, WD, T	Yes
3	Marsh	8/21/07 – 12/10/07	2m (met and PM ₁₀) 10m (met only)	WS, WD, T	Yes
4	South Hill	8/23/07 – 12/3/07	3 m	WS, WD, T	No
5	Bay	8/16/07 – 12/10/07	2 m	WS, WD, T	Yes
6	Marin Bay Park	10/2/07 – 11/26/07	2 m	None	Yes

Notes:

a. Present as of the date of this report's submission.

Abbreviations:

m meter
met meteorological data
PM₁₀ Particulate Matter 10 microns or less in diameter
T Temperature
WD Wind Direction
WS Wind Speed

D.2-8
cont.

Table 4-2
Average PM₁₀ Concentrations at Monitoring Sites 2, 3, and 5
San Rafael Rock Quarry
San Rafael, CA

	Concentration (µg/m ³)		
	Site 2	Site 3	Site 5
Average PM ₁₀	23.0	25.5	22.8
Standard Deviation	18.0	23.0	27.4
Number of Hourly Samples	1278	1474	2139

Abbreviations:

m³ cubic meter
µg microgram
PM₁₀ Particulate Matter 10 microns or less in diameter

D.2-8
cont.

Table 4-3
Wind Directions^a Corresponding to Upwind Sources
San Rafael Rock Quarry
San Rafael, CA

Upwind Source	Site 2	Site 3	Site 5
Quarry	105-210	60-135	30-75
Water	330-105	135-225	75-240
Land	210-330	225-60	240-30

Notes:

- a. Wind directions are in degrees, clockwise from North, from which the wind is blowing. 0 degrees means the wind is blowing from the North, 90 degrees is from the East, 180 degrees is from the South, and 270 degrees is from the West.

D.2-8
cont.

Table 4-4
Average PM₁₀ Concentrations by Wind Sector
San Rafael Rock Quarry
San Rafael, CA

Upwind source	Concentration [$\mu\text{g}/\text{m}^3$] (Sample Size)		
	Site 2	Site 3	Site 5
(1) Quarry	24.1 (441)	26.4 (242)	20.2 (15)
(2) Land + Water	22.5 (837)	25.3 (1232)	22.9 (2124)
(3) Land	23.1 (473)	24.2 (818)	25.5 (550)
(4) Water	21.6 (364)	27.6 (414)	21.9 (1574)
(5) = (1) minus (2)	1.6	1.1	-2.7 ^a
(6) = (1) minus (3)	1.0	2.2	-5.3 ^a
(7) = (1) minus (4)	2.5	-1.2 ^b	-1.7 ^a

Notes:

- Negative due to the small number of samples (15) available for the Quarry sector.
- Negative due to the contribution of a local source other than Quarry located between the shoreline and Site 3.

Abbreviations:

m³ cubic meter
 μg microgram
 PM₁₀ Particulate Matter 10 microns or less in diameter

D.2-8
cont.

Table 4-5
Crystalline Silica Composition of Quarry Material
San Rafael Rock Quarry
San Rafael, CA

Sample Location ^a	Description	Total Crystalline Silica ^b (weight %)
South Hill	Surface dust, working surface	28.8%
South Hill	Drilling dust, greywacke	29.1%
South Hill	Drilling dust, greywacke and weathered	28.6%
Bag House	Secondary baghouse, screendeck 1	25.4%
Secondary Stockpile	3/16" - 0 (dust)	28.8%

Notes:

- a. Samples collected by ENVIRON on November 7, 2007
- b. Analyzed using a modified NIOSH 7500 quantitative method, including calibration using calcium fluoride as an internal standard.

Abbreviations:

% percent
" inch

NIOSH National Institute for Occupational Safety and Health

D.2-8
cont.

Table 5-1
BAAQMD/OEHHA-Recommended Exposure Parameters for Residential Receptors, 70-Year Exposure Scenario
San Rafael Rock Quarry
San Rafael, CA

Exposure Parameter	Units	Value
Daily Breathing Rate	[L/kg-day]	302
Exposure Time	[hours/day]	24
Exposure Frequency	[days/year]	350
Exposure Duration	[years]	70
Conversion Factor (CF)	[m ³ /L]	0.001
Averaging Time	[days]	25550
Intake Factor, Inhalation (IF _{inh}) ^a	[m ³ /kg-day]	0.29

Notes:

- a. IF_{inh} is calculated using the following formula:

$$IF_{inh} = \frac{\text{breathing rate} \times \left(\frac{\text{exposure time}}{24 \text{ hours}} \right) \times \text{exposure frequency} \times \text{exposure duration} \times CF}{\text{averaging time}}$$

Abbreviations:

BAAQMD Bay Area Air Quality Management District
kg kilogram
L liter
m³ cubic meter
OEHA Office of Environmental Health Hazard Assessment

Source:

Office of Environmental Health Hazard Assessment. "Air Toxics Hot Spots Program Risk Assessment Guidelines, the Air Toxics Hot Spots Program Guidance Manual for Preparations of Health Risk Assessments". August 2003.

Table 5-2
Summary of Body Weight and Inhalation Factors for Children
San Rafael Rock Quarry
San Rafael, CA

Body Weights ^{a,b,c} [kg]						Recommended Values for Inhalation ^d			
Boys		Girls		Boys & Girls		Long Term Exposures - Mean Values [m ³ /day]			
Age	Mean	St. Dev.	Mean	St.Dev	Mean ^e	Age	Boys	Girls	Mean ^e
6-11 months	9.4	1.3	8.8	1.2	9.1	< 1 year	4.5	4.5	4.5
1 year	11.8	1.9	10.8	1.4	11.3	1-2 years	6.8	6.8	6.8
2 years	13.6	1.7	13	1.5	13.3	3-5 years	8.3	8.3	8.3
3 years	15.7	2	14.9	2.1	15.3				
4 years	17.8	2.5	17	2.4	17.4				
5 years	19.8	3	19.6	3.3	19.7				
6 years	23	4	22.1	4	22.6	6-8 years	10	10	10
7 years	25.1	3.9	24.7	5	24.9				
8 years	28.2	6.2	27.9	5.7	28.1				
9 years	31.1	6.3	31.9	8.4	31.5				
10 years	36.4	7.7	36.1	8	36.3	9-11 years	14	13	13.5
11 years	40.3	10.1	41.8	10.9	41.1				
12 years	44.2	10.1	46.4	10.1	45.3				
13 years	49.9	12.3	50.9	11.8	50.4				
14 years	57.1	11	54.8	11.1	56	12-14 years	15	12	13.5
15 years	61	11	55.1	9.8	58.1				
16 years	67.1	12.4	58.1	10.1	62.6				
17 years	66.7	11.5	59.6	11.4	63.2				
18 years	71.1	12.7	59	11.1	65.1	15-18 years	17	12	14.5

Notes:

- From Exposure Factors Handbook, Table 7-3 (USEPA 1997).
- Includes clothing weight, estimated as ranging from 0.09 to 0.28 kg.
- Source: Adapted from National Center for Health Statistics (NCHS), 1987 as cited in USEPA 1997.
- From Exposure Factors Handbook, Table 5-23 (USEPA 1997).
- Values used in 9- and 30-year exposure duration risk calculations.

Abbreviations:

kg kilogram
m³ cubic meter
St. Dev. Standard Deviation

References:

United States Environmental Protection Agency (USEPA). 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August.

D.2-8
cont.

Table 5-3
Summary of Body Weight and Inhalation Factors for Adults
San Rafael Rock Quarry
San Rafael, CA

Body Weights ^{a,b,c} [kg]						Recommended Values for Inhalation ^d			
Men		Women		Boys & Girls	Age	Long Term Exposures - Mean Values [m ³ /day]			
Age	Mean	St. Dev.	Mean	St.Dev		Men	Women	Mean ^e	
18 -24 years	73.8	12.7	60.6	11.9	Adults	15.2	11.3	13.25	
25-35 years	78.7	13.7	64.2	15					

Notes:

- From Exposure Factors Handbook, Table 7-2 (USEPA 1997).
- Includes clothing weight, estimated as ranging from 0.09 to 0.28 kg.
- Source: Adapted from National Center for Health Statistics (NCHS), 1987 as cited in USEPA 1997.
- From Exposure Factors Handbook, Table 5-23 (USEPA 1997).
- Values used in 9- and 30-year exposure duration risk calculations.

Abbreviations:

kg kilogram
m³ cubic meter
St. Dev. Standard Deviation

References:

United States Environmental Protection Agency (USEPA). 1997. Exposure Factors Handbook. EPA/600/P-95/002Fa. August.

D.2-8
cont.

Table 5-4
Exposure Parameters for Residential Receptors, 9- & 30-Year Exposure Scenarios
San Rafael Rock Quarry
San Rafael, CA

Year	Body Weight [kg]	Inhalation [m ³ /day]	IF _{inh} [m ³ /kg-day]
2009	9.1	4.5	0.49
2010	11.3	6.8	0.60
2011	13.3	6.8	0.51
2012	15.3	8.3	0.54
2013	17.4	8.3	0.48
2014	19.7	8.3	0.42
2015	22.6	10.0	0.44
2016	24.9	10.0	0.40
2017	28.1	10.0	0.36
2018	31.5	13.5	0.43
2019	36.3	13.5	0.37
2020	41.1	13.5	0.33
2021	45.3	13.5	0.30
2022	50.4	13.5	0.27
2023	56.0	13.5	0.24
2024	58.1	14.5	0.25
2025	62.6	14.5	0.23
2026	63.2	14.5	0.23
2027	65.1	14.5	0.22
2028	67.2	13.3	0.20
2029	67.2	13.3	0.20
2030	67.2	13.3	0.20
2031	67.2	13.3	0.20
2032	67.2	13.3	0.20
2033	67.2	13.3	0.20
2034	71.5	13.3	0.19
2035	71.5	13.3	0.19
2036	71.5	13.3	0.19
2037	71.5	13.3	0.19
2038	71.5	13.3	0.19

Notes:

Exposure parameters are selected by assumed age according to the values in **Tables 5-2 and 5-3**. The assumed age is that of a hypothetical child born in 2009.

Abbreviations:

kg kilogram
m³ cubic meter
IF_{inh} Intake Factor, inhalation

References:

United States Environmental Protection Agency
(USEPA). 1997. Exposure Factors Handbook.
EPA/600/P-95/002Fa. August.

D.2-8
cont.

Table 5-5
DPM Concentration by Year at MEIR^a
San Rafael Rock Quarry
San Rafael, CA

Year(s)	Concentration ^b [µg/m ³]
2009	0.11
2010	0.11
2011	0.11
2012	0.10
2013	0.090
2014	0.069
2015	0.068
2016	0.052
2017	0.052
2018	0.040
2019	0.040
2020	0.023
2021	0.015
2022	0.015
2023	0.015
2024	0.015
2025	0.015
2026	0.014
2027	0.014
2028	0.014
2029	0.014
2030	0.014
2031	0.014
2032	0.014
2033	0.014
2034	0.014
2035	0.014
2036	0.014
2037	0.014
2038	0.014
2039-2078	0.014
70-Year Average (2009-2078)	0.025

Notes:

- The MEIR is located at x = 547,350 m, y = 4,204,700 m in UTM NAD83 Zone 10N.
- DPM concentrations were calculated using results from the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) version 07026.

Abbreviations:

DPM Diesel Particulate Matter
m³ cubic meter
MEIR Maximally Exposed Individual Resident
µg microgram
UTM Universal Transverse Mercator

D.2-8
cont.

Table 5-6
Inhalation Carcinogenic and Chronic Non-Carcinogenic Toxicity Values
San Rafael Rock Quarry
San Rafael, CA

Chemical	CPF [(mg/kg-day) ⁻¹]	Reference	Chronic REL [µg/m ³]	Reference
DPM	1.1	Cal/EPA 2008a	5	Cal/EPA 2008b
Crystalline Silica	N/A		3	Cal/EPA 2008b

Abbreviations:
Cal/EPA California Environmental Protection Agency
CPF cancer potency factor
DPM diesel particulate matter
kg kilogram
m³ cubic meter
mg milligram
µg microgram
REL reference exposure level

References:
California Environmental Protection Agency (Cal/EPA). 2008a. California Cancer Potency Values. Office of Environmental Health Hazard Assessment (OEHHA). October.
Cal/EPA 2008b. All Chronic Reference Exposure Levels Adopted by Office of Environmental Health Hazard Assessment (OEHHA). October.

D.2-8
cont.

Table 5-7a
Cancer Risk from DPM at MEIR^a, 70-Year Exposure Duration
San Rafael Rock Quarry
San Rafael, CA

	Risk [in one million]
70-Year Composite (2009-2078)	8

Notes:

- a. The MEIR is located at x = 547,350 m, y = 4,204,700 m in UTM NAD83 Zone 10N.
- b. Risk is calculated using the methodology described in **Sections 5.3**.

Abbreviations:

DPM Diesel Particulate Matter
MEIR Maximally Exposed Individual Receptor
UTM Universal Transverse Mercator

D.2-8
cont.

Table 5-7b
Cancer Risk from DPM at MEIR^a, 9- and 30-Year Exposure Durations
San Rafael Rock Quarry
San Rafael, CA

Year(s)	Risk [in one million]
2009	0.83
2010	1.0
2011	0.82
2012	0.80
2013	0.64
2014	0.44
2015	0.46
2016	0.31
2017	0.28
2018	0.26
2019	0.23
2020	0.12
2021	0.067
2022	0.060
2023	0.054
2024	0.055
2025	0.051
2026	0.050
2027	0.048
2028	0.042
2029	0.042
2030	0.042
2031	0.041
2032	0.041
2033	0.041
2034	0.038
2035	0.038
2036	0.038
2037	0.038
2038	0.038
9-Year Composite (2009-2017)	6
30-Year Composite (2009-2038)	7

Notes:

- The MEIR is located at x = 547,350 m, y = 4,204,700 m in UTM NAD83 Zone 10N.
- Risk is calculated using the methodology described in Sections 5.3.

Abbreviations:

DPM Diesel Particulate Matter
MEIR Maximally Exposed Individual Receptor
UTM Universal Transverse Mercator

D.2-8
cont.

Table 5-8
Chronic Non-Cancer Hazard Index at PMI^a
San Rafael Rock Quarry
San Rafael, CA

Chemical	Concentration [$\mu\text{g}/\text{m}^3$]	Hazard Quotient ^b
DPM	0.20 ^c	0.04
Crystalline Silica	0.73 ^d	0.24
Hazard Index ^e		0.3

Notes:

- The PMI is located at coordinates $x = 548,250$ m, $y = 4,205,050$ m in UTM NAD83 Zone 10N.
- The hazard quotient is the ratio of the concentration over the chronic REL (see Table 5-6).
- The DPM concentration used here is for year 2009, which has the highest concentration of any year modeled.
- The crystalline silica concentration used here is the representative value established in Section 4.2.
- The hazard index is the sum of the hazard quotients.

Abbreviations:

DPM	Diesel Particulate Matter
PMI	Point of Maximal Impact
m^3	cubic meter
μg	microgram
UTM	Universal Transverse Mercator

D.2-8
cont.

Health Risk Assessment of
Diesel Exhaust and Crystalline Silica
San Rafael Rock Quarry

Figures

D.2-8
cont.

Figure 2-1
Facility Location
San Rafael Rock Quarry
San Rafael, CA



D.2-8
 cont.

Comment Letter D.2

Figure 3-1
DPM Emission Source Locations
San Rafael Rock Quarry
San Rafael, CA

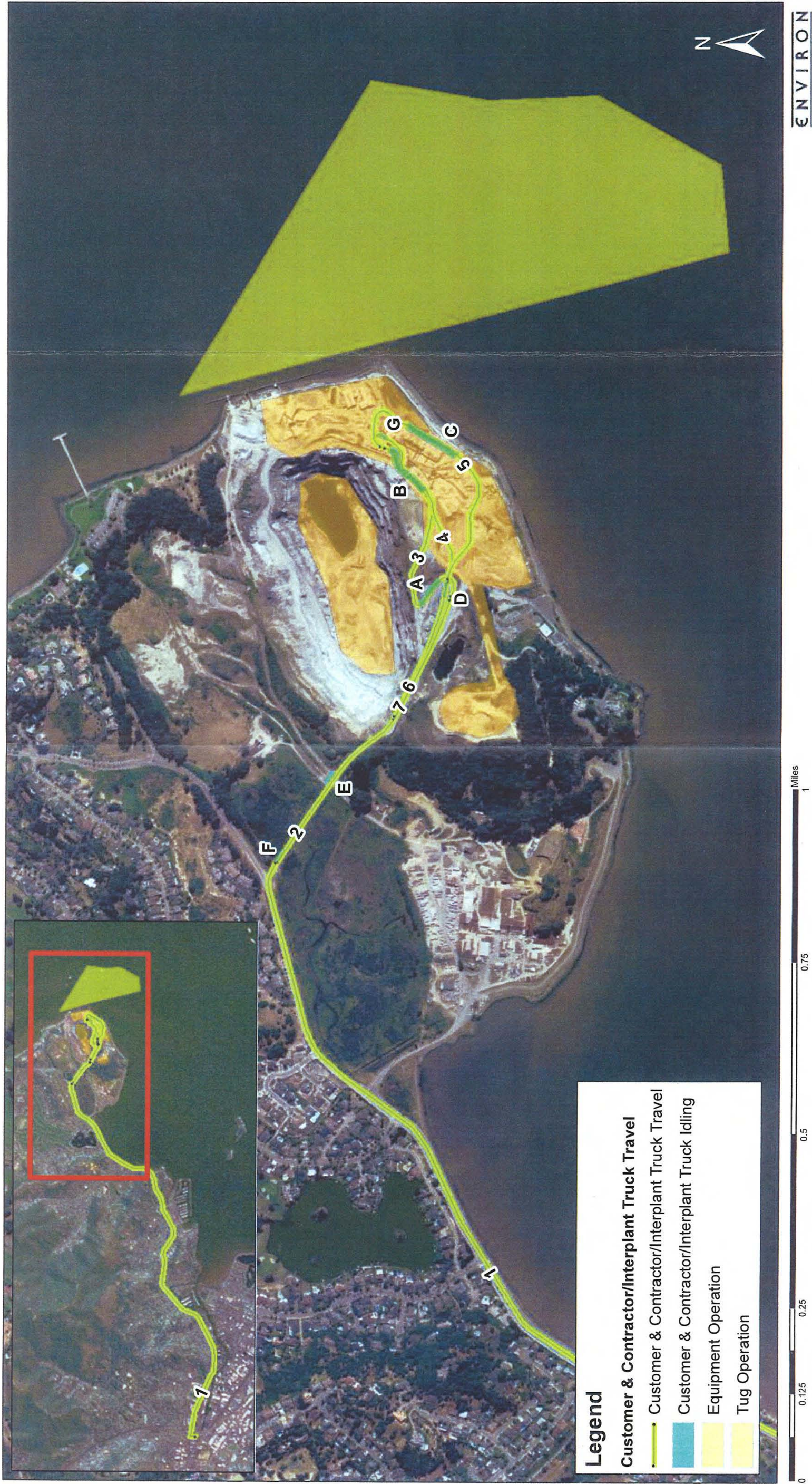


Figure 3-2
On-Site Meteorological Station Location
San Rafael Rock Quarry
San Rafael, CA



Figure 3-3
Receptor Locations
San Rafael Rock Quarry
San Rafael, CA

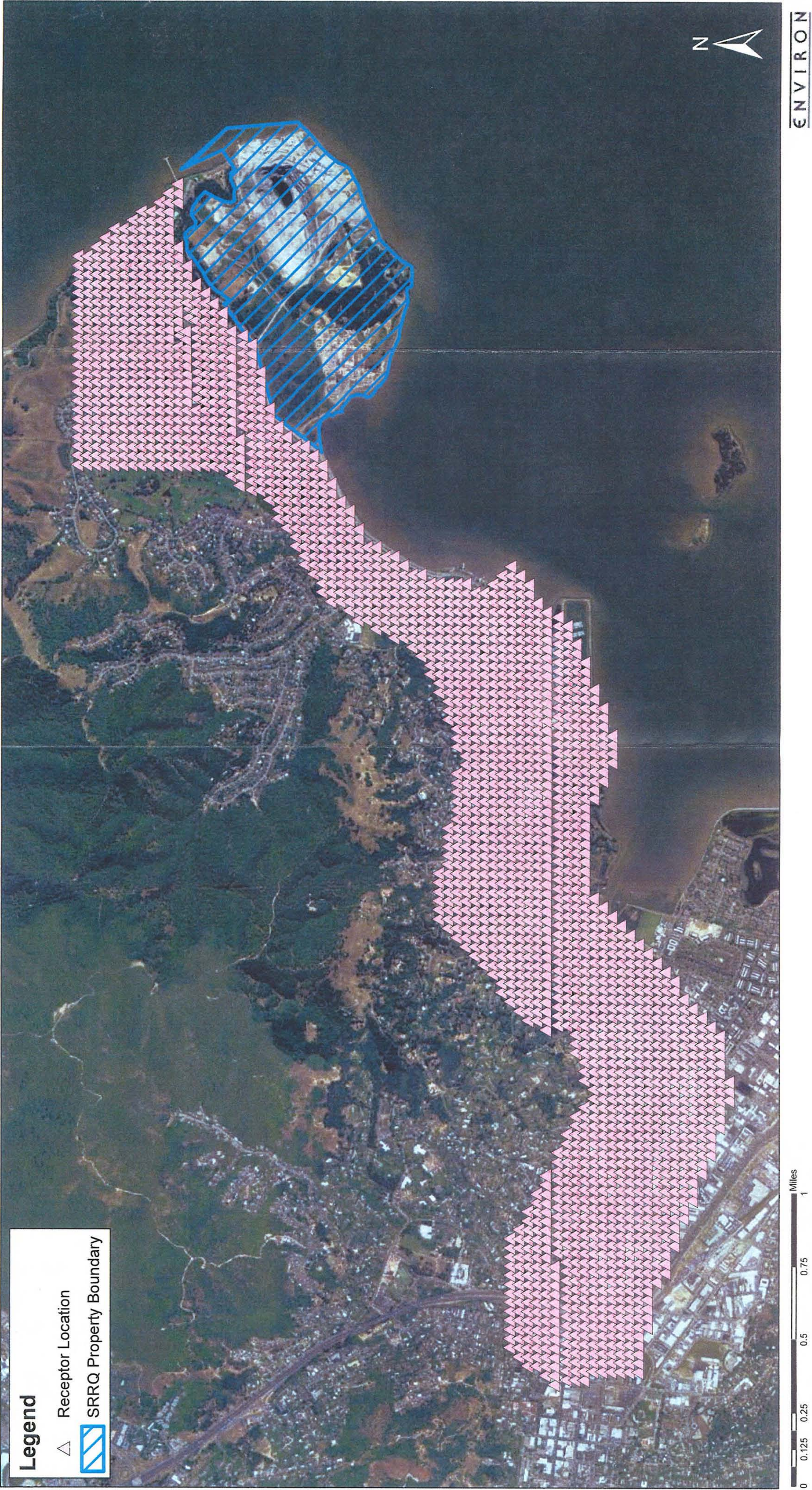
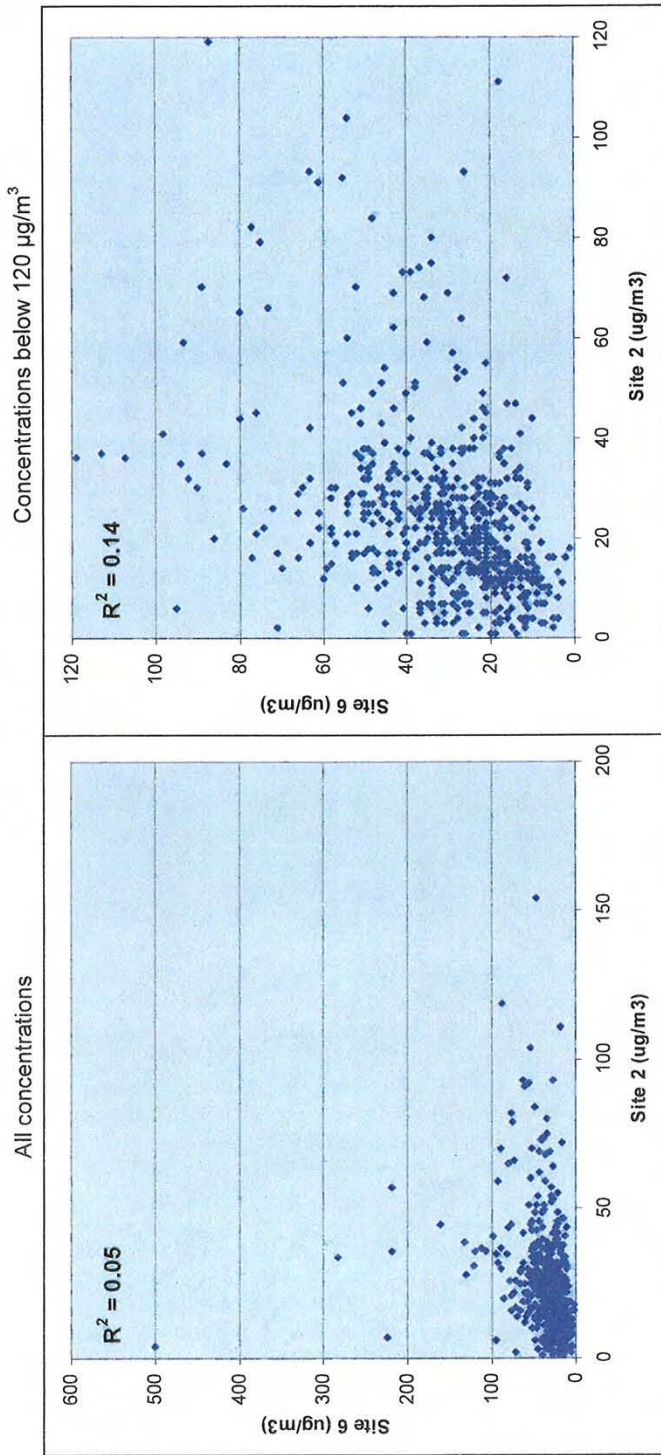


Figure 4-1
Monitoring Locations
San Rafael Rock Quarry
San Rafael, CA



D.2-8
cont.

Figure 4-2
Scatter Plot of PM₁₀ Levels, Site 6 vs. Site 2
San Rafael Rock Quarry
San Rafael, CA

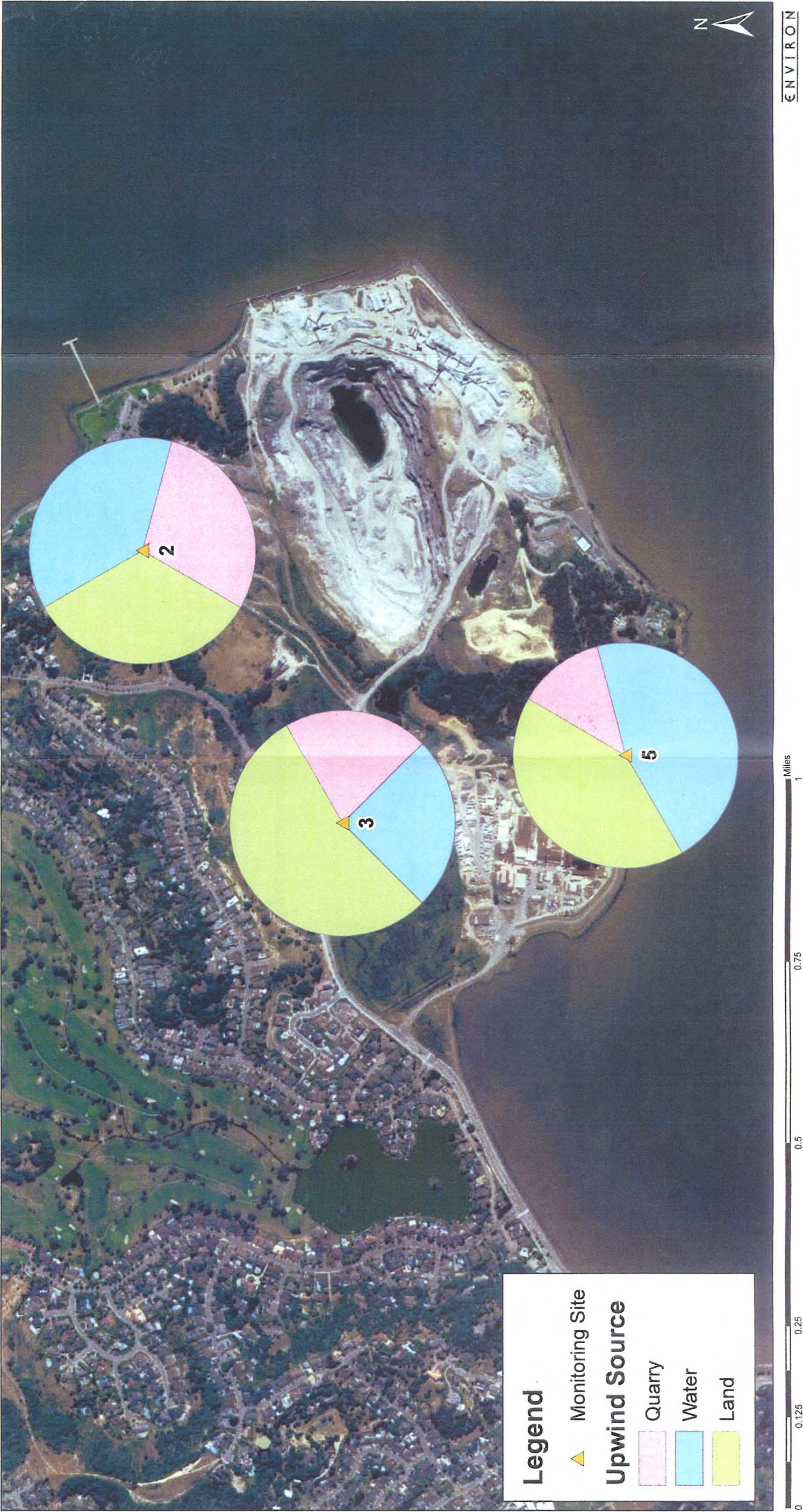


Abbreviations:
m³ cubic meter
µm micron
PM₁₀ particulate matter 10 microns or less in diameter

ENVIRON

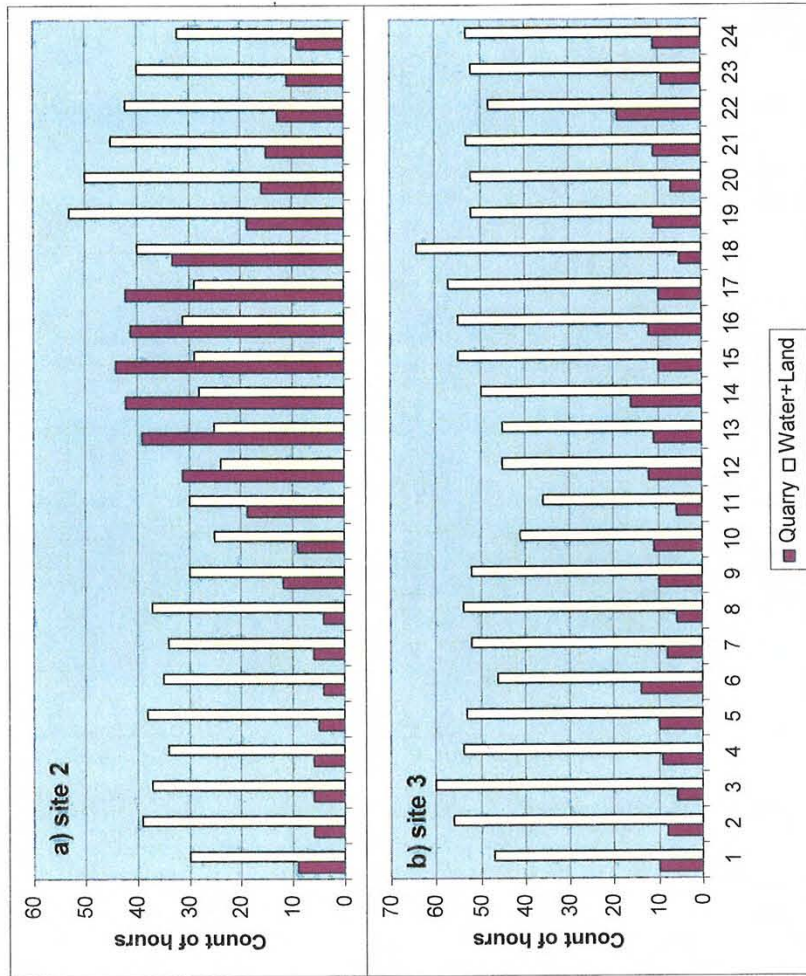
D.2-8
cont.

Figure 4-3
Wind Directions for Determining Upwind Source Contribution
San Rafael Rock Quarry
San Rafael, CA



ENVIRON

Figure 4-4
Count of Winds Blowing from Quarry vs. from Land and Water, by Time of Day
San Rafael Rock Quarry
San Rafael, CA



D.2-8
cont.

Figure 5-1
MEIR and PMI Locations
San Rafael Rock Quarry
San Rafael, CA



D.2-8
cont.

Figure 5-2
Cancer Risk Isopleth - 70-Year Exposure Duration, Maximum Truck Count Scenario
San Rafael Rock Quarry
San Rafael, CA



Comment Letter D.2: Project Sponsor – Shari B. Libicki and Elizabeth A. Miesner, ENVIRON International Corp. (Air Quality/Health Risk consultants for San Rafael Rock Quarry and the Dutra Group)

D.2-1 The commenter misinterprets several of the conclusions of the Final EIR:

Statement in comment incorrectly attributed to the Final EIR: “The highest concentrations of dust (PM-10) occur when the winds are blowing from locations other than the Quarry.”

Actual statement in the Final EIR (page 4.2-14): *The highest hourly PM-10 concentrations predominantly occur when winds are from the north (away from the Quarry), and occasionally occur when the winds are from the direction of the Quarry.*

Statement in comment incorrectly attributed to the Final EIR: “There is no discernible change in dust emissions due to blasting.”

Actual statement in the Final EIR (page 4.2-14): *Correlation of data with blasting events shows that blasting activity results in elevated PM-10 concentrations for at most one to two hours. A majority of blasting events occurring during the monitoring effort were not associated with an identifiable change in PM-10 concentration.*

Statement in comment incorrectly attributed to the Final EIR: “Diesel emissions from ongoing operations pose no significant risk.”

Actual statement in the Final EIR (page 4.2-49): *Impact C4.2-9: Reclamation activities under the Amended Reclamation Plan and Quarry operations under the Amended Surface Mining and Quarrying Permit would result in emissions of toxic air contaminants, including diesel particulate matter, increasing the risk of cancer for nearby sensitive receptors (Significant). (Note that this impact can be mitigated to less-than-significant)*

Statement in comment incorrectly attributed to the Final EIR: “Crystalline silica poses no significant risk.”

Actual statement in the Final EIR (page 4.2-49): *Impact C4.2-10: Reclamation activities under the Amended Reclamation Plan and Quarry operations under the Amended Surface Mining and Quarrying Permit would result in emissions of toxic air contaminants, including crystalline silica, that would increase chronic health impacts (Less than Significant).*

D.2-2 This comment summarizes the conclusions of those that follow; please see the following responses.

- D.2-3 Please see the responses to comments D-13, D-14, and D-15, above. The health risk analysis does not attempt to predict the number of actual cancer cases and other health effects of exposure to toxic air contaminants from the Quarry, but rather to provide an estimate of the incremental increase in risk from this exposure, and it considers the total exposure to receptors in the area from the entire operation.
- D.2-4 Please see the response to comment D-16, above.
- D.2-5 Please see the responses to comments D-16 and D-18, above.
- D.2-6 Please see the responses to comments D-16, D-18, and D-20, above. The BAAQMD has confirmed that Emission Reduction Credits may be used to offset mobile emission sources, as well as stationary source emissions.¹¹
- D.2-7 This comment cites documents referenced in the text of the letter.
- D.2-8 The methodologies used in the Environ HRA appear to be consistent with OEHHA Guidelines. The predicted risks are lower than those predicted in the HRA prepared by ESA and presented in the Final EIR for three main reasons: 1. the assumptions used for production rates are lower than what was assumed by ESA; 2. the DPM emission factors for trucks are lower than those used by ESA; and 3. the assumed crystalline silica content of the mined aggregate is lower than what was assumed by ESA. As a result, the Environ HRA resulted in lower concentrations of TACs at sensitive receptors than ESA, and therefore lower values for health risks. The following elaborates on the three points identified above:
- 1) The production rate assumed in the Environ HRA does not factor in an assumed increased production rate of 20% over the 1980-1982 average production level, and it is thus similar to what is assumed in the EIR after implementation of mitigation measures 4.2-9a and 4.2-9b.
 - 2) The Environ HRA used different emission factors for future emissions from on-road trucks than were used in the EIR. The ESA HRA estimated on-road truck emissions by using the ARB emission model EMFAC2007, whereas the Environ HRA modified these EMFAC2007 emission estimates by incorporating a new ARB regulation for in-use trucks (adopted December 2008). Although EMFAC2007 has not yet incorporated this new regulation into the estimation of future emissions, this adjustment should improve the prediction of emissions.
 - 3) Page 14 of the Environ HRA states that the EIR calculation of crystalline silica content from x-ray diffraction measurements overestimates the crystalline silica fraction. The Environ comment assumes that the methods followed by Technology of Materials Laboratory would have encountered interferences from other substances contained in the samples, thus causing crystalline silica diffraction peaks to be higher than without the constructive interferences. The method used by Technology of

¹¹ Brunelle, David, BAAQMD, personal communication (e-mail) with Chris Sanchez, ESA, May 14, 2009 RE: Emission Reduction Credits.

Materials is consistent with the approved method for measuring crystalline silica, and the assumption of interferences is speculative. Because Environ assumes a lower content of crystalline silica in dust emitted from the facility, the resultant exposure levels at the location of sensitive receptors is also lower. In spite of this inconsistency in reported crystalline silica content, both the Environ HRA and the EIR found the impacts from exposure to crystalline silica to be below the significance threshold (i.e., a Hazard Index of less than or equal to 1.0).

Several other assumptions used by Environ appear to contribute to their HRA concluding that health risks are lesser than those reported in the EIR: the Environ HRA does not include emissions from reclamation activities; they use actual ambient monitoring data to develop crystalline silica exposure, rather than modeling of emissions and dispersion; they only analyze exposure to DPM and crystalline silica (the EIR examines exposure to a much broader suite of chemicals); and they do not use the HARP model, but instead general health risk assumptions and calculations. Together, all of these aspects of Environ's methods for conducting the HRA result in a less conservative (i.e., lower) statement of health risks.

In addition, Environ appears to misquote OEHHA's assessment of the carcinogenicity of Crystalline Silica. On page 20 of their HRA, Environ states that, "Cal/EPA has concluded that there is no statistical evidence for the induction of lung cancer by crystalline silica exposure in the absence of silicosis." We could find no such statement made by OEHHA in the referenced document (OEHHA, 2005). That study does include the following statement:

"In 1997, IARC classified respirable crystalline silica in Class I, a known Human Carcinogen, based on occupational epidemiology studies. However, chronic RELs are not based on cancer endpoints. Further there is no approved potency factor for silica."

Thus OEHHA has no strong position on this relationship. In more recent documents related to Proposition 65, OEHHA has stated that active research is being conducted with respect to the relationship between silicosis and lung cancer in humans, but a potency factor has not been identified.

Furthermore, the citation on page 30 of the Environ HRA for the document referenced above (cited as Cal/EPA, 2005) provides an incorrect URL for this document. The correct URL is:

http://www.oehha.org/air/chronic_rels/pdf/SILICA_REL_FINAL.pdf

ATTACHMENT 3
Harry Torchiana LLP
Economic Feasibility

HARRY ♦ TORCHIANA LLP
CERTIFIED PUBLIC ACCOUNTANTS

March 16, 2009

Brian Peer
Dutra Materials, Inc.
1000 Point San Pedro Road
San Rafael, CA 94901

Re: Economic Feasibility of the Reduced Alternative for San Rafael Rock Quarry

Dear Mr. Peer:

You engaged Harry♦Torchiana LLP ("HTCPA") to evaluate the economic feasibility (and economic viability) of the Reduced Alternative to the Amended Surface Mining and Quarrying Permit (AQP), as described in Marin County's Combined Final Environmental Impact Report ("FEIR") concerning the San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit.¹ Using recent and historical financial performance data from Dutra Materials ("Dutra") and San Rafael Rock Quarry ("SRRQ"), we evaluated the impact on financial performance that the Reduced Alternative would have had if its operational limitations had been in place during Dutra Materials' last profitable year. The Reduced Alternative would impose numerous restrictions on operations, including cutting in half the already restricted truck trips to and from SRRQ,² and impose requirements for additional capital expenditures.³ For example, the Reduced Alternative would:

- Restrict production to 1982 levels, despite historical data showing that production fluctuates from year to year, above and below 1982 levels, to meet customer demands and respond to emergencies;
- Limit *all* SRRQ operations to 7:00 a.m. to 5:00 p.m. on weekdays, despite historical records showing that aggregate processing and barge loading has been conducted at night and on

¹ The California Environmental Quality Act (CEQA) requires that project alternatives be evaluated for economic feasibility and rejected if infeasible. 14 Cal. Code Regs. §§ 15091, 15364. With this project, the Marin Superior Court also ordered on July 15, 2004 that any operating conditions imposed by the County be economically viable for SRRQ.

² The Marin Superior Court's April 19, 2004 Order imposed a limitation of 250 truck trips per day on non-holiday weekdays for trucks going to and from SRRQ, and the FEIR acknowledges that this is less than the truck trips occurring during the baseline year of 1982. As proposed by SRRQ, and as reflected in Mitigation Measure P4.6-6 of the FEIR, the project would continue the restriction at 250 truck trips per day on non-holiday weekdays. The Reduced Alternative would cut the number of permissible truck trips by 50 percent, to 125 truck trips per day.

³ Additional expenditures may take the form of capital investments, one-time expenditures and/or continuing operating expenses.

D.3-1

March 16, 2009
Mr. Brian Peer
Page 3

the economic feasibility and viability of the Project, and would be inconsistent with Project Objectives under the FEIR, which include:

- Adoption of operating conditions that allow SRRQ to remain economically viable, serve the needs of public works and private construction projects in Marin County and the region, and respond to public emergencies, as recognized by the Marin Superior Court's Orders of July 15 and August 9, 2004;
- Continued operation of a facility capable of meeting requirements for rock, aggregate, asphalt and other materials for public works and private construction projects in Marin County and the San Francisco Bay region;
- Reducing the need for additional truck traffic into Marin County by maintaining a local source of these materials, and by maintaining a facility that is capable of delivering materials by barge; and
- Maintenance of operations capable of producing and rapidly delivering, by barge and truck, rip-rap, aggregate and other materials necessary to respond to public emergencies in Marin County, the San Francisco Bay region, and the San Joaquin/Sacramento River Delta; and
- Adoption as permanent the operating conditions proposed by the project sponsor in its October 27, 2004 proposal for administrative review of operating conditions, consistent with the Superior Court's Orders of April 19, July 15 and August 9, 2004.

Similarly, limiting all SRRQ operations to 7:00 a.m. to 5:00 p.m. is inconsistent with historical practices and market requirements would be economically infeasible and inconsistent with Project Objectives under the FEIR.

With respect to the truck trips, we note that the FEIR identifies the following limitations:

- Project as Proposed—The FEIR, Volume I, page 3-73 states "Truck trips are limited to a maximum of 250 one-way trips (125 round trips) per day with an approximate load capacity of 25 tons," and at Volume I, page 2-7, that such truck trips are restricted 7:00 a.m. to 5:00 p.m. on non-holiday weekdays except during declared public emergencies.
- Reduced Alternative—The FEIR, Volume I, page 2-14a states "Truck trips would be limited to a maximum of 125 one-way trips per day, Monday-Friday, 7 a.m. to 5 p.m., except during time of declared emergencies."

Our financial feasibility evaluation focused on the difference between the Proposed Project and the Reduced Alternative.

As explained below, our analysis of the Reduced Alternative's limitation on SRRQ truck trips reveals that the Reduced Alternative is economically infeasible. As noted above, other proposed requirements or limitations under the Reduced Alternatives would also have adverse cost and profitability implications, which we have not quantified, and are inconsistent with the Project Objectives.

D.3-1
cont.

March 16, 2009
Mr. Brian Peer
Page 5

- Dutra Dredging, Inc.
- Dutra Equipment, Inc.

Dutra and SRRQ have separate accounting reports, such that overall profit or loss is reported as a single line on the Dutra income statement. The Dutra Materials accounting reports and schedules (e.g., accounting profit and loss statements, cost accounting reports) segregate information by plant, product, cost center (e.g., secondary crusher) and expense element (e.g., labor, labor burden).

San Rafael Truck and San Rafael Barge represent the two transportation means of moving SRRQ production output from the site.⁵ The two main groups of products are asphalt and “rock” (e.g., rip rap, aggregate, fill/overburden or sand, which for simplicity are collectively referred to as either “rock” or “aggregate” as distinguished from “asphalt”). Rip rap and aggregate leave SRRQ in varying dimensions based upon customer demand or intended use by other Dutra plants. Virtually all quarried rock passes through a primary crusher to produce larger rock products (i.e., in excess of 6-inch minimum width) and, then, about three-quarters of this rock is processed through the secondary crusher to yield various smaller dimensions of aggregate. San Rafael Truck moves both the asphalt and rock products through truck deliveries to Dutra’s outside customers or other plants. San Rafael Barge moves only rock-type products and does not transport asphalt.

SRRQ is the supplier of rock-type products for other Dutra plants, which either sell such products to outside customers or incorporate the output into another product (i.e., asphalt) for sale to outside customers. San Rafael Truck’s shipments of rock products have been substantially for delivery to other Dutra plants (i.e., inter-site sales). Because other Dutra plants acquire rock (i.e., non-asphalt) products from SRRQ, any restriction on SRRQ output or delivery of such products will impact the other plants. Reducing the SRRQ truck trips, therefore, will financially impair Dutra’s ability to recover certain SRRQ and plant-wide operating costs through the resale of SRRQ output by other plants, as well as adversely impacting direct customer sales by SRRQ and Dutra.

Evaluation of 2007 and 2008 Truck Trips

We obtained the following weekly information for San Rafael Truck for the 104-week period from January 1, 2007 through December 27, 2008.

- Asphalt deliveries—total tons, total trucks, and total revenue.
- Aggregate deliveries—total tons, total trucks, and total revenue.

We analyzed the data on a weekly basis for such reasons as the following.

- San Rafael Truck has some flexibility within a weekly period for scheduling deliveries given customer needs and considering any daily limitation on truck trips.

⁵ Note that neither Dutra nor SRRQ owns or operates trucks receiving products from SRRQ; such trucks are owned and operated by customers taking delivery of the products or, if the products are being transferred to another Dutra facility, are owned and operated by contractors.

D.3-1
cont.

March 16, 2009
Mr. Brian Peer
Page 7

Approach to Analyzing the Reduced Alternative's Financial Feasibility Based Upon 2007 Accounting Information

Dutra Materials and SRRQ appear to have been economically viable for calendar year 2007, as reflected in reported positive gross margins for both entities. Our financial feasibility or economic viability analysis aimed to determine the extent of any lost profitability presuming that SRRQ's truck trips had been limited in 2007 as proposed under the Reduced Alternative. We did not evaluate 2008 with respect to the subject financial feasibility because Dutra Materials and SRRQ were not reported to be profitable for that year.

We computed the lost truck trips by week, as well as the related lost tonnages by product. We did not presume that lost truck shipments could have been sent by barge from SRRQ.

- We understand that trucks were used since the related delivery destinations were not accessible by barge.
- Excess barge capacity, when needed under our analysis as a possible truck substitute, did not necessarily exist.

We computed the lost contribution margins for Dutra and SRRQ given the identified lost truck deliveries by major product category.

- A lost contribution margin is the difference between lost revenue and any expenses saved (i.e., avoided variable costs).
- The lost contribution margin is the lost recovery of fixed costs plus, at least for SRRQ asphalt sales, the lost gross margin or other economic profit measure.

To be conservative, we limited our consideration of lost gross margin to SRRQ asphalt sales, which presumably were delivered to Dutra's outside customers (i.e., not inter-site sales). We did not consider any lost gross margin on the aggregate shipments by truck since the majority of these truck movements were for supplying other Dutra plants.

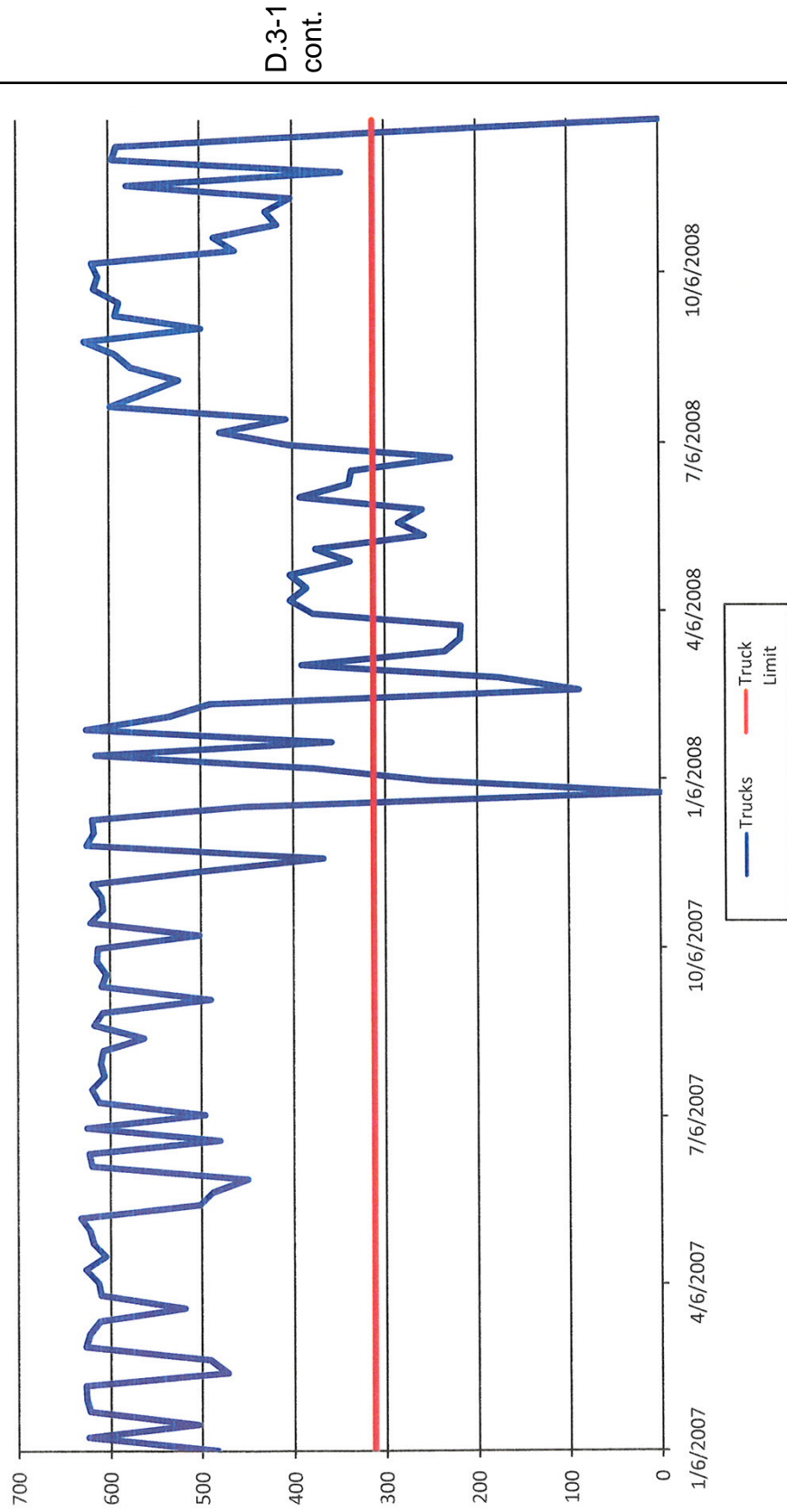
- Under this approach, we implicitly and conservatively assumed that Dutra would retain all of the outside customer sales and attendant gross margins for other plants, even if those plants were required to use suppliers of rock and related products other than SRRQ.
- This approach presumed that the other plants would pay no more than the SRRQ transfer price for replacement aggregate and related products, which may be a conservative premise.
- Nevertheless, if Dutra were required to use other sources of supply it would lose the recovery of certain fixed costs and allocable plant-wide overhead.

We determined the 2007 total lost contribution margin for SRRQ related to the lost asphalt truck shipments, presuming SRRQ had been subject to the Reduced Alternative truck limit in 2007. The computed lost contribution margin includes the following components.

D.3-1
cont.

ATTACHMENT A

Dutra Materials
San Rafael Plant 10
Total Trucks per Week 2007-2008 vs.
Truck Limit per Week per Reduced Alternative

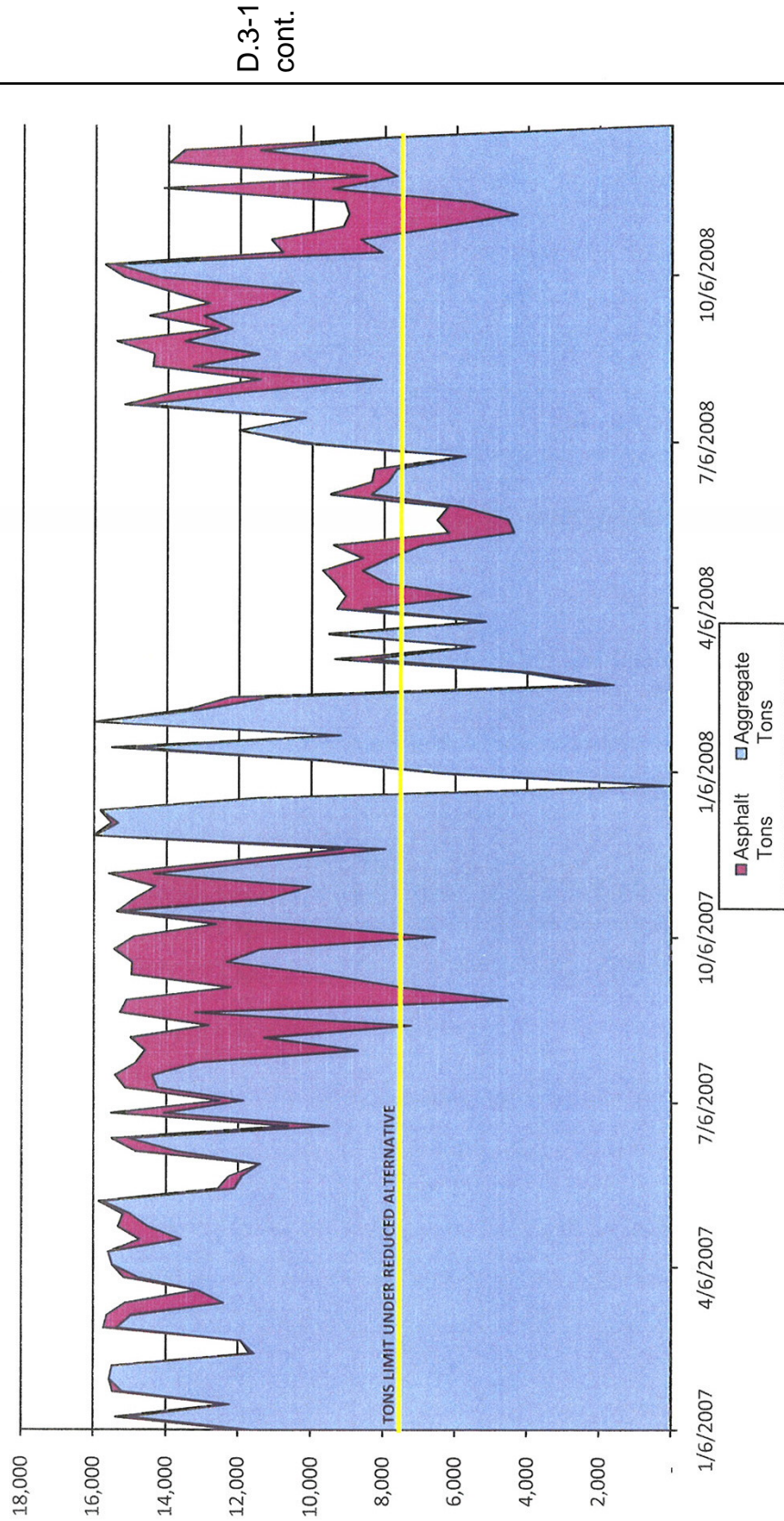


D.3-1
cont.

Reduced alternative weekly limit is 312.5 round trips.
As Proposed weekly limit is 625 truck round trips.

ATTACHMENT B

**DUTRA MATERIALS
SAN RAFAEL PLANT 10
AGGREGATE AND ASPHALT TONNAGE V.
LIMIT UNDER REDUCED ALTERNATIVE [1]**



[1] Limit calculated as $125/2 \times 5 \times 25$; this equals 125 one way trips per day divided by 2 (to get round trips), multiplied by 5 to get weekly trips, multiplied by 25 tons per trip.

Comment Letter D.3: Harry Torchiana LLP, Certified Public Accountants (Accounting Consultants for San Rafael Rock Quarry and The Dutra Group)

D.3-1 This comment purports to demonstrate the economic infeasibility of the Reduced Project Alternative to the AQP. The comment makes several claims regarding how several aspects of the Reduced Project Alternative would increase its cost, including restrictions on hours of operation, restrictions on production levels, and capital expenditures for dust control measures. Please note that the Reduced Project Alternative would not further limit blast vibrations, as alleged on page 2 of this comment letter; please refer to response to comment D.1-10.

The comment reports on an analysis done by the commenter on the effects of one aspect of the Reduced Project Alternative: limiting truck trips to 125 one-way trips per day, which concludes that adherence to the restrictions of the Reduced Project Alternative would have turned 2007, a profitable year for SRRQ, into an unprofitable year. The comment concludes that the Reduced Project Alternative is therefore infeasible.

For the following reasons, the County does not accept this analysis as a basis for concluding the infeasibility of the Reduced Project Alternative:

1. Under the CEQA guidelines, in evaluating project alternatives, increased cost does not equate with infeasibility:

...the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, *or would be more costly* (CEQA Guidelines §15126.6(b); emphasis added).
2. The comment does not provide any financial figures to back-up its analysis or conclusions, and so these conclusions cannot be independently verified;
3. The analysis contained in the comment does not consider the likelihood that the Quarry could and would adjust its markets and shipments to accommodate the additional restrictions on operations imposed by the Reduced Project Alternative. For example, under the Reduced Project Alternative, SRRQ could increase its shipments of aggregate materials by barge, either directly to customers or to Dutra's other facilities in Petaluma and Richmond. Dutra's proposed new asphalt batch plant at Haystack Landing in Petaluma is expected to import by barge up to 425,000 tons of aggregate per year, mostly from SRRQ.¹² While this might involve capital expenditures to increase barge loading capacity and/or barge capacity, it would not necessarily render this alternative economically infeasible.

¹² Draft Environmental Impact Report (EIR): Dutra Haystack Landing Asphalt and Recycling Facility. Sonoma County Permit and Resource Management Department, January, 2008, Table III-2 and page III-45.

4. Based on Attachment B to the comment letter, it appears that the Reduced Project Alternative would not impact SRRQ's ability to ship asphalt (which is only shipped by truck): it appears from the graph in Attachment B that the 125 truck trip limit would have been sufficient to accommodate peak asphalt deliveries in both 2007 and 2008.

For these reasons, the Reduced Project Alternative is appropriately retained as a feasible alternative in the EIR.

Comment Letter E

MAR 18 2009 PM 1:56 Planning

EDGCOMB LAW GROUP

115 Sansome Street, Suite 700
San Francisco, California 94104
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March 16, 2009

Via USPS and Facsimile

Tim Haddad
Environmental Coordinator
Marin County
Community Development Agency
3501 Civic Center Drive, Room 308
San Rafael, California 94903-4157

Re: Comments of Counsel for Point San Pedro Road Coalition on Final Environmental Impact Report for the San Rafael Rock Quarry's Proposed 2004 Amended Reclamation Plan

Dear Mr. Haddad:

These comments on certain legal issues regarding the 2004 Amended Reclamation Plan ("04ARP") are submitted by counsel on behalf of the Point San Pedro Road Coalition ("Coalition"), a non-profit organization concerned about the environment of the peninsula on which the San Rafael Rock Quarry ("SRRQ") is located. The Coalition contends yet again, as they have contended since the 2004 Amended Reclamation Plan ("04ARP") was submitted, that the project is illegal as proposed and cannot be approved. The draft Environmental Impact Report ("DEIR") should have reflected this fact, but did not. Despite comments submitted by the Coalition regarding the DEIR, the final Environmental Impact Report ("FEIR") has not been sufficiently amended. Nor have our prior comments been sufficiently addressed in the FEIR's responses to comments as required by CEQA. Accordingly, the FEIR should be rejected and not reissued until these fatal flaws are remedied.

E-1

1. Failure to Identify All Baseline Conditions Relevant to Quarry Reclamation.

First, the FEIR still has not accurately described the "environmental setting" of the project, and therefore, has not identified the proper baseline for the 04ARP (Cal Code Regs., Title 14 §15125). Specifically, the description of the environmental setting has not properly identified all of the legal limits on the SRRQ's existing entitlements to use the property, given its undisputed status as a non-conforming use.

E-2

*Sent previously as a
fax 3/16/09*

T. Haddad
Marin County CDA
March 16, 2009
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Moreover, the FEIR improperly picks and chooses among the findings and conditions set forth in Judge Sutro's April 19, 2004 Order (Attachment 1 hereto) as baseline conditions to the detriment of the SRRQ's neighbors, by ignoring key limits on the SRRQ's operations set forth in the Order. This apparent bias in the application of the terms of the 2004 Order is inexplicable, frustrating and illegal. An inadequate description of the environmental setting has been found to taint the impact analysis and mitigation findings of an EIR (*San Joaquin Raptor/Wildlife Rescue Ctr. v County of Stanislaus* (1994) 27CA4th 713).

The statement of the SRRQ's existing entitlements and limitations on its use of the property, or the "baseline" conditions, should be based upon the "environment" that existed on the date of the Notice of Preparation ("NOP") (October 26, 2005). Since the terms of Judge Sutro's 2004 Order were in existence at the time of the NOP, and are applicable to the SRRQ, they should be fully incorporated as part of the "environmental setting" or baseline. Thus, the baseline should consist of the reclamation activities described in the previously approved 1982 Amended Reclamation Plan ("82ARP"), *plus* the terms set forth in Judge Sutro's Order, including the key limitations placed on the SRRQ's operations in that Order. The County's FEIR fails to do so. In particular, the FEIR fails to recognize as a key baseline condition the fact that the SRRQ is a non-conforming use, and as such, unable to expand its activities into areas where such activities were not being conducted when the SRRQ became a non-conforming use in 1982. For purposes of the proposed 2004ARP, this has particular application in the Northeast and Northwest Quadrant, where the SRRQ proposes to dispose of huge volumes of waste materials (claimed to be "reclamation," but not really, despite no showing that any such activities occurred in those locations in 1982 and, with respect to the Northeast Quadrant, an express, unqualified ban by Judge Sutro in his 2004 Order against such disposal).

As mentioned in many previous letters from us to the County, and in our comment letters on the DEIR, the Coalition is not alone in this opinion. The County's own legal consultant, the land use firm of Shute, Mihaly & Weinberger, has concurred with the Coalition's position in this regard. In his December 21, 2005 letter to the County, Clement Shute affirmed that the baseline conditions should include a prohibition against any dumping of material in the Northeast Quadrant since Judge Sutro's Statement of Decision found that any such use would constitute an illegal expansion of the SRRQ's non-conforming use. However, the DEIR failed to mention the Shute, Mihaly & Weinberger legal analysis, and the FEIR has not corrected or responded to this issue either. Again, this is a fatal flaw in the FEIR since it should have included this prohibition in its baseline conditions and determined that the proposed 2004ARP proposes illegal action by proposing to build a 70 foot high berm of waste materials in the Northeast Quadrant and

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cont.

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constructing another huge berm in the Northwest Quadrant where there is no evidence any such waste disposal was occurring in 1982. The Coalition is extremely frustrated that after litigation, a trial, an unequivocal order, and then 4 years of study, the SRRQ and County are *still* considering a plainly illegal 2004ARP. It is an inexcusable travesty both that the SRRQ would propose such an illegal plan and that the County would waste 4 years considering it when it so plainly must be rejected, as even the County's own special land use counsel has agreed. The fact that the County improperly fails to substantively address this obvious fatal flaw only causes more frustration and suspicion that the County has no intention of properly regulating the SRRQ, harkening back to the days when the County largely abdicated regulation of the SRRQ, requiring the neighborhoods to rise up in revolt and force the filing of lawsuits which resulted in the 2004 Order and this administrative process in the first place. By largely ignoring the 2004 Order (except of course to note that it protects the SRRQ's vested rights), the County eviscerates its meaning to the neighbors, makes a mockery of all of the neighbors' efforts to control the SRRQ when the County would not, and further delays approval of a proper amended reclamation plan, since this one is illegal and will never survive legal scrutiny.

The flawed and biased nature of the FEIR is highlighted by the fact that it improperly selects certain terms of Judge Sutro's Order to include in the baseline (where it protects SRRQ rights), but ignores others (that limit the SRRQ's rights). For example, the FEIR acknowledges the Court's finding that the Quarry has a vested right to continue to mine within the current mining footprint without restrictions on depth or duration. (See section 3.4 Project Description of FEIR.) However, the FEIR fails to incorporate, as part of the baseline, terms of the Order that limit the Quarry's operations. Examples of note are the provisions enjoining SRRQ from depositing any materials in the Brick Resource Area, in the NE quadrant of the site (*see* Order paragraph 6) and from mining, grading and depositing any materials in the five areas labeled "PRESERVE IN NATURAL STATE" in the 82ARP (*see* Order paragraph 5). Judge Sutro's Order specifically enjoined these activities, with no indication that they could be allowed, even with the approval of the 04ARP. Yet, these terms are not incorporated into the FEIR's baseline conditions.

The Coalition believes that the impact analysis and mitigation findings in the FEIR at issue have been tainted by the failure to properly set a baseline that included these limiting provisions, yet incorporated the finding that the Quarry had a vested right to continue to mine in the current footprint. The provisions enjoining the dumping of any overburden or pond fines in the Northeast Quadrant, and the areas to be preserved in their natural state must be part of the legal baseline, or else the analysis of impacts on the site will not be properly assessed. As is, the

E-2
cont.

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FEIR indicates that the proposed project has serious adverse environmental impacts and that the best alternative is to prohibit the disposal of overburden and pond fines in the Northeast Quadrant, however, this “alternative” should be a legal requirement, not a mere option to be considered by the Board. This selective use of the terms of Judge Sutro’s order in defining the baseline is biased, prejudicial and renders the FEIR fatally flawed, as the Coalition has been saying for years.

E-2
cont.

2. The Proposed Huge Surcharge Berm in the Northwest Quadrant Is Inconsistent With the Baseline Conditions and is Development, Not Reclamation.

The huge surcharge berm proposed as “reclamation” in the Northwest Quadrant is illegal because no showing has been made that overburden has been disposed there before and that it is not an illegal expansion of a non-conforming use. In fact, that is exactly what it is. Additionally, portions of the Northwest Quadrant were to be preserved in natural state. Judge Sutro’s order enjoined SRRQ from mining, grading and depositing materials, overburden, tailings, dredged material or other waste materials in the areas designated to be preserved in their natural state in the 82ARP (*see* Order paragraph 5). Therefore, the proposed changes to the Northwest Quadrant would be an illegal expansion of a non-conforming use. This point has been raised repeatedly by the Coalition, but again has not been sufficiently addressed by the County. This proposal is inconsistent with the requirements of Public Resources Code §2772 and California Code of Regulations, Title 14 §3704, as suggested in the County’s response to prior comments on the subject. The Coalition still does not understand how construction of a huge berm that is admitted by the SRRQ to actually be a building pad designed to consolidate underlying Bay muds to enable future, unapproved commercial and residential development is “reclamation.” The County’s reference to these code sections does nothing to further explain or justify how these development measures are in any way, shape or form reclamation or that it does not constitute an illegal expansion of a non-conforming use. Instead, it is part of the construction of a proposed, yet unapproved development and should not be included in a reclamation plan. Only actions that are designed to properly reclaim the property and not ones designed to commence the future commercial and residential development of the property, should be considered. This aspect of the 04ARP does not constitute “reclamation” under any definition set forth in the codes cited. It is still nothing more than an illegal expansion of a non-conforming use. Such piecemeal construction of the future development project should not be permitted in the guise of a reclamation plan.

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3. The FEIR Does Not Sufficiently Respond to the Coalitions’ Prior Comments.

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The issues discussed above have been raised by the Coalition in prior written and oral comments on the DEIR submitted to the County, but the County has failed to adequately respond. The County has failed to meet the standard for responding to public comment in responding to the Coalition's past comment letters. The County has failed to provide a "good faith, reasoned analysis" in response to the comment letters. (See 14 Cal. Code Regs. § 15088(c); *Gilroy Citizens for Responsible Planning v. City of Gilroy* (2006) 140 Cal.App.4th 911, 937.) Moreover, "[t]he sufficiency of the agency's responses to comments on the draft EIR turns upon the detail required in the responses." (*Gilroy Citizens*, supra, at 937; see also *Eureka Citizens for Responsible Government v. City of Eureka* (2007) 147 Cal. App. 4th 357, 378.) The County has failed to meet these requirements.

Specifically, the County claims that it has "fully analyzed" the environmental effects of the aspects of the 04ARP that differ from the 82ARP, including use of the Northeast Quadrant for stockpiling and "areas to be left in natural state." However, as pointed out above, the County did not properly define the baseline to be used by incorporating key limitations from the 2004 Order. Therefore, the County has not performed the analysis it claims to have performed, and should not be allowed to rely on its own oversight in one area to defend its fulfillment of a different requirement under CEQA guidelines. Moreover, with respect to the construction of the surcharge berm in the Northwest Quadrant, the Coalition has raised a number of specific arguments as to why this proposal goes beyond the definition of "reclamation" and is instead the first phase of the construction of an unapproved, future development. However, the County's only response to these legal points was to cite a section of the Public Resources Code on Reclamation Plans and the California Code of Regulations on Performance Standards for Backfilling, Regrading, Slope Stability and Recontouring, and to state that the proposal "appears to be consistent with this requirement." This is entirely non-responsive to the Coalition's demand that the County reference the clear prohibitions set forth in the Court's 2004 Order. Thus, the County has failed to meet the standards for response to public comment, since simply citing to certain regulations without further explanation does not constitute a "reasoned analysis." As indicated by the Code of Regulations, "[c]onclusory statements unsupported by factual information will not suffice." 14 CCR §15088(c).

The Coalition has written lengthy and detailed critiques of the DEIR. However, in their response to Comment Letter 21, which was a five-page letter raising many detailed flaws in the DEIR, the County condensed its responses to only eight short responses; only two of which were unique. The County's response to Comment Letter 22, another five-page, detailed analysis of

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T. Haddad
Marin County CDA
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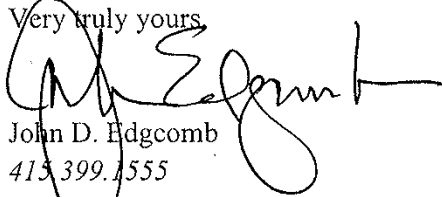
unique. The County's response to Comment Letter 22, another five-page, detailed analysis of certain flaws of the DEIR submitted on behalf of the Coalition, only provided two distinct, and brief responses; only one of which contained any detail. The only comment of any substance was the response to the timing of reclamation raised in Comment Letter 22 (*see* Response 22-4, section 7.3-78 of FEIR). The remainder of the comments consisted of conclusory statements or references to earlier responses. Thus, on the whole, the County has provided only general, brief and vague or conclusory responses to very specific comments, and has therefore failed to meet the standard set forth in CEQA guidelines and subsequent case law.

↑
E-4
cont.

We ask that the County take these unresolved issues into consideration before approving an FEIR that was assessed using an improper baseline, and which allows for the illegal expansion of a non-conforming use in several areas. If the project is approved as is, the EIR will be quickly overturned in Marin Superior Court and returned to the County for action consistent with that Order. Obviously, all involved would be far better served if the County openly, honestly and fully addressed these concerns and remedied the current fatal flaws in the FEIR before seeking its approval from the Board of Supervisors.

↑
E-5

Very truly yours,


John D. Edgcomb

415.399.1555

jedgcomb@edgcomb-law.com

Attachment 1

ORIGINAL

MAR 18 2009 PM 1:55 Planning

FILED

APR 19 2004

JOHN P. MONTGOMERY,
Court Executive Officer
MARIN COUNTY SUPERIOR COURT
BY: R. SMITH, DEPUTY

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8 Attorneys for Plaintiff
9 POINT SAN PEDRO ROAD COALITION

10
11 SUPERIOR COURT OF CALIFORNIA
12
13 COUNTY OF MARIN
14
15

16 POINT SAN PEDRO ROAD COALITION, a
17 California Corporation, JONATHAN
18 FRIEMAN, JAN BRICE, and MARIO
19 DIPALMA, Individually, and on Behalf of All
20 Those Similarly Situated,

21 Plaintiffs,

22 v.

23 SAN RAFAEL ROCK QUARRY, INC., and
24 DOES 1 - 500,

25 Defendants.

26 COUNTY OF MARIN, a Political Subdivision
of the State of California,

Plaintiffs,

vs.

SAN RAFAEL ROCK QUARRY, INC., and
DOES 1 through 20, inclusive,

Defendants.

Case No. CV 014584
(Consolidated with No. CV 014610, No
CV014602 and No. CV014618)

~~[Proposed]~~ ORDER

Hearing Date: April 6, 2004
Time: 9:00 a.m.
Dept. H
Judge: Hon. John A. Sutro, Jr.

Case No. CV 014602

E-6

1 PEOPLE OF THE STATE OF CALIFORNIA,
 2 Plaintiff,
 3 v.
 4 SAN RAFAEL ROCK QUARRY, INC., et al.,
 5 Defendants.
 6
 7 AMANDA METCALF,
 8 Plaintiff,
 9 v.
 10 SAN RAFAEL ROCK QUARRY, INC., et al.,
 11 Defendants.
 12

Case No. CV 014610

Case No. CV 014618

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cont.

13 A trial in this bifurcated matter was held on July 17, 18, 21, 24 and 25, 2003. John
 14 Edgcomb and Mary Wilke, of the Law Office of John D. Edgcomb, appeared for plaintiff Point
 15 San Pedro Road Coalition; Amanda Metcalf, of the Law Offices of Amanda Metcalf, appeared
 16 for plaintiff Amanda Metcalf; Jim Flageollet appeared for plaintiff County of Marin ("County");
 17 Harrison Pollak and Raissa Lerner appeared for plaintiff People of the State of California; and
 18 John Taylor and Derek Cole, of Taylor & Wiley, appeared on behalf of defendant San Rafael
 19 Rock Quarry ("SRRQ").
 20

21 The Court announced its tentative ruling from the bench on January 20, 2004. With the
 22 exception of Raissa Lerner and Derek Cole, who were not present, and James Wiley, who
 23 appeared on behalf of the defendant, counsel was the same.
 24

25 The Court has reviewed the pre-trial briefs filed by the parties, has ruled on the parties'
 26 pre-trial *in limine* motions, has heard the testimony offered and the exhibits entered into .

evidence, and has reviewed the extensive post-trial briefs filed by the parties. As set forth in more detail in the Statement of Decision issued herewith, this Court finds:

1. Defendant SRRQ's industrial use of its property located at 1000 Point San Pedro Road, San Rafael, California, APNs 184-010-09, 15, 16, and 52 (the "quarry property"), became non-conforming when the quarry property was re-zoned by the County on November 9, 1982. To determine the current scope of defendant SRRQ's right to continue its industrial uses on the quarry property, this Court applies the California Supreme Court's decision in *Hansen Brothers Enter., Inc. v. Board of Supervisors*, 12 Cal. 4th 533, 556 (1996), including the three-part test set forth in *Town of Wolfeboro v. Smith*, 556 A.2d 755, 759 (N.H. 1989), which was cited in *Hansen Brothers, supra*. Pursuant to these cases, the Court finds that the evidence shows that at the time the quarry property became non-conforming, defendant SRRQ's predecessor in interest, Basalt, had manifested an intent to quarry the Main Pit to the extent doing so is profitable (i.e., without respect to duration or the depth of its Main Pit), but that Basalt manifested an intent to mine South Hill only to the limited extent reflected in the 1982 Amended Reclamation Plan and to not mine other areas that Basalt agreed would be preserved in their natural state. Moreover, under the third prong of the three-part test set forth in *Town of Wolfeboro v. Smith*, 556 A.2d 755, 759 (N.H. 1989), the Court finds that defendant SRRQ's activities now have a "substantially different and adverse impact on the neighborhood" than they did in 1982. The Court further finds that certain activities engaged in by defendant SRRQ on the quarry property between 1986 and now exceed the scope of Basalt's use of the quarry property in 1982 and should be enjoined. Because of these findings, the Court finds that defendant SRRQ has exceeded the permissible scope of its nonconforming use in violation of Marin County Code § 22.78.010.

E-6
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2. The Court further finds that defendant SRRQ has undertaken a substantial deviation from the 1982 Reclamation Plan, in violation of Public Resources Code § 2777, Chapter 23.06 of the Marin County Code, and the Peacock Gap Neighborhood Plan.

Accordingly, IT IS ORDERED:

1. The above-referenced violations constitute an "unlawful" act under the Unfair Competition Law, Business and Professions Code § 17200. The Court therefore grants relief under the following causes of action (as numbered in the complaints):

- a. People of the State of California: 2
- b. County of Marin: 11
- c. Point San Pedro Road Coalition: 1
- d. Amanda Metcalf: 1.

2. Defendant SRRQ is enjoined from conducting any further mining operations at the quarry property, provided that the operative effect of the foregoing injunction shall be suspended for a period of six months *from the date hereof JAS* or such further time as the Court may approve, upon motion and good cause shown by the party or parties requesting such, to give defendant SRRQ time to seek to remedy its aforesaid violations of law and for the County and other interested agencies to act upon any amended reclamation plan that defendant SRRQ may submit.

3. Defendant SRRQ is enjoined from conducting any further quarrying outside of the southeast and southwest quadrants of the quarry property as labeled in Fig. 1 to the 1982 Amended Reclamation Plan (attached hereto as Exhibit 1).

4. Defendant SRRQ is enjoined from quarrying at South Hill (the southwest quadrant) beyond what is described in the 1982 Amended Reclamation Plan.

E-6
cont.

1 5. Defendant SRRQ is enjoined from mining, grading, and depositing materials,
2 overburden, tailings, dredged material or other waste materials in the five (5) areas labeled
3 "PRESERVE IN NATURAL STATE" in Figure 4 of the 1982 Amended Reclamation Plan for
4 the Property (attached hereto as Exhibit 2).

5 6. Defendant SRRQ is enjoined from depositing any overburden, tailings, dredged
6 material or other waste materials in the Brick Resource Area (the northeast quadrant) depicted in
7 Figure 1 of the 1982 Amended Reclamation Plan (attached hereto as Exhibit 1).
8

9 7. Defendant SRRQ is enjoined from permitting more than 250 Truck Trips in or out of
10 the quarry property per day, and any Truck Trip by trucks with a capacity greater than
11 approximately 25 tons is prohibited.¹

12 8. Defendant SRRQ is enjoined from permitting Truck Trips into or out of the quarry
13 property before 7:00 a.m. or after 5:00 p.m., Monday through Friday, and all Truck Trips on
14 Saturday, Sunday or federal or state holidays, are prohibited.
15

16 9. Defendant SRRQ is enjoined from importing onto the quarry property the following
17 materials: i) gravel; ii) used asphaltic concrete or concrete for recycling; and iii) dredged non-
18 sand materials.

19 10. Unless and until a further amended reclamation plan is submitted to and approved by
20 the lead agency reflecting proposed, expanded quarrying, defendant SRRQ:

21 a. is enjoined from quarrying outside the final footprint, contours and -200' MSL
22 depth reflected in the 1982 Amended Reclamation Plan, thereby avoiding further illegal
23 substantial deviations from the approved 1982 Amended Reclamation Plan;
24

25 ¹ A "Truck Trip" is each trip by a truck with a capacity of approximately 25 tons, empty or
26 loaded, into or out of the quarry property (i.e. a "round trip" is two Truck Trips).

E-6
cont.

b. shall provide a topographical map and an accompanying report to the Marin County Department of Public Works within 60 days of this Order and by January 31 of each year thereafter, consistent with the conditional approval of defendant's 1982 Amended Reclamation Plan, and such maps and reports shall be made available by the County for public inspection.

11. Enforcement: To insure timely and effective monitoring and enforcement of the aforementioned orders, the Court further orders that:

a. within 60 days of this Order, defendant SRRQ shall pay for the installation and maintenance of computerized truck counting system to be embedded or installed in all entrance/exit roads to and from the quarry property and shall require all trucks counting as Truck Trips entering and leaving the Property to pass over those systems and provide the County with exclusive access to the system to download the data, which the County shall download and post on the County's website no less frequently than once per month (SRRQ to pay for any required upgrade of the County's website for this purpose). If it is determined that such a system will not be feasible—because it might, for instance, not be able to distinguish ordinary parcel delivery trucks and other large vehicles from trucks used to deliver or retrieve raw materials to and products from the Quarry property—the parties shall agree on another suitable counting mechanism or other crediting procedure that meets the intent of this condition.

11. Penalties. Defendant SRRQ is ordered to pay a penalty in the amount of \$2,500 for its violation of Business and Professions Code § 17200 et seq., as alleged in the actions brought by the People of the State of California and by Marin County.

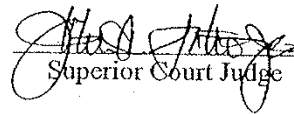
12. Further Administrative Proceedings and Retention of Jurisdiction. Additional matters, including those discussed in the Statement of Decision accompanying this Order, should be reviewed and addressed forthwith by the County through the proper administrative means. It

E-1
cont.

1 may be appropriate for the Court to review the matter of whether the quarry should continue to
 2 be operated and, if so, how, after these issues have been addressed more thoroughly through the
 3 administrative process. This Court retains jurisdiction of this matter for the purpose of resolving
 4 issues, including those addressed but left unresolved in the Statement of Decision issued
 5 herewith, unless and until this Court orders otherwise.

6 This order is not a final judgment for purposes of appeal. A case management conference
 7 is set for Aug. 3, 2004 JTB
 8 is set for April 6, 2004 to discuss additional issues.

9
 10 Dated: 4.19.04


 Superior Court Judge

E-6
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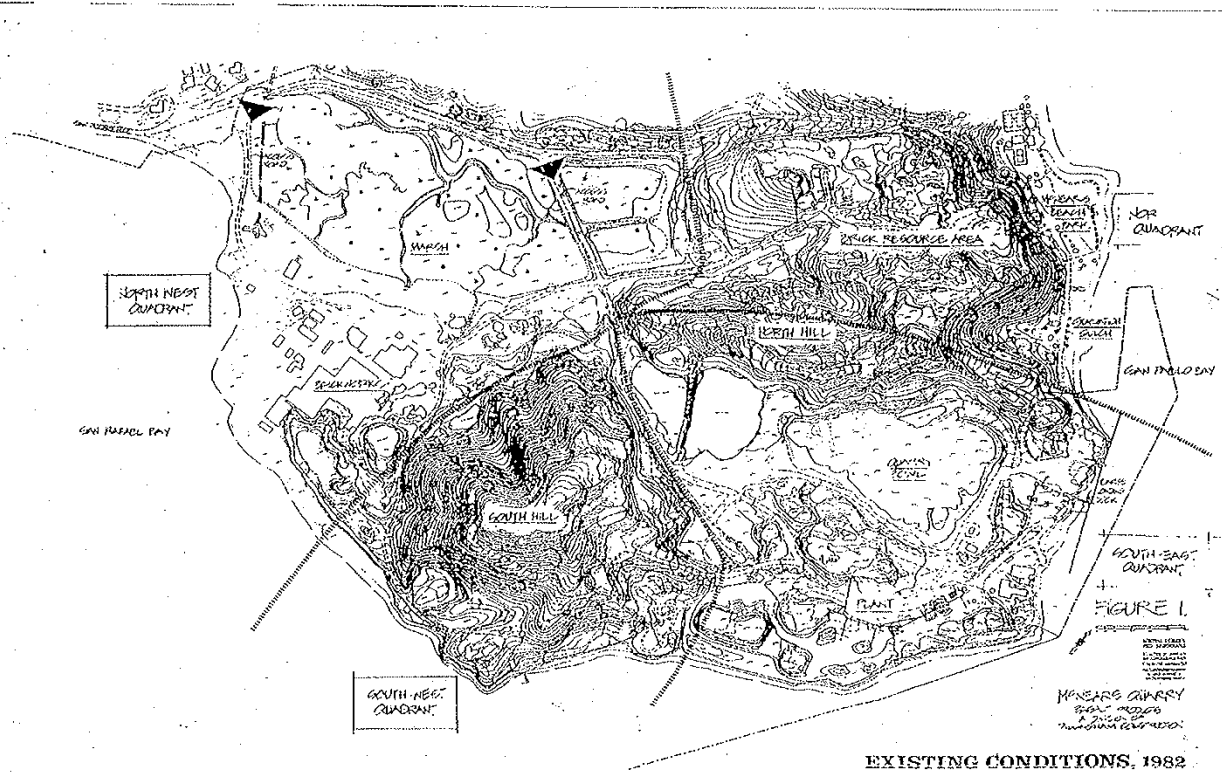


EXHIBIT 1

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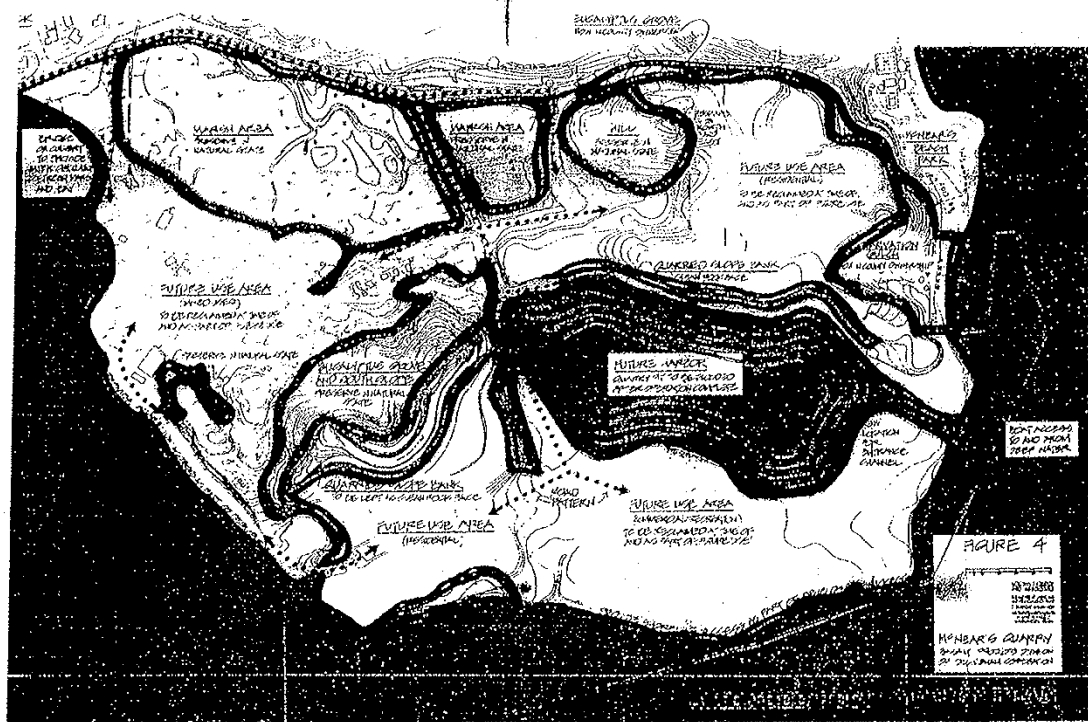


EXHIBIT 2

E-6
cont.

Comment Letter E: John D. Edgcomb, Edgcomb Law Group (Attorneys for Point San Pedro Road Coalition)

- E-1 This comment summarizes those that follow. Please refer to the responses below. Please note that it is not the role of an EIR to establish legality or illegality of a proposed project, but rather to identify, assess, and mitigate potential environmental impacts, and to examine feasible alternatives to a project. The County will determine, at the time of acting on ARP04, whether the proposed reclamation activities may be permitted in light of State law and the rulings of Judge Sutro in the pending litigation.
- E-2 The status of the Quarry as a non-conforming use is detailed in Chapter 3, Project Description, in Volume I of the Final EIR. See Section 3.2, History of the Projects, commencing on page 3-10.

The Final EIR is consistent in its description of the baseline and of the projects. Regarding the use of the NE Quadrant for storage or disposal of mining wastes, this is clearly noted in the Project Description as not being described in the 1982 Amended Reclamation Plan (ARP82). See Section 3.4.2, Site Uses Included in the Baseline for the Amended Reclamation Plan, on page 3-19 of the Final EIR. This section of the Project Description also notes that the site conditions that existed at the time of the NOPs *are* included in the baseline. Nowhere does the Final EIR suggest that the Quarry has an entitlement to continue to use the NE Quadrant or the NW Quadrant as sites for continued placement or disposal of mining waste. A description of the disposition of mining waste is, however, required in reclamation plans prepared pursuant to SMARA (PRC § 2772(c)(8)(A)), and use of mining waste in reclamation is consistent with the intent of SMARA to reclaim mined lands for beneficial use. The Final EIR properly and appropriately analyzes the potential impacts of use of mining wastes in reclamation grading, as proposed in the 2004 Amended Reclamation Plan (ARP04), and to the extent that the current proposal differs from ARP82.

There are two entitlements sought through this process. Under consideration is both a reclamation plan, which pertains to reclaiming the mining site; and a mining permit, which pertains to operational mining activities, including SRRQ's vested right to continue to mine. The Court decided that, as part of SRRQ's vested right to continue its mining operation, the Quarry did not have the vested right to dump material in the NE Quadrant. Mr. Shute's opinion letter of December 21, 2005 confirms the Court's ruling regarding vested rights related to the mining operation. However, the Court did not make any findings regarding potential reclamation activities. In fact, the Court deferred findings and decisions regarding such to the County and its administrative process. Hence, it is appropriate for the EIR to consider such issues as material stockpiling as part of the reclamation plan (as distinguished from mining operations). Appropriate reclamation activity is not part of the vested right analysis of the court.

With regards to the proposed construction of berms in the NE Quadrant (to act as a visual and noise buffer) and in the NW Quadrant (to surcharge and stabilize the underlying soil), these are considered in the Final EIR to be aspects of ARP04 that deviate from ARP82, that are not currently permitted, and that are therefore part of the proposal for the purposes of the impact analysis.

With regards to the Final EIR's reference to certain terms of the April 19, 2004 Court Order as establishing the baseline for environmental analysis, those terms that are established in the April 12, 2004 Statement of Decision as being within the bounds of the Quarry's vested right are properly considered a part of the baseline, as noted in E. Clement Shute's memo of December 21, 2005, and as reflected in Chapter 3, Project Description, of the Final EIR (see Section 3.4.2, Site Uses Included in the Baseline for the Amended Reclamation Plan, commencing on page 3-19 of Volume I of the Final EIR, and Section 3.5.1, Site Uses Included in the Baseline for the Amended Surface Mining and Quarrying Permit, commencing on page 3-65). Mr. Shute also notes in his memo, and the County agrees, that not all of the conditions imposed by the Court can be understood as part of the baseline, and do not appear to be intended as such by the Court. Instead, they were apparently intended to provide a balance between the operations of SRRQ and the interests of the neighbors until an administrative process could be completed by the County.

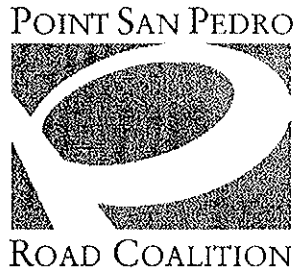
Therefore, the baseline used for the impact analysis in the Final EIR is properly construed, and the analysis itself consistently reflects the baseline. The Final EIR is not flawed, fatally or otherwise. The examination of alternative reclamation scenarios is proper and required under CEQA.

- E-3 The applicant does not propose in ARP04 to disturb or alter the areas of the NE Quadrant that were designated in ARP82 to be preserved in a "natural state." These areas are indicated as "Hill" and "Marsh" in Figure 3-5 and as "Marsh 2" and "Knoll" in Figure 3-8 in Chapter 3, Project Description, in Volume I of the Final EIR. Therefore, no impact with regard to these areas is identified in the Final EIR, except to the extent that adjacent activities may affect them indirectly.

Regarding the proposal to construct a surcharge berm in the NW Quadrant, please see the response to comment 21-3 in Volume II of the Final EIR, which fully meets the requirements of CEQA for adequacy of responses to comments. The purpose of the surcharge berm is described in Chapter 3, Project Description, of the Final EIR, on page 3-54. Reclamation of the site is separate and distinct from post-reclamation use of the site; SMARA states, however, that reclamation must anticipate and prepare for post-reclamation land use (PRC § 2772(c)(8)).

- E-4 Please see the response to comment E-3.
- E-5 Comment noted. The County does not agree that the Final EIR used an improper baseline for the environmental analysis or that it contains "fatal flaws."

E-6 This comment contains the text of the April 19, 2004 Superior Court Order. No further response is necessary.



Board of Directors:

DENISE LUCY, Co-president

DAVE CRUTCHER, Secretary/Treasurer

ALAN SCHAEVITZ, Webmaster

MAR 17 2009 PM 12:34 Planning
BONNIE MARJOR, Co-president

SARA JENSEN

Box 449, 369 "B" Third Street, San Rafael, CA 94901 www.sprcoalition.org

March 16, 2009

Tim Haddad
Environmental Coordinator
Marin County Community Development Agency
3501 Civic Center Drive, Room 308
San Rafael, California 94903-4157

Re: Point San Pedro Road Coalition Comments on the Final EIR for SRRQ

Dear County of Marin:

This letter comments on the County of Marin's proposed final Environmental Impact Report on the San Rafael Rock Quarry's (the "Quarry" or "SRRQ") Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit (the "FEIR").

Overview and Summary of Concerns

As background, the Point San Pedro Road Coalition (the "Coalition") submitted lengthy comments on the draft Environmental Impact Report ("DEIR") on April 14, 2008. Some of the principal concerns about the DEIR expressed by the Coalition, were:

- The DEIR considered reclamation alternatives that used an improper baseline, authorized quarry operations in areas of the Quarry that are off limits, and assumes a complex end-use for the site for which there is inadequate consideration.
- The DEIR considers reclamation proposals that include illegal that are illegal include the project that in areas of the failed to resolve the project's
- The DEIR applied a production baseline that was determined with inadequate substantiation. That baseline overstated the Quarry's production statistics, and made truck trip estimates that inappropriately lowered the threshold for requiring Quarry mitigation steps.
- The DEIR, in various ways, understated the risk to area residents of dangerous particulate matter produced by Quarry operations, especially respirable shards of crystalline silica dust, especially when amplified with diesel particulates. It also failed to require effective steps to mitigate the demonstrated risk to residents.
- The DEIR failed to consider sufficiently the effects of blasting, noise and truck traffic on residents close to the Quarry, and failed to require reasonable mitigation measures.

F-1

This FEIR inadequately responded to the concerns we expressed in the DEIR as summarized above. Accordingly, the Pt. San Pedro Road Coalition cannot support certification of this FEIR, for these reasons, as well as the specifics offered in the remainder of this letter.

↑ F-1
cont.

Coalition's Concern Regarding Air Quality

To summarize the Coalition's concern about how the FEIR addresses air quality impacts, the Coalition believes that the Quarry should be made to demonstrate that it can conduct operations in a manner that is safe to the surrounding community. The FEIR inaccurately claims to analyze air quality issues using conservative assumptions. Instead, it averages air contaminant exposures over 70 years with 17 years of input, it selectively adopts favorable air quality test results while rejecting less favorable results, and it relies on emission credit offsets to achieve (artificially) compliance with safe exposure benchmarks. Without these and other calculation artifices, the Quarry very likely would be revealed to be posing a danger to the health of the surrounding community. Although continuous and independent air quality monitoring could continuously determine the accuracy of the FEIR's conclusion that the Quarry poses no air quality health risk, inexplicably, the FEIR concludes that such testing is unnecessary. Accepted as is, this FEIR will be used as a shield by the Quarry against at least another generation of nearby residents who express concern about Quarry-produced air contaminants. The County owes it to that next generation to collect the necessary data to come to the correct conclusion.

The Coalition continues to object to the FEIR's failure to use available and adequate evidence of the baseline for transportation. The County should go back and collect all of the data relevant to this baseline determination, evaluate it in conjunction with the existing data and information (which suggests that the baseline should be significantly lower than that set forth in the FEIR, as discussed later in this letter), and set an appropriate baseline traffic intensity using all of the relevant information.

F-2

The EIR process has had the useful effect of focusing the Coalition and other interested persons on the adverse health effects of operating a rock quarry in a residential area. Regardless of any vested right that SRRQ may have to mine the site, it does not have the right to operate in a manner that constitutes a nuisance and is detrimental to the health of people living nearby. The FEIR fails to give assurance that the Quarry is operating safely. Such an important matter cannot be left to the authors of the FEIR, given their apparent biases that we discuss later in this letter. Human health impacts from the Quarry's current operations are a threshold matter that, if not fully measured and mitigated, renders all other issues moot.

Therefore, the air quality issues raised in the Coalition's DEIR comments and in this letter, and that remain substantially unaddressed by the FEIR, must be fully addressed and resolved without delay. If the Quarry cannot operate safely, then it should close.

If the Quarry can be made to operate safely, including the possibility (unlikely, in our view) that it can demonstrate conclusively that it is currently operating safely, then the Coalition, with respect to a new operating permit, would generally support implementation of the Reduced Alternative with significant additional modifications.

With regard to the 2004 Amended Reclamation Plan, the Coalition is simply unable to support the proposed project nor any of the proposed alternatives because all of the proposals contemplate that the Quarry will engage in either illegally expanded quarrying disposal

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operations or actual development that is inaccurately described as reclamation. (See comment letter mentioned below from the Coalition's legal counsel, John Edgcomb, for more detail.) The Coalition is open to consideration of flooding the Quarry bowl for purposes of developing a harbor, but the concept is complex and promises many consequences that have not been adequately considered. Accordingly, the Coalition believes that the Alternative Reclamation with Alternative Beneficial End Use alternative is the superior alternative of those proposed (including the project itself), because it appears to preserve the most flexibility for modification as future plans for the site become more clear. It also has the benefit of avoiding the most disturbing aspects of the proposed project (such as the proposed illegal disposal activity in the Northeast Quadrant), which also is discussed in Mr. Edgcomb's letter. But the Coalition will oppose any aspect of any reclamation alternative (particularly "phased" reclamation) that constitutes disguised development measures, such as the construction of a large "building pad" in the Northwest Quadrant.

F-2
cont.

Comments by SCS Engineers

The Coalition has engaged the services of an environmental consultant, SCS Engineers (SCS), to assist the Coalition with determining the sufficiency of the County's FEIR work product with regard to air quality. SCS provided extensive comments on the DEIR's treatment of air quality issues, and has provided comments to the Coalition on the FEIR. Attached to this letter is a letter dated today, from Dr. Paul Damian of SCS, commenting on the FEIR. We do not repeat Dr. Damian's comments in this letter, but we do hereby incorporate them by reference.

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Comments by Coalition Counsel

The Coalition's legal counsel, John Edgcomb, is providing separate comments by letter today on behalf of the Coalition. His letter will address, among other things, the Quarry's proposal to conduct what the Quarry claims is reclamation activity in the Northeast Quadrant throughout the 17 year period of the project. As Mr. Edgcomb explains in his letter, this proposed activity is not reclamation, violates Judge Sutro's 2004 order, and is thus illegal. Also, the construction of the berm in the Northwest Quadrant is an expansion of the Quarry's non-conforming use, since there is no evidence that any such disposal was occurring in that area in 1982. We do not repeat Mr. Edgcomb's comments in this letter.

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The remainder of this letter sets forth the Coalition's additional, specific concerns relating to the FEIR.

Coalition's Comments on FEIR Regarding Air Quality

1. Comment 2-3. The DEIR had concluded that conducting reclamation alongside operations (including extensive grading) over the next 17 years would result in an increase in toxic air contaminants that was significant and unavoidable. SRRQ commented that they would mitigate this impact to below significance levels by (i) limiting onsite mining on days that reclamation activities are conducted and (ii) by acquiring offsite emission credits from BAAQMD. Employing the former mitigation device means that impacts relating to activity associated with the 2004 ARP, and for which the baseline is zero (since Phase 1 through 3 reclamation wasn't considered in the 1982 ARP), is to be evaluated effectively by borrowing the baseline from operations. Given the broad scope of reclamation activities proposed to take place in Phases 1 through 3 during the high demand summer months, the consequence is that

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operations must be intensified at other times to compensate for reduced operations on reclamation days. The FEIR does not evaluate this consequence.

The second proposed mitigation measure of acquiring offsite emission credits appears to arise from a comment on the DEIR by BAAQMD that SRRQ may purchase emission credits from BAAQMD as a feasible mitigation measure. The Coalition opposes the allocation of health risks attributable to toxic air contaminants from some other Dutra-owned site to residents of the Pt. San Pedro Road neighborhood. This suggestion is anathema to those who live anywhere close to the Quarry, particularly since SRRQ has no right in the first instance to expand its operations beyond its 1982 legal nonconforming use, and is expressly barred from operating in the Northeast Quadrant where much of the grading activity is proposed to take place.

2. Comment 23-18. This comment relates to the Onsite dust study conducted in 2000 showing the Quarry was emitting a substantial amount of toxic air contaminants (in particular, crystalline silica) that was finding its way into the collector sites set up under that study. The FEIR acknowledges that the DEIR was prepared without regard to that study (notwithstanding the fact that the Coalition, in its EIR scoping letter, exhorted the County to consider it), and relied principally on the results of a 2004 air quality study by STI showing, oddly, that detectable quantities of crystalline silica were found in none of that test's 15 filters. Our DEIR comments requested a reconciliation of those two studies instead of merely relying on the STI study with anomalous results.

The County's response to this comment was that the Quarry now employs dust control measures that "may not have been in effect" when the Onsite study was performed, and that the STI study "was conducted more recently, and is therefore more likely to reflect recent conditions."

This response is without substance or persuasive logic, and avoids rather obvious analytical steps the County might have taken to respond substantively to the Coalition's prior comments. For example:

- What were the Quarry's production levels in 2000 vs. 2004?
- How did the testing methodologies differ?
- What specific documented dust mitigation controls were in employed in 2004 that were not employed in 2000? (And, given Quarry's alleged effectiveness at reducing crystalline silica emissions to zero, why not include all of those controls in the final permit conditions?)
- How might the weather patterns for the two testing years have affected testing results?

Since air quality is, arguably, the single most controversial and consequential issue to Quarry neighbors, one might think that an EIR would address these questions. Instead, the County is content to assume from the STI test that, whether or not there was a dust problem in 2000, there wasn't one in 2004, presumably isn't one now, and so there is no need to even analyze the possibility (feared to be a probability by the Coalition) that the STI test results are non-representative.

We also point out that, as discussed on page 4.2-13, that the BAAQMD itself identified historical violations of emission standards by the Quarry in 1996 and 2004, noting that violations

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occurred “as the result of non-permitted equipment and installation and *visual emissions in excess of standards* (emphasis added).” Nothing more than improved water spraying was suggested to address these violations. Thus, the record supports the conclusion that there is a significant probability that the Quarry continues to emit substantial levels of crystalline silica dust into the air, which the County is discounting.

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3. Comment 30-17. Averaging jagged edged crystalline silica exposure over the next 70 years by assuming only 17 years of emissions (the period of the proposed project) and 53 years of zero emissions is misleading as, in all likelihood, the Quarry probably will continue to operate during the entire 70 year period going forward, based on past history. The response to this comment made previously by the Coalition was, in effect, that cancer risks are based on 70 year exposure periods (presumably an individual’s lifetime, in rough terms), the proposed project is only 17 years, thus only 17 years of exposure will be averaged over the individual’s lifetime. This restates the risk to about 1/4th of what it will be if SRRQ continues to mine. Footnote a to Table 3-10 acknowledges this fact by stating that:

“... the Quarry could, within the scope of its vested use, submit another application for amending its [ARP] and perhaps its [operating permit] to enable quarrying to a greater depth and for a longer period of time. As the Quarry is not presently proposing this, it is considered speculative and beyond the scope of the [EIR] under CEQA.”

By this logic, the Quarry can, in perpetuity, dilute the standard cancer risk threshold that would apply to any other industrial operation simply by updating its reclamation plan every “x” number years; “x” to be whatever number results in a sufficiently diluted exposure average. Even better (for the Quarry), the County will further dilute the actual exposure calculation by taking 5 or more years to approve the next reclamation plan. To put it another way, the exposure period (17 years in this particular case) that will get diluted into the standard 70 year calculation is whatever period the Quarry decides to include in its amended reclamation plan which is itself nonbinding and likely to be replaced with another short and diluted exposure period when the prior one ends. This renders the calculation and the basis of the Health Risk Assessment conclusions a sham.

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It is unlikely that the Quarry will shut in any particular year, including the 17th. This bias is the type of gamesmanship that the public has put up with from the Quarry and the County in the past, and will no longer. The only basis on which exposure might be truncated at 17 years is if the Quarry is legally bound to cease operations after that time. That is not contemplated. Moreover, this analysis also ignores all of the past years of exposures to the Quarry’s neighbors when operations were conducted at higher levels with fewer air quality controls. Each of these concerns should have been accounted for in the FEIR.

Finally, we note that the use of only 17 years of emissions averaged over a 70 year lifetime was not discussed in the DEIR, was discovered only upon a request for, and review of, backup data by our air quality expert, and was not even mentioned in the FEIR aside from the response in the comment Volume to our objections to its use.

4. Comment 30-53. The Coalition suggested in its DEIR comment that the DEIR should have proposed, but did not propose, a mitigation measure requiring continuous independent monitoring of air quality. The County’s FEIR response was that such monitoring was not necessary, and that air quality can “be more directly monitored through site inspections and operator reports.” Thus, without elaboration, the County concludes that an occasional

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government inspection, and the review of reports prepared by the Quarry itself, provides more effective information about Quarry emissions than actual continuous testing. Proposed self-monitoring by the Quarry, given the Quarry's well-established past inability to limit its operations in a manner that would prevent it from being a nuisance to the neighbors constitutes a valid basis for rejecting this proposal for self-monitoring. After all, it was the Quarry's running amok and the County's failure to monitor its operations' consistency with permits and County ordinances in the late 1990s and early 2000s that led to the administrative enforcement actions and lawsuits against the Quarry and this administrative process in the first place. In short, why should the neighbors have to trust the Quarry and the County now, when they proved unworthy of that trust in the past, particularly with regard to an issue with potentially dire human health consequences? No serious analysis was presented in the FEIR of why a continuous monitoring program could not be conducted as a mitigation of the Quarry's potential dust impacts. The Coalition contends that this analysis should have been an essential part of the FEIR.

At least the FEIR comment went on to acknowledge that the Board of Supervisors might impose the Coalition's suggested monitoring provision, though one wonders why the Board would when its own staff has concluded that it is unnecessary. Given the extensive history of Quarry operational violations and illegal expansion, the County's failure over the decades as the principal overseer of Quarry compliance (not merely our opinion, but Judge Sutro's finding), and the significance of air quality issues to the surrounding community, it would be minimally prudent for the Board of Supervisors to include continuous, independent air quality testing on all Quarry operations under the new permit, with testing results accessible to the public on a virtually contemporaneous basis. If the County is really convinced that the Quarry poses no air quality threat to the community, as the FEIR suggests, then it (and the Quarry itself) should have no objections to this monitoring. This would be the most effective mitigation measure to deter Quarry compliance violations and to provide community peace of mind of the safety of their environment. Such testing would, after all, either confirm or contradict many of the air quality assumptions that form the basis of this FEIR, and in any event would avoid the need to rely on problematic estimates of toxic air contaminants. Continuous independent air quality testing rendering quick publicly-accessible results would largely address this concern.

5. Comment 30-52. The Coalition's DEIR comment noted that the DEIR failed to consider any fundamental changes to the Quarry's operations that would likely be most effective at reducing crystalline silica emissions rates. In particular, enclosure of the most offending aspects of the mining operation is appropriate. We even directed the County to read an article in *Pit and Quarry* magazine that had just been issued describing a quarry in South Dakota that had done just that to "help with dust control," clearly suggesting that such measures are feasible. We also understand that a rock materials handling facility in Richmond, California has enclosed its operations to mitigate dust issues.

The County's response was simply that the health effects from crystalline silica emissions at the Quarry were already less than significant, that there was thus no need to mitigate further the dust produced by the Quarry. The response then went on to recite the existing dust mitigation measures employed by the Quarry, generally concluding that these measures may also be considered "best management practices." The fact that some of the Quarry's dust mitigation measures are employed by other "best practices" facilities does not mean that the Quarry's dust mitigation program is, as a whole, a "best practices" program. That a quarry in South Dakota and a materials handling facility in Richmond, California can economically enclose many of its

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operations to control dust suggests that Marin County is behind the times. Of all the quarries operating in this country that ought to employ the highest order of best practices, the Quarry is it, and Marin County should not allow it to utilize less protective measures than facilities in South Dakota, Richmond, California or anywhere else, especially given the proximity of the residential neighborhoods to the Quarry, a feature resulting from prior false promises about when the Quarry would cease operation; promises relied upon by the City of San Rafael in approving those developments.

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6. Comment 2-3. BAAQMD commented that, although the DEIR found that alternative mitigation measures to reduce air toxic pollutants were not feasible, the DEIR provided no analysis as to how infeasibility was determined. Thus, the public had no opportunity to determine the validity of the infeasibility conclusion. BAAQMD then went on to provide some examples of feasible mitigation measures. They expressly stated that those measures were nonexclusive. The FEIR deleted the statement in the DEIR that other feasible mitigation measures had been considered and rejected, and responded to BAAQMD's comment by pointing out that several of the suggested feasible mitigation measures had been specified in the DEIR. This is deflection. Did the County consider and reject other mitigation measures (other than emission offset credits) or not? If so, what measures were considered and where is the analysis that they were deemed infeasible?

F-10

7. Comment 30-9. Dr. Damian of SCE Engineers commented that the DEIR measured annual crystalline silica exposure by averaging it over a 1-year period, and thus did not account for the fact that crystalline silica exposure ordinarily will be much higher in the dry summer months when operations are more intensive. The County response merely restated the calculation, and thus ignored the point of the comment; individuals will be subject to much higher exposure during summer months than other months. If the County believes that is not so, then it should have explained why it is not so. If the County believes that it is so, or may be so, but is not relevant, then the County should have explained that as well. Instead, it did neither, leaving the reader with no information about whether exposure spikes are either likely or relevant.

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Coalition's Comments on FEIR Regarding Baseline

8. Comments 30-45. The FEIR fails to respond adequately to the comments related to determining an accurate production baseline. Because of the fundamental importance of a baseline, the FEIR should have made a greater effort to determine an accurate 1982 baseline. The details we provided in our DEIR comments were merely dismissed.

It is unclear why the FEIR includes 1980 and 1981 in its calculation and not also 1979 in seeking to determine the baseline for 1982, all of which are reported in the referenced Basalt document, which the FEIR now acknowledges. To determine the normal baseline operation in 1982, one could consider 1982 tonnage produced in isolation, which was 1,473,000 tons. Alternatively, the FEIR could have considered all of the 1979 data offered in the "Table 2 Summary Tonnage and Data" from the 1984 Merrill Lynch Basalt Rock report. Had it done so, the baseline would be about 200,000 tons lower. The following table is an excerpt from the Basalt Merrill Lynch Report illustrating this point.

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Table 2. Historical Tonnage and Revenue – McNear Quarry

<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
692,000	1,467,000	1,304,000	1,473,000

The average of 1980 to 1982 = 1,504,600

The average of 1979 to 1982 = 1,301,500

By excluding 1979, the baseline estimate is inflated. As was stated in our DEIR comment letter, these computations are inconsistent with other reliable documents. A key source of baseline information is the testimony of Norman T. Gilroy, of Gilroy and Associates, at the 2004 trial of Marin County Case No. CV014584 regarding his May 12, 1982, letter to Mehdi Madjd-Sadjadi, Assistant Land Development Engineer of Marin County Department of Public Works. On page 4, paragraph 6, Mr. Gilroy wrote:

"The vast majority of the material quarried at the property is shipped out by deep water barge, thereby minimizing the kind of truck traffic which might normally be associated with an operation of this size."

Gilroy testified at trial that a reasonable interpretation of "vast majority" is that at least 75% of material quarried at the property in 1982 was shipped out by barge, meaning that at most 25%, or 368,250 tons, were shipped out by truck in 1982.

Gilroy also testified that Basalt was sensitive to the neighbors' concerns with the truck traffic and accepted many barge projects to take traffic off the road. Thus, there is no valid basis for making any upward adjustment from the 1982 baseline figure of 368,250 tons. Despite Gilroy's assurance that no increase in truck traffic was expected, 456,775 tons of materials were shipped out by truck in 1989, the first year for which SRRQ provided data. In 2000, 748,220 tons were shipped out by truck in 2001, 713,382 tons were shipped out by truck. These are the two years for which SRRQ provided data.

The 2000 tonnage trucked out is a 103% increase over the amount estimated to have been trucked out in 1982, a very substantial intensification of truck use. The Quarry has significantly exceeded the estimated 368,250 ton baseline figure for every year for which records are available between 1989 and 2001. This court record is open to the public and available to the County of Marin in determining an accurate baseline production and, separately, the means of transporting the material produced.

Finally, production in the early 1980s was impacted by several storms affecting the Delta and the broader Bay Area. Damage caused by these storms resulted in atypical increased production activity. The FEIR considered none of these facts when determining the baseline.

9. Comment 30-46. Truck traffic has been a major problem to the residents of Pt. San Pedro Road. Volumes of complaints have been officially logged with the County. The FEIR brushes off the concern for a traffic study because the FEIR *assumes* that trucks were used to transport half of the Quarry's products and SRRQ proposes to keep the trucks to that same level (250 one-way trips, or 125 loads, per day).

As noted in comment 8 above, the testimony of Norman Gilroy directly contradicts the estimate of Tom Lai made in the DEIR. On page 16, section F.4.2 of the DEIR, it is noted that

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the DEIR utilized information from Norman T. Gilroy and Associates. The FEIR, however, fails to acknowledge this testimony and reconsider the baseline for transporting the material.

The FEIR conclusion that the project results in no significant impact on transportation depends on the County's overestimation of production and truck shipping. It is interesting to note that such overestimates are coincidentally consistent with the interim conditions that are currently in place (*i.e.*, 125 roundtrip truck trips per day).

10. Comment 30-82. The FEIR continues to claim that there are "no known records of the truck trips associated with quarry operations in 1982," yet the Gilroy letter and testimony are in the County's possession, as noted above in comment 3-45.

11. Comment 30-84 and 30-85: The FEIR does not respond to this comment. It merely refers back to the "assumptions of half shipped by truck." The Coalition has reviewed the entire Merrill Lynch report and, based on the production noted, an analysis was provided in Exhibit D of our DEIR comments. This analysis indicates that the average of 1979-1982 production would total 60 trucks at 25 tons, for a daily tonnage average of 1,500. If the baseline were to consider only 1982, 58 truck trips per day would be the maximum, not 125 truck trips. Even when using the more liberal estimate of 50% of materials being shipped by barge rather than Gilroy's 75%, the 1982 tonnage shipped by truck would be 352,500 tons of material for the year. The Court approved 125 trucks per day at 25 tons per truck, for a daily tonnage of 3,125. These 125 truck shipment allowance increases the allowed amount of material trucked by 1,625 tons over the 1982 base line (3,125 - 1,500), representing a 112% increase over the baseline.

The FEIR should have included the complete record to determine the baseline production of 1982, including the complete Merrill Lynch report and the testimony of Mr. Gilroy. The FEIR should have provided a more accurate estimate of the number of days that the Quarry operated during 1979 through 1982 and its current hours and days of operations.

The FEIR translates tonnage into truck trips using an average truck size as its denominator. Over the years, the gravel trucks coming to and from the Quarry have increased materially in size from 20 tons to 25 tons. Moreover, since a high percentage of the materials shipped out of the Quarry go to the Quarry's other plants in Richmond and Petaluma, the FEIR should have studied the impact on the community if these loads were shipped by barge instead of trucks.

12. Comment 30-86. There appears to be inconsistency in responses to the many FEIR comment letters on the issue of asphalt production at the site. These inconsistencies should be resolved and the resulting environmental impacts reassessed.

13. Comment 30-106. This comment stated the Coalition's concern that there was a lack of adequate research behind the production baseline, though the FEIR now acknowledges the full Basalt report. However, the FEIR "cherry-picked" data from one table in the 23-page report, then stated that there was no additional information in that report that would require a revision of the project description and baseline description. This statement, however, fails to recognize the importance of the testimony by Mr. Gilroy in the lawsuit against the Quarry by the Coalition and the County of Marin.

Coalition's Comments on FEIR Regarding Noise

14. Comment 30-74. The FEIR concludes that the noise and vibration from truck speed under the AQP would not exceed the levels "apparently" experienced in 1982. The FEIR

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presents no evidence supporting this conclusion. There are at least 5 years of neighbor complaints relating to noise and vibration of truck traffic. The FEIR lacks credible response to the comments offered by the community in the DEIR on this issue.

15. Comment 30-70 through 30-82. The FEIR fails to respond adequately to all of the comments and concerns related to noise and vibration. The City of San Rafael's noise ordinance is somewhat stricter than the County's general plan statements on the noise impacts, but the FEIR finds the City's ordinance to be inapplicable because it claims that ordinance is not enforceable on the Quarry (since the Quarry is in the County's jurisdiction). The comment misses the point. It is entirely appropriate for the County to impose whatever reasonable noise restriction it deems appropriate on the Quarry as a condition of its permit. Because the residents who are affected by Quarry noise live in the City, it is entirely appropriate for the County to impose on the Quarry a noise standard that is the same as the City's standard and resulting mitigation conditions.

The City's ordinance calls for a limit of 60dBA for constant noise and 70dBA for intermittent noise on industrial property. The Marin Countywide Plan Noise Element that applies to industrial facilities calls for a maximum daytime noise level of 70dBA and a nighttime max of 65dBA, with a limit of 65 for daytime and 60 for nighttime for what is termed "impulsive noise." Section 6.70 of the Marin County Code also has a provision restricting the "creation and continuation of loud, unnecessary, or unusual noise." The FEIR addresses this ordinance as well and concludes in Section 4.7-6 of the FEIR that none of the specific provisions of this ordinance pertains to normal quarrying operations or traffic noise, other than a prohibition on the unnecessary sounding of vehicle horns and signaling devices. Since the County lacks the necessary regulations to regulate properly an industrial non-conforming use in a residential neighborhood, it should apply a standard identical to the City's more developed policy. The City ordinance regulates both intermittent noise (Leq) and average/constant noise (Ldn). The FEIR ignores the intermittent noise (Leq) and only considers noise averaged over a 24 hour period. Because this approach includes night hours when the SRRQ is closed, the actual impacts of noise generated during the business day is improperly attenuated.

Similar to the biases we discuss with regard to air quality, this approach to determining noise levels is a travesty to those neighbors whose lives are disrupted by the intermittent noise of blasts, barge loading, crushers, trucks and peckers (the pointed rock-breaking device that emits a continuous staccato sound as it operates). The FEIR must consider the intermittent noise impacts as reflected in years of complaints by residents, and consider applying the standards of the City's noise ordinance given that so many of the SRRQ neighbors live within the City limits.

16. Comment 30-77. Noise from McNear's Brick Yard, a tenant of SRRQ, continues to be ignored in the cumulative impacts of noise from the Quarry property. Noise from the brick yard is a factor in this environmental impact. Complaints from the residents about the brick yard noise continue to be lodged with the County of Marin, yet this study ignores the comments to include it in the assessment.

17. Comments 30-81 and 20-82. The FEIR again ignores the comments to the DEIR suggesting noise and vibration studies be conducted related to truck trips on Pt. San Pedro Road, using the argument that there is "no change in the number of daily maximum truck trips with the implementation of either the ARP or the AQP. This assumption is again based upon the faulty and undocumented transportation baseline assumptions of County staff.



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18. Comment 30-70 and 30-71. The FEIR discards our concern with the DEIR's analysis of vibration impacts from haul trucks using Pt. San Pedro Road. The FEIR uses a theory that rubber tires and truck suspension systems isolate vibration, leading to the assertion that it is unusual for trucks to cause ground borne noise or vibration problems. The FEIR further states that "... the level of truck-induced vibration likely to be experienced by residents along Pt. San Pedro Road can best be characterized as an annoyance." This is a theory. In reality, the County has received complaints from residents with homes on Pt. San Pedro Road complaining of the house vibrations from the passing of 20 and 25 ton trucks. There is a need to conduct truck traffic vibration and noise studies.

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Coalition's Comments on FEIR Regarding Other Issues

19. Comment 30-47 and Comment 30-86. The FEIR states that the 2-minute interval currently in place is proposed to continue, and that there was no such requirement in 1982. It further states that this will result in an "improvement" in effects of truck traffic over the baseline conditions. The FEIR statement in comment 30-86 that the 2-minute interval reflects current operations ignores the fact that this procedure still fails to prevent the existence of truck caravans on Pt. San Pedro Road and truck bottlenecks at the 3rd Street and Union intersection.

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20. Comment 30-85. The FEIR fails to include consideration of trucks that do not get measured at the scale house. For example, oil and sand must be delivered for the asphalt plant on site, but these trucks were not included in the FEIR assessment. They create environmental impacts and therefore should be included in the EIR analysis.

21. Blasting Effects on People Inside Structures. The FEIR continues to ignore the perceptible impacts of blasting on people and pets inside the homes and structures in close proximity to the SRRQ. The FEIR does not rectify the problems noted by comments to the DEIR that blast impacts are only measured at the ground level and not at the structures. As has been repeatedly documented, Quarry blasts continue to elicit complaints to the County. Inadequate study has been conducted over the past 5 years of preparation of this document of the affect of using fewer pounds of explosives per delay, electronic detonation and pre-splitting and other techniques that could reduce vibrations within nearby structures. The FEIR should not be certified without these studies.

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22. Water Mixing Inside the Pit. The FEIR concludes that a mechanical mixing or aeration system could be installed to ensure adequate water quality in the flooded bowl. The Coalition finds it hard to know where to begin to comment on such a proposal. Since the FEIR provides no details on the plan, there is nothing on which to comment except the County's bald assurance that such a proposal is feasible. The FEIR might have discussed its broad operational features, who would pay for its implementation and its maintenance forever into the future, what happens when it breaks down, how effective it would be, how rising sea levels might affect the system, where it has been employed in other environments, what emissions will result from the operation of such a system, whether some alternative source of power could be used, how the system would handle the tidal and storm surge that is created by a changing tide, etc.

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Worth noting is an analysis published in March 2009, prepared for three California state agencies, in which the Pacific Institute estimates that 480,000 people, a wide range of critical infrastructure, vast areas of wetlands and other natural ecosystems, and nearly \$100 billion in property along the California coast are at increased risk from flooding from a 1.4-meter sea-level rise (nearly 5 feet) by the end of this century. If this occurs, how would this affect the system?

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To all these questions, we have a conclusory statement from the County that in effect says "trust us, we know it works."

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It is unimaginable that a reclamation plan depending on the system described could be approved with no published analysis and no information on which the public can even comment.

23. Comment on Revised Page 2-14 (Vol. I). The FEIR revised the Reduced Alternative by including a requirement that the Quarry study and implement feasible measures to reduce toxic air contaminant emissions and noise. The provision gives the Quarry 2 years to implement these measures. The Quarry and the County have already had over 5 years to determine what feasible measures might be taken to mitigate the Quarry's dust and noise problems, and the process continues even now. Although we support the apparent intent of this provision (to require the implementation of a best practices program for reducing dust and noise), neither the elements of the program nor the timing of its implementation should be controlled by the Quarry. An independent entity with mining operation experience should be engaged by the County (at the Quarry's expense) to determine, with input from the Quarry, what measures are feasible with a view to implementation within 1 year. The new operating permit (based on a significantly modified Reduced Alternative, as previously suggested) should expire one year from issuance with no renewal unless and until these best practice measures have been implemented.

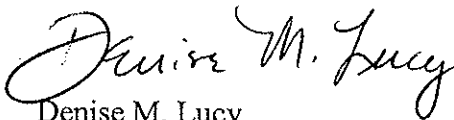
F-22

In conclusion, the County should remedy the problems with this FEIR before it is certified for approval. We are very concerned that the Final EIR resolve the flaws and inaccuracies noted in this letter its attachments, since the EIR will likely be used for many years to come as the authoritative document on Quarry environmental and health matters.


F-23

Should you have any questions, please contact either of us.

Sincerely,



Denise M. Lucy
Co-President



Bonnie Marmor
Co-President

Enclosure

Comment Letter F: Denise M. Lucy and Bonnie Marmor, Co-Presidents, Point San Pedro Road Coalition

F-1 The San Pedro Road Coalition's comments on the Draft EIR are included in Volume II of the Final EIR as Comment Letter 30. All comments are responded to fully and completely in the Final EIR.

F-2 The averaging of 17 years of exposure to toxic air contaminants over a 70 year lifetime for cancer risk analysis is consistent with OEHHA guidance, as discussed in the response to comment 30-17 in Volume II of the Final EIR. Both the analysis of criteria air pollutant emissions and that of toxic air contaminants in the Final EIR rely on emissions modeling, and do not, as alleged in the comment, "...selectively adopt favorable air quality test results while rejecting less favorable results..." The results of the most recent, comprehensive, and relevant (in terms of the pollutants monitored) County-sponsored ambient air quality monitoring, conducted by STI under contract with the County in 2004 and 2005, supports the conclusions of the air quality analysis. Offset credits are specified as a final measure to reduce criteria pollutant emissions and greenhouse gases to less-than-significant, but only after other measures are taken to reduce emissions from the Quarry itself. The health risk analysis concludes that future Quarry operations and reclamation will contribute to a cumulatively significant cancer risk for nearby residents. See Impact 4.2-12 in Section 4.2, Air Quality, in Volume I of the Final EIR. The Final EIR specifies many mitigation measures that will reduce the impacts of the Quarry on its neighbors.

The County considers the baseline used for truck traffic reasonable and appropriate. Please see Master Response 3 in Volume II of the Final EIR.

The role of the EIR is to disclose and mitigate potential environmental impacts of the proposed projects, and the Final EIR does this; it is not the role of the EIR to give assurance that the Quarry is operating safely, but the EIR will be used by County decision-makers when deciding how to amend the quarry permit and approve the Amended Reclamation Plan.

The remainder of this comment addresses the merits of the projects, not the environmental analysis.

F-3 Please see comment letter G and responses to it, below.

F-4 Please see comment letter E and responses to it, above.

F-5 The commenter is confusing the analysis of criteria air pollutants (including organic gases, NO_x, PM₁₀ and CO), which is considered in Impacts R4.2-1 and R4.2-2, with the health risk analysis, which examines impacts of exposure to toxic air contaminants (such

as diesel particulate matter and crystalline silica), not criteria air pollutants (Impacts C4.2-9 through C4.2-12). No “borrowing of the baseline from operations” occurs in the air quality analysis. See the revised discussion of baseline and air quality impacts in the responses to comments D-20 and D-21, above. The Final EIR uses significance thresholds established by the Bay Area Air Quality Management District for criteria air pollutants, which are based on daily and annual emissions: see page 4.2-27 in the Final EIR. Even if there is some intensification of activities during non-summer months, as long as this does not exceed the daily and annual threshold, there is no significant impact related to criteria pollutant emissions.

The commenter is apparently under the mistaken impression that Mitigation Measure R4.2-1i (purchase of offset credits to reduce project emissions below threshold values) applies to toxic air contaminants. It does not. It only applies to criteria air pollutants.

- F-6 Regarding the Onsite study, in addition to the response to comment 23-18, see also the response to comment 45-6 in Volume II of the Final EIR. As discussed in that response, the Onsite Study appears not to have conducted an analysis of crystalline silica concentrations in ambient air in the vicinity of the Quarry, but only of *total* silica (crystalline silica combined with amorphous silica). The Onsite study is therefore of little use in determining health risk. The STI study did analyze concentrations of crystalline silica separately from amorphous silica. As reported in the Final EIR, detectable quantities (greater than 0.5 micrograms per cubic meter($\mu\text{g}/\text{m}^3$)) of crystalline silica were not found in any of the fifteen filters analyzed. Only one of the 15 samples contained amorphous silica in excess of the detection limit, at a concentration of $0.6 \mu\text{g}/\text{m}^3$, which is well below the federal relative exposure level (REL) for amorphous silica of $6,000 \mu\text{g}/\text{m}^3$ (the chronic REL for crystalline silica is $3.0 \mu\text{g}/\text{m}^3$ as an average concentration over one year). Because of the differences in methodologies, the two studies cannot be compared; the STI study is considered more representative and more informative of current conditions, for the reasons specified in the responses cited above. As stated in the response to comment F-5, above, the Final EIR does not rely on the STI study nor any other empirical study in its analysis of criteria air pollutants and health risk analysis, but rather uses computer modeling of emissions, pollutant dispersion, and exposure levels.

The Final EIR does not conclude that “there is no dust problem” associated with the Quarry. Impacts R4.2-1 and R4.2-2 (increases in criteria pollutant emissions associated with reclamation phases 1-3 and 4, respectively) both identify increases in PM10 emissions as significant, and specify a broad suite of mitigation measures to reduce dust emissions. Diesel particulate matter (DPM) emissions are identified as causing a significant increase in cancer risk; see Impact C4.2-9 and C4.2-12. Crystalline silica emissions are also examined, but associated health risks are found to be below the threshold of significance. See Impact C4.2-10 in Volume I the Final EIR, and Master Response 101 in this document.

Water spraying of unpaved roads and processing operations that create dust is an effective means of reducing dust emissions.

- F-7 As previously stated, the averaging of 17 years of exposure to toxic air contaminants over a 70-year lifetime for cancer risk analysis is consistent with OEHHA guidance, as discussed in the response to comment 30-17 in Volume II of the Final EIR. Cancer health risk is based on lifetime exposure to a toxic substance. Exposure to DPM at a particular concentration, x , for 17 years, then no exposure for the remainder of a 70 year lifetime, is equivalent in terms of health risk to exposure to $(17/70)x$ for an entire lifetime.

Impact C4.2-12 (cumulative health risks associated with past, current, and probable future toxic air contaminant emissions) in Volume I of the Final EIR considers the possibility of additional health risk from mining operations, as well as post-reclamation land use, beyond the projected operational life of the Quarry under ARP04.

The methodology for the health risk assessment, included discussion of the 17 year exposure period and averaging over a 70-year life span, was discussed in the Draft EIR, on page 4.2-49. See also Appendix D of the Draft EIR (reprinted with minor corrections in Volume III of the Final EIR; see pages D-23 and D-24).

- F-8 Continuous air quality monitoring is unnecessary, and, as has been shown through this EIR process, subject to uncertainty and open to criticism. Emissions can more easily and definitively be modeled based on reported and verified operational parameters, such as truck trips and mobile equipment usage. The County regularly inspects the Quarry; specific points for periodic inspection are included in the draft Mitigation Monitoring Measures – see these at the conclusion of each impact statement. These measures will be finalized and adopted at the time of project approval (should such occur).
- F-9 The Reduced Project Alternative to the AQP includes a requirement to identify and implement additional measures to reduce dust, beyond those necessary to reduce impacts to less than significant. Please refer to Chapter 6 in the Final EIR.
- F-10 The County had considered offset credits, but was under the mistaken impression that these could not be applied to mobile source emissions. Therefore, in addition to this mitigation measure (Mitigation Measure R4.2-1i), Mitigation Measure R4.2-1j is added in the Final EIR.
- F-11 The annual average concentrations were reported, because the REL established by OEHHA for crystalline silica is based on the health effects from chronic exposure to crystalline silica. OEHHA has not established an acute REL for crystalline silica. Although levels may be higher in summer time, the annual average concentrations factor in these levels when calculating annual average levels. Response C-4 explains that the ACGIH 8-hr TLV for crystalline silica is not an actual acute (one-time) exposure level, but it assumes daily worker exposure to this level over 40 years. In addition, the annual average crystalline silica levels that were reported in the modeling analysis were

calculated using emission factors that were derived from measurements of similar operations during summer months, and they reflect worst-case conditions.

- F-12 As stated in the response to comment 30-45 in the Final EIR, the County reviewed the Merrill Lynch report in its entirety and did not find any information contained therein that conflicts with or suggests the need to modify the baseline as presented in the Draft and Final EIRs. The basis for selection of the average production in the years 1980-82 is provided in this response as well. The commenter would include 1979, presumably because it involved a lower level of production. However, the EIR uses 1982 and the immediately preceding two years to determine a baseline for 1982 because these years reflect conditions at the time and immediately before the use became non-conforming. See also the response to comment D-21.

No written records have been found or have come to light that provide any definitive information on actual truck trips or amount of product shipped by truck in the years around 1982. The Court was unable to determine more than a range of truck trips for that time (from 153 to 307); see the Statement of Decision at page 13. It is interesting to note that 307 truck trips would, in the Court's view, equate to 50% of material being shipped by truck. The assumption that, on average, one half of the material produced by the Quarry was shipped by truck in 1982 is a sound exercise of judgment in light of what is known and the absence of any more definitive information source. The use of 250 trips to reflect this allocation is less than the Court found to be possible, and the Court heard all of the evidence.

- F-13 Please see response to comment F-12.

- F-14 The comment lacks sufficient specificity to enable a response. Final EIR comment 30-86 (see Volume II of the Final EIR) does not address asphalt production. Current asphalt production is described in Chapter 3, Project Description, of the Final EIR; air quality impacts associated with asphalt production, including health risks, are considered in Section 4.2, Air Quality.

- F-15 As stated in the response to comment 30-106 in Volume II of the Final EIR, the 1984 Basalt Rock report by Merrill Lynch was reviewed in its entirety in preparation of the Final EIR. No additional information was found that would suggest that the baseline, as defined in Chapter 3, Project Description, of the Final EIR is flawed or inaccurate. This comment does not point out any such information contained in the Basalt Rock report.

- F-16 The statement in the response to comment 30-74 in Volume II of the Final EIR relies on the baseline as defined in Chapter 3, Project Description (Volume I of the Final EIR).

Regarding imposition of noise standards, while the County has the ability to impose some other standard as a condition of approval, the use of the City of San Rafael noise standards instead of the County's as a threshold of significance in the County's CEQA

- document would be inappropriate. The Final EIR identifies a significant unavoidable land use incompatibility impact (Impact C4.6-7) due to annoyance from Quarry operations, including truck traffic, noise, blast vibrations, dust, etc. See Section 4.6, Land Use and Planning, in Volume I of the Final EIR.
- F-17 Noise monitoring conducted for the EIR to characterize ambient noise levels in the vicinity of the Quarry did not find that McNear's Brickyard is a prominent noise source in the area. See Table 4.7-4 and pages 4.7-11 through 4.7-18 in Volume I of the Final EIR. The potential for noise from the Quarry contributing to a cumulative noise impact is contemplated in Chapter 5 (page 5-12) of Volume I of the Final EIR; no significant cumulative impact is identified. Please see the response to the previous comment regarding the cumulative land use impact.
- F-18 Please refer to the response to comments 30-70, 30-71, 30-81, and 30-82 in Volume II of the Final EIR. Since there is no proposed increase in truck traffic associated with the projects, no new impact related to truck traffic, including noise and vibration, is identified. The Final EIR adequately characterizes the current noise and vibration environment in the areas around the Quarry and affected by Quarry truck traffic.
- F-19 The traffic conditions cited in the comment are considered part of the setting for the purposes of the EIR analysis, and are not expected to be exacerbated by the project as proposed; therefore there is no basis for a finding of a significant impact.
- F-20 The Final EIR does not ignore the impacts of blasting on neighbors of the Quarry. See Impact C4.6-7 (Continuing operation of the Quarry under the proposed AQP and ARP would result in continuing incompatibility with neighboring residential and recreational land uses), which is found to be significant and unavoidable; and Impact P4.7-7 (Continued blasting at the Quarry would expose neighbors of SRRQ to vibrations that exceed human annoyance levels), which is found to be significant but mitigable.
- F-21 The EIR preparers conducted research on available, proven technologies for aerating and destratifying deep water bodies, and concluded that methods are available to address the potential water quality issues that may occur when the Main Quarry Bowl is flooded. See Master Response 7 in Volume II of the Final EIR. Mitigation Measures R4.5-6, which was added in the Final EIR (see Section 4.5, Hydrology and Water Quality, in Volume I of the Final EIR), requires the applicant to prepare and submit an engineering and economic report within one year of approval of the Amended Reclamation Plan, that details the design and future operation and maintenance of a mechanical mixing or aeration system, or another engineered approach, that will result in avoidance or elimination of a stratified water column within the Main Quarry Bowl after it is flooded. The report must be prepared by qualified limnologists and water quality engineers. The system design specified in the report must be at a schematic level and stamped by a California professional engineer, and must include calculations that demonstrate that the system will maintain water quality objectives established in the San Francisco Bay Regional Water Quality Control Board's Basin Plan. The report must include an analysis

- of operating and maintenance costs for the system, as well as predicted energy requirements and greenhouse gas emissions, and a plan for minimizing both of these; and must identify a funding source or mechanism to ensure continued operation of the system after installation. Further, the County will use this information to establish financial assurances for reclamation, as required by SMARA. The issue of predicted sea level rise, as a consequence of global climate change, is addressed in Mitigation Measure R4.5-8 in Section 4.5, Hydrology and Water Quality, in Volume I of the Final EIR.
- F-22 Comment noted supporting the FEIR's requirement under the revised Reduced Alternative that the Quarry study and implement feasible measures to reduce toxic air contaminant emissions and noise. Regarding the statement that the County should contract with an independent qualified entity to conduct such a study, the County could certainly elect to do that or could instead ensure that any Quarry-prepared study is peer-reviewed as is its current practice for highly technical studies. The two-year implementation timeframe called for in the EIR is reasonable.
- F-23 The EIR preparers and County staff believe the EIR is complete and adequate under CEQA.

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March 16, 2009

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MAR 17 2009

Dr. Denise Lucy and Ms. Bonnie Marmor
Co-Presidents
Point San Pedro Road Coalition
732 Point San Pedro Road
San Rafael, California 94901

COUNTY OF MARIN
COMMUNITY DEVELOPMENT AGENCY
PLANNING DIVISION

Subject: SCS Engineer's Review Comments Regarding the Final Environmental Impact Report (FEIR) for the San Rafael Rock Quarry Amended Reclamation Plan and Amended Surface Mining and Quarrying Permit, Focusing on Health Risk Estimation, Air Dispersion Modeling and Emission Rate Estimation.

Dear Dr. Lucy and Ms. Marmor:

SCS Engineers (SCS) has completed its focused review of the FEIR (dated January 2009) for the San Rafael Rock Quarry (SRRQ) Amended Reclamation Plan (ARP) and Amended Surface Mining and Quarrying Permit (ASMQP). This review focused on those aspects of the FEIR most important to the accurate estimation of health risks associated with crystalline silica (C-silica) and diesel particulate matter (DPM). C-silica and DPM are the most important health risk issues related to the current and proposed operations of the SRRQ as discussed in our previous comments on the draft EIR (DEIR) (SCS letter dated April 10, 2009).

COMMENTS

1. The text on the bottom of page 4.2 of the FEIR which states, "Non-cancer health risks evaluated include adverse health effects from both acute (highest 1-hour exposure) and chronic (1-year exposure)" is misleading since *no acute evaluation* was conducted for the two contaminants of greatest concern, C-silica and diesel particulate matter (DPM). In fact the highest 1-hour concentrations of these two contaminants are not even reported in the FEIR. This omission is acknowledged for C-silica in the response to Comment 30-14 as follows:

"Note that OEHHA [Office of Environmental Health Hazard Assessment] has not identified a short-term or acute REL for crystalline silica. As such, the HRA addressed the chronic exposure to crystalline silica *and not acute exposure* [emphasis added]".

The statement on the bottom of page 4.2 should therefore be revised to make it clear that no acute evaluation of these two important contaminants was actually conducted.

G-1



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Like the DEIR, the FEIR still does not address the issue of potential adverse health effects related to elevated acute or short-term concentrations of C-silica, particularly at sensitive receptors like schools. This issue has two parts: First, the FEIR does not even report short-term average (not annual-average) concentrations at these sensitive receptors to begin with, and second, the FEIR continually points to the absence of an acute Reference Exposure Level (REL) as the reason such effects were not evaluated. With respect to the first issue, maximum 1-, 4-, 6- and 7-hour average concentrations of C-silica at the sensitive receptors noted above should be reported clearly in the FEIR. These values are actually contained in the DEIR Hot Spots Analysis and Reporting Program (HARP) modeling output. However, they are not reported or discussed in either the DEIR or the FEIR. The 30-day average concentration was derived by SCS from the DEIR HARP output using standard OEHHA conversion factors as described below under Comment 6.

With respect to the second issue, of course the availability of a regulatory acute REL for C-silica would make an evaluation of short-term concentrations simple and more straightforward. *However, the absence of such a value does not mean potential adverse effects associated with short-term effects do not exist or cannot be evaluated at all—only that such an evaluation may take more professional judgment from a qualified environmental health professional such as a toxicologist.* Such an evaluation might include, for example, comparison of modeled concentrations to effect levels reported in the published literature. In short, the potential issue of adverse effects due to periodic exposure to short-term, but high concentrations of C-silica cannot be dismissed simply because a regulatory benchmark has not been developed. At a minimum, the short-term average concentrations noted above for C-silica should be reported for sensitive receptors and a qualitative discussion of potential impacts added.

We have reviewed the DEIR/FEIR HARP modeling files and found, for example, that the maximum 7-hour average concentration of C-silica is 481 $\mu\text{g}/\text{m}^3$! This is well above the 3 $\mu\text{g}/\text{m}^3$ OEHHA REL and is in fact well above even the American Conference of Governmental Industrial Hygienists (ACGIH) occupational exposure limit for C-silica of only 25 $\mu\text{g}/\text{m}^3$! (ACGIH, 2007). Although not strictly comparable, the fact that for up to 7 hours individuals in the community may be exposed to concentrations of C-silica almost 20 times an occupational exposure limit is cause for concern. Note that nowhere in the FEIR text or main tables is this 7-hour average concentration for any emitted contaminant actually reported. In short, despite numerous previous comments on the DEIR regarding the need to adequately address elevated, short-term impacts, the FEIR fails to do so. The assessment of short-term impacts is particularly important and relevant in the case of this rock quarry expansion because of the episodic nature of the exposures (due for example, to periodic, but regularly occurring blasting). These are short-term phenomena which will have short-term, but potentially significant consequences.

G-1
cont.

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2. The FEIR attempts to make a case that C-silica is not carcinogenic unless silicosis is a preexisting condition (Response to Comment 30-13). However, no such qualifier is present in the statements of the International Agency for Research on Cancer (IARC), the leading worldwide agency for identifying carcinogens, which read as follows (IARC, 2009):

There is *sufficient evidence* in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources.

There is *sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite.

Response 30-13 also states the following:

“Since the OEHHA report [the OEHHA REL document] analyzed health outcomes from environmental exposure to crystalline silica, it assumed that chronic levels of crystalline silica would not be great enough to result in the formation of silicosis. It thus concluded that, based on studies, such as the de Klerk study, there is no statistical evidence for the formation of cancer in the absence of silicosis. OEHHA established only a chronic non-carcinogenic relative exposure level (REL), and it did not establish a carcinogenic toxicity factor for the substance.”

The above statement is highly misleading. Nowhere in the cited OEHHA report (OEHHA, 2005), does it conclude that “there is no statistical evidence for the formation of cancer in the absence of silicosis”. In fact the stated report does not even address the carcinogenic aspects of C-silica because *the scope of an REL document is to discuss non-cancer health effects of a chemical only* in support of development of a non-cancer effect-based REL. The carcinogenic aspects of a chemical are typically discussed in a cancer potency factor support document. Furthermore, the OEHHA report also does not even cite the de Klerk study as implied by the above FEIR statement. Contrary to the FEIR statement quoted above, a review of the primary literature indicates that the question of whether silicosis must occur prior to lung cancer induced by C-silica is not resolved as noted by Calvert et al. (2003):

“Although many studies observed that silicotics have an increased risk for lung cancer, a few studies, including ours, found evidence suggesting the lack of such an association. Although this lack of consistency across studies may be related to differences in study design, it suggests that *silicosis is not necessary* [emphasis added] for an increased risk of lung cancer among silica exposed workers.”

Hardy and Weill (1995) draw a similar conclusion:

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"The extent to which any lung cancer risk associated with [crystalline] silica exposure is confined to those with silicosis cannot be answered at this stage."

↑ G-2
cont.

3. The FEIR also seems to call into question the carcinogenicity of C-silica generally (Response to Comment 30-13). For example, the FEIR implies that since no agency has developed a cancer potency factor (CPF) for C-silica this is evidence of lack of concern regarding C-silica carcinogenicity.

The absence of a cancer potency factor for a chemical such as C-silica, especially when that chemical is considered a *human* carcinogen by IARC, should not be taken as evidence that the chemical is not a carcinogen or has limited carcinogenic effect, but rather simply that the regulatory agencies have not *yet* developed a CPF for it. Developing CPFs is a complex, time-consuming, and expensive task, and regulatory agencies cannot develop CPFs as rapidly as are needed to address all carcinogenic chemicals. In short, C-silica is a carcinogenic chemical for which a CPF *should* be developed but it simply has not been done yet.

G-3

Furthermore, if there was significant dispute regarding the carcinogenicity of C-silica (at least in California), why is C-silica listed as a carcinogen under California's Proposition 65? Note also that the Proposition 65 listing contains no mention of silicosis or occupational exposure as a necessary precondition for the carcinogenic potential of C-silica.

A relatively recent study confirms the conclusions of IARC with respect to C-silica carcinogenicity in animals. Rats exposed to relatively low levels of C-silica (1 mg/m³) for 6 hours a day, 5 days a week for 24 months, developed a significantly increased incidence of primary lung tumors (Muhle et al., 1995).

4. Note in Response 30-8 the units of the cancer potency factor are incorrect. The correct units for cancer potency factors are (mg/kg-day)⁻¹.

G-4

5. Response 30-20 states that the portable aggregate plant does not operate at the SRRQ. If the aggregate plant does not operate at the SRRQ why were its emissions calculated (see Appendix D, Section C)? Where is the aggregate plant located? Most importantly, why were the emissions calculated *but not included in the HRA risk calculations*? If the portable aggregate plant is located onsite or nearby, the omission of the portable aggregate plant emissions from the health risk calculations results in the underestimation of non-cancer health risks attributable to C-silica.

G-5

6. In Response 30-14 it is stated "The values [short-term average concentrations] reported in the commenter's figures could not be derived from the Draft EIR dispersion modeling information or from any information provided within the comment." All the short-term concentrations presented in our comments on the DEIR were in fact obtained directly

G-6
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from the DEIR HARP modeling output or derived from that HARP output using standard OEHHA conversion factors. The short-term average concentrations we presented for the 1-, 4-, 6-, and 7-hour averaging periods are the highest ground-level concentrations (GLCs) *provided in the DEIR HARP* modeling output. Specifically, all peak concentrations were at receptor 350 using the VMP meteorological dataset. The 30-day average concentration, on the other hand, was derived by SCS using the maximum one-hour concentration of 652 $\mu\text{g}/\text{m}^3$ calculated using HARP in the DEIR, multiplied by the appropriate standard conversion factor of 0.3 found in Table 4.3 of the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2003)

G-6
cont.

7. Emissions from the project may be improperly averaged over a 70-year period for the purposes of calculating *noncancer* health risks. The emission rate used to calculate *noncancer* health risks should be the typical annual emission rate *during the period of operation*. It should not be an annual average emission rate that reflects many years of nonoperation when there are zero emissions. The latter approach will artificially lower the annual average emission rates of C-silica and DPM, and artificially lower modeled GLCs and corresponding noncancer health risks, as reflected in the Hazard Quotient and Hazard Index.

G-7

We made a similar comment to the above regarding the DEIR. In the FEIR response to the above comment (Response 30-15) it is stated that although a 70-year averaged annual emission rate was in fact actually used initially to calculate C-silica air concentrations, a correction factor of 70/17 or 4.2 was used to correct the emission rate back to an operational period basis. However, the Hazard Index of 0.61 presented in Table 4.2-17 is significantly lower than 4.2 times the maximum HI of 0.18 (from the HARP files) or 0.75. Please provide additional explanation as to how this important calculation was done (including receptor locations and numbers and filenames used by HARP) so that it can be reproduced and verified.

8. It is important to note that the cancer risks estimated in the FEIR assume the facility will be shut down after 17 years of operation and that there will be *zero* emissions of carcinogenic contaminants in years 18-70. If at year 18, however, the facility instead opts to continue operations instead of shut down, as stated in the FEIR, the estimates of cancer risk in this FEIR will be underestimates of the actual cancer risk for the 70 year period included in this FEIR.

G-8

9. The emission rates in the HARP input files cannot be confirmed. As a result, the results of the health risk assessment (HRA) cannot be confirmed. Table 30-17.1 presents the C-silica emission rates said to be used in the HRA, but the emission rates contained in the HARP emission files (and used to calculate health risks) do not match the emission rates shown in Table 30-17.1. For example, the C-silica emission rate shown in HARP for reclamation (Source 8) is 124 lb/day with a multiplier of 22.8 for a total of 2,827

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lb/yr. However, the emission rate given for reclamation in table 30-17.1 is 6,084 lb/yr. The reduced emission rate actually used in HARP is only 46 percent of the value presented in Table 30-17.1 and will result in a 46 percent reduction in the corresponding modeled air concentrations and risk estimates for that source. The emission rates used in HARP should match those shown in Table 30-17.1, and any calculations used to convert emission rates shown in Table 30-17.1 into the emission rates and multipliers used in HARP (Hot Spots Analysis and Reporting Program) should be transparent and reproducible.

G-9
cont.

10. The text and tables provided in Appendix D of the FEIR are not complete enough to confirm the appropriateness of the emission multipliers used in the HARP file SRRQProposed.ems. These multipliers are used to adjust emission rates to account for the operating time of the equipment. In the case of the SRRQProposed.ems file, these multipliers range from 1 to 48.7 and have a significant effect on the final risk results. Response 30-25 described the derivation of one emission multiplier, but the documentation provided is not sufficient to confirm the emission rates and multipliers for all emission sources.

G-10

Please don't hesitate to call should you have questions regarding our comments above.

Sincerely,



Paul Damian PhD, MPH, DABT
National Practice Leader
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G-11

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G-11
cont.

Comment Letter G: Paul Damian, SCS Engineers (Consultants to the Point San Pedro Road Coalition)

- G-1 Per OEHHA Risk Assessment Guidelines, all toxic air contaminants with acute or chronic RELs were included in the EIR. Neither crystalline silica nor DPM have acute RELs published by OEHHA, and the HARP risk assessment model does not assess acute health effects for either pollutant. Health effects of these substances are usually caused by the deposit and buildup of particles in the respiratory system over time.

The commenter states that acute health effects from crystalline silica should be evaluated, even though there is no acute standard for environmental exposure published in the literature. The comment refers to the 8-hr time-weighted average (TWA) Threshold Limit Value (TLV) for crystalline silica published by ACGIH for occupational exposure. The ACGIH TLV-TWA was set to prevent silicosis over time, and it is a level to which it is believed a worker can be exposed day after day for a working lifetime (40 years) without adverse health effects (ACGIH, 2009). It is not equivalent to an acute REL established by OEHHA, in which standards are set to prevent adverse health effects from a one-time exposure to a concentration exceeding an REL. The ACGIH has not set a short-term TLV for crystalline silica. It is inappropriate to use the ACGIH TLV-TWA to evaluate acute health effects. In addition, the calculated chronic exposure levels factor in any short-term concentrations that would have occurred during that period. Please see also the response to comment C-4, above.

- G-2 Since the International Agency for Research on Cancer (IARC) labeled crystalline silica a probable carcinogen from occupational exposure, researchers have attempted to quantitatively assess low-exposure risks, which are levels that can be experienced under environmental exposure. Attempts to determine risks from environmental exposure to crystalline silica are in their preliminary stages. No quantitative risk assessment has to date been accepted by any government agency in the United States. The IARC classification triggered OSHA to notify the public of products containing crystalline silica, and California followed suit in their Proposition 65 warning requirements. OEHHA has stated in 2003 that active research is being conducted with respect to the relationship between silicosis and lung cancer in humans.
- G-3 Please see response to comment G-2. In addition, the study referred to in the comment (Muhle, et al, 1995), indicates that laboratory rats were exposed to 1 milligram per cubic meter for 2 years. This is equivalent to 1,000 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), which is a very high concentration over a relatively long period. Such a study cannot be directly compared to environmental exposure levels to assess health outcomes.
- G-4 Comment noted. The exponent "-1" was inadvertently omitted in Response 30-8.

- G-5 The portable aggregate plant (and accompanying generator) does not operate at the SRRQ facility. Thus, the equipment was not included in the HRA. The portable aggregate plant has a CARB Statewide Portable Equipment Registration and operates within the State of California. The emissions were included in the Air Quality analysis to provide full disclosure and the entire emissions were conservatively assumed to occur within the Bay Area air basin for comparison to the BAAQMD CEQA significance thresholds.
- G-6 Based on the Final EIR AERMOD dispersion modeling, the crystalline silica concentrations for 1-hour, 4-hour, 8-hour, and 24-hour averaging periods are 575, 192, 95.9, and 51.1 $\mu\text{g}/\text{m}^3$. These concentrations incorporate the hourly (worst-case) emission rates (via maximum production rates), hourly site-specific meteorological data for a full year, source operational schedules (hours of the day, days of the week, seasons), and simultaneous operation of each emission source (including reclamation activities). These maximum short-term concentrations occur at receptor 350, which is a receptor located near the SRRQ facility roadway entrance.

The 30-day and annual concentrations of crystalline silica are 6.1 and 2.4 $\mu\text{g}/\text{m}^3$ and incorporate the annual emission rates (via annual production rates), hourly site-specific meteorological data for a full year, and operational schedules (hours of the day, days of the week, seasons). These maximum long-term concentrations occur at receptor 382, which is a residential receptor located to the north of the Main Quarry Bowl. Of note, the County-sponsored air monitoring study conducted by STI in 2004 found no crystalline silica in 15 PM10 filters collected near the Quarry (Final EIR Volume I, page 4.2-19). Also, the applicant estimated a maximum annual average concentration of 0.73 $\mu\text{g}/\text{m}^3$ for crystalline silica (see comment D.2-8, pages 11-15), based on ambient monitoring of PM10 and their analysis of silica content of source material. The dispersion modeling conducted for the EIR provides worst-case concentrations of crystalline silica by using conservative assumptions.

The application of conservative assumptions is consistent with the practice of dispersion modeling and health risk assessments in general, and this project specifically. A number of conservative assumptions (related to emission estimates, dispersion modeling, and toxicity exposures) were employed along with the best assessment tools presently available in order to ensure that project impacts, including human health risk, are not understated. These conservative assumptions and methods provide greater confidence in findings of less-than-significant for project impacts.

In regards to the hourly and annual production rates, as an example, the aggregate processing plant has an hourly capacity of 1,200 tons. However, the typical hourly production rate is 820 tons. Thus, the maximum hourly production rate was used to determine the short-term concentrations of those pollutants with acute RELs and the typical production rate was used to determine the long-term concentrations for those pollutants with chronic RELs.

For crystalline silica, Cal/EPA and OEHHA have established a chronic (i.e., long-term) REL of $3 \mu\text{g}/\text{m}^3$. However, OEHHA has not established an acute (i.e., short-term) REL and has not identified a cancer potency for the substance. The predicted maximum annual concentration for crystalline silica is below the OEHHA REL of $3 \mu\text{g}/\text{m}^3$.

- G-7 The non-cancer chronic health impacts were determined based on the typical annual emission rate during the period of project operation and do not reflect a 70-year average. Within the chronic health impact analysis, the 70-year averaged annual emission rate was adjusted to accurately reflect the chronic impact. An adjustment factor to determine the chronic impact of 70 years/17 years, or 4.12, was used to adjust the HARP results back to a typical annual operational period basis.

Within the HARP model run conducted for the Draft EIR, the maximum chronic Hazard Index (HI) value was 0.148 at receptor 400, which equates to a chronic HI of 0.61 (after application of the 4.12 adjustment factor). Refinement of emission factors and multipliers (as reflected in Appendix D of the Final EIR and responses to comments G-9 and G-10, below) result in a chronic HI value of 0.84 (occurring at receptor 382), which is still below the significance threshold of 1.0. These refinements also resulted in minor changes to calculation of DPM emissions and cancer risk. The corrected results are shown in the tables and text below. The corrections do not affect conclusions regarding significance of impacts or effectiveness of mitigation measures in reducing significant impacts.

In summary, all calculated chronic HI values are below the significance threshold of 1.0 and thus Impact C4.2-10 (chronic health impacts from combined ARP and AQP emissions) in Section 4.2, Air Quality, in Volume I of the Final EIR is less than significant. The chronic HI values discussed above are for the maximum exposed receptor; all other receptors and locations have a lower chronic HI value.

In accordance with OEHHA guidance, the results of an HRA are based on a number of highly conservative assumptions (related to emission estimates, dispersion modeling, and toxicity exposures) and the best assessment tools presently available. These conservative assumptions and methods ensure that calculated health risks are not understated, and provide greater confidence in the finding that an impact is less than significant.

The revised impacts, mitigation measures, and associated tables follow:

Impact C4.2-9: Reclamation activities under the Amended Reclamation Plan and Quarry operations under the Amended Surface Mining and Quarrying Permit would result in emissions of toxic air contaminants, including diesel particulate matter, increasing the risk of cancer for nearby sensitive receptors (Significant).

The results of the HRA were used to calculate increased risk of cancer from future TAC emissions associated with the proposed AQP and ARP combined, assuming project-related exposure would continue through 2024. Results of the HRA are summarized in Table 4.2-15.

**TABLE 4.2-15
HEALTH RISK ASSESSMENT RESULTS MAXIMUM EXPOSED INDIVIDUAL,
FUTURE EMISSIONS FROM THE AQP AND ARP COMBINED**

Condition/Years	Cancer Risk ^a	Chronic Impact ^b	Acute Impact ^b
Proposed Projects (for the AQP, this assumes 20 percent increase in production over baseline for the AQP production of 1,697,600 tons per year for the years 2008 – 2024)	13.9 14.4	0.64 0.84	1.0
Project with Mitigation Measure C4.2-9a (use of B80 fuel in on-site mobile equipment)	10.0 10.5	0.59 0.84	1.0
Project with Mitigation Measure C4.2-9b (limit production to <u>average of 1,414,667 tons per year</u> 1982 levels)	10.3 12.2	0.60 0.83	1.0
Project with both Mitigation Measure C4.2-9a and C4.2-9b incorporated	7.4 8.8	0.59 0.82	1.0
Maximum Exposed Individual: Type ^c	Residential	Residential	Recreational

NOTES:

Values exceeding significance thresholds are **BOLDED**.

^a Risk of additional cancer cases per million exposed individuals. The significance threshold is 10.

^b Chronic and acute impacts are measured using the Hazard Index, where the significance threshold is >1.

^c Type of receptor exposed to the maximum modeled concentration of TACs

SOURCE: ESA

*For future Quarry operations and reclamation activities through 2024, the modeled receptor location with the highest exposure to TACs would have an incremental cancer risk at a rate of ~~13.9~~ **14.4** cancer cases per million exposed persons, which is above the significance threshold of 10 per million. A hypothetical person at this location is termed the “maximum exposed individual” (MEI). The term MEI refers to a person residing in the location of the highest concentration of TACs from the projects during the entire period included in the modeling exercise. The MEI for future exposure is located to the north of the Quarry (Figure 4.2-4). Figure 4.2-4 indicates that a slightly elevated risk of cancer due to future emissions of the AQP and ARP will be experienced by individuals along Point San Pedro Road and in the Peacock Gap neighborhood. However, the level of exposure does not result in a significant cancer health risk, except for a limited area around the Marin Bay Park development. Please note that, as previously discussed, the HRA examined only health risks associated with emissions from the Quarry and McNear’s Brickyard, and did not include the health risks associated with regional or other local TAC emission sources (see page 4.2-47).*

*As shown in Table 4.2-16, over 99 percent of the cancer risk at the location of the MEI as a result of the proposed projects is due to DPM emissions, and ~~89~~ **86** percent is due to DPM from onsite mobile equipment operations associated with Quarry operations, not reclamation. Most of the exposure along Point San Pedro Road is from haul trucks.*

TABLE 4.2-16
CANCER RISK SOURCE CONTRIBUTIONS TO THE
RISK OF INCREASED CANCER CASES PER 1,000,000 EXPOSED INDIVIDUALS AT THE LOCATION
OF THE MAXIMUM EXPOSED INDIVIDUAL

Source	Incremental Cancer Risk per Million Exposed Individuals	Percent of Risk
DPM from Onsite Mobile Equipment (AQP operations)	12.4	89 86
DPM from Reclamation activities	0.5 1.0	4 7
DPM from Haul Trucks	0.3	2
DPM from Tugs	0.6	4
All DPM Sources	13.8 14.3	99
All Other Sources	0.1	1
All Sources	13.9 14.4	100

NOTE: Values exceeding significance thresholds are BOLDED.

SOURCE: ESA

Because the combined projects would increase the incremental risk of cancer at the location of the MEI by more than 10 per million exposed individuals, the impact is significant.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure C4.2-9a: As noted in Mitigation Measures R4.2-1 and P4.2-6, the applicant has taken measures to reduce DPM emissions from on-site equipment, including upgrading to lower emission engines and use of B-20 fuel.

Mitigation Measures Identified in This Report

Mitigation Measure C4.2-9b: Implement Mitigation Measure P4.6-6b, which would limit ~~proposed project aggregate multi-year annual average production levels and single-year maximum production levels to baseline levels. 1982.~~

Mitigation Measure C4.2-9c: Implement Mitigation Measure R4.2-1 and Mitigation Measure P4.2-6 to further reduce DPM emissions from on-site mobile equipment used both for reclamation and for mining operations.

Mitigation Monitoring and Reporting

See Draft Mitigation Monitoring Measures R4.2-1, P4.2-6, and P4.6-6.

Level of Significance after Mitigation

As shown in Table 4.2-15 and illustrated in Figure 4.2-5, incorporation of Mitigation Measures C4.2-9a, b, and c would reduce the incremental increased

cancer risk to ~~7.4~~ 8.8 cases per million exposed persons at the site of the MEI, which is below the threshold value of 10. Therefore, the impact would be mitigated to less than significant.

Impact C4.2-10: Reclamation activities under the Amended Reclamation Plan and Quarry operations under the Amended Surface Mining and Quarrying Permit would result in emissions of toxic air contaminants, including crystalline silica, that would increase chronic health impacts (Less than Significant).

The HRA was used to determine the chronic health impacts associated with TAC emissions from both Quarry operations under the AQP and reclamation under the ARP. Chronic health impacts are measured using the “Hazard Index” (HI) rating where values greater than one are considered significant. The results of the HRA are shown in Table 4.2-15, which indicates that emissions from the proposed projects would result in chronic exposure at the location of the MEI with an HI of ~~0.64~~ 0.84. This value is below the threshold value of greater than 1. The approximate distribution of HI ratings for chronic health impacts due to the proposed projects is shown in Figure 4.2-6.

Table 4.2-17 shows that the majority of the chronic health risk from the projects at the location of the MEI will be due to exposure to crystalline silica emissions: ~~92~~ 96 percent of chronic health impacts would be from crystalline silica exposure, and ~~70~~ 54 percent from crystalline silica originating from vehicles traveling over unpaved surfaces.

**TABLE 4.2-17
SOURCES AND SUBSTANCES, AQP AND ARP EMISSIONS CONTRIBUTING TO CHRONIC HEALTH RISK AT LOCATION OF THE MAXIMUM EXPOSED INDIVIDUAL FOR THE PROPOSED PROJECT**

Source	Hazard Index Rating	Percent of Risk
Crystalline Silica from Blasting	0.02	3 <u>2</u>
Crystalline Silica from Aggregate Processing	0.04 <u>0.02</u>	7 <u>2</u>
Crystalline Silica from Other Fugitive Dust	0.06 <u>0.05</u>	10 <u>6</u>
Crystalline Silica from Reclamation Activities	0.02 <u>0.26</u>	3 <u>31</u>
Crystalline Silica from Unpaved Roads	0.43 <u>0.46</u>	70 <u>54</u>
All Crystalline Silica Sources	0.56 <u>0.81</u>	92 <u>96</u>
All Other TACs	0.05 <u>0.04</u>	8 <u>4</u>
All Sources	0.64 <u>0.84</u>	100

NOTES:
Significance threshold is 1.0.
Not all numbers add properly due to rounding.

SOURCE: ESA

Because the highest level of chronic health risk from the projects would be less than the significance threshold of greater than one, the impact is less than significant.

Mitigation: *None required.*

Impact C4.2-11: Toxic Air Contaminant emissions could cause an acute health impact for nearby receptors (Less than Significant).

The HRA considered potential acute health effects, which are determined by estimating the maximum 1-hour exposure to TACs. The HRA found that the majority of the acute health risk posed by emissions from the Quarry (including ARP, AQP, and brickyard-related emissions) is from hydrogen sulfide (H₂S) emitted by the Quarry's asphalt plant. Like chronic risks, acute risks are measured using the "Hazard Index," where ratings of greater than one are considered significant. As shown in Table 4.2-15, both past and future acute health effects of TAC emissions from the Quarry were found to have an HI rating of 1.0 at the MEI (calculated to the next decimal, the rating is 1.01, which is rounded to 1.0). The approximate distribution of HI ratings for acute health risks in the vicinity of the Quarry is shown in Figure 4.2-7.

H₂S has a highly distinctive, highly disagreeable odor ("rotten egg" smell) at very low concentrations, below the level at which a significant acute health risk would occur. The Marin County Public Works Department reports no such odor complaints in the vicinity of the Quarry, indicating that actual H₂S emission rates from the asphalt plant are likely much lower than those used in the HRA (the HRA estimated emissions based on USEPA's Compilation of Air Pollutant Emission Factors (AP-42), which assumes a certain sulfur content in the produced asphalt). Because the HRA found an HI rating of 1.0, and because there is no record of complaints to suggest that H₂S emissions are detected by neighbors of the Quarry, suggesting that sulfur content in the produced asphalt is lower than USEPA assumption, the impact is considered less than significant.

Mitigation: *None required.*

Impact C4.2-12: Toxic air contaminants emitted from past Quarry operations, in conjunction with planned future operations under the Amended Surface Mining and Quarrying Permit (as well as currently unplanned but reasonably foreseeable future operations), reclamation activities under the Amended Reclamation Plan, and post-reclamation land uses could cause significant cumulative health effects (Significant).

The HRA modeled past exposure to TACs from past Quarry operations from 1982, when ARP82 was approved, through 2007. Emissions were estimated based on known or estimated rates of production and shipment of quarry products, and on published emission factors for the period modeled. The same receptor locations and types used for the modeling of future (AQP and ARP-related) emissions were used for past emissions, though it should be noted that several residences, including those on Heritage Drive and Marin Bay Park Court, were not built until the late 1980s or early 1990s. As with the modeling of future emissions, the modeling of past emissions examined only quarry-related emissions in isolation from regional and other local sources.

As shown in Figure 4.2-8, cancer risks from past operations (1982-2007) were in excess of the significance threshold of 10 cancer cases per million exposed individuals over a broad area of the neighborhoods around SRRQ. The highest incremental increase in cancer risk (at the MEI, located to the northeast of the Quarry), was 109 cancer cases per million exposed population. Since the area where the MEI is located, that is, in the Marin Bay Park development, was not developed until the late 1980s or early 1990s, no individuals would actually have been exposed to this high a risk. Somewhat lower rates, still in excess of the 10 in a million threshold, were calculated for receptor locations along Point San Pedro Road and throughout the Peacock Gap neighborhood: note in Figure 4.2-8 the area within the 10-50 category. Emissions from quarry operations prior to 1982 were not estimated, nor their health risk effects modeled, but these earlier emissions would have added to the cancer risk depicted in the figure. The higher rate of cancer risk from past emissions (relative to future risk) is due to the higher rates of DPM emissions from diesel trucks and on-site mobile equipment in the past: as indicated in Figure 4.2-3, a greater portion of the emissions (and therefore the contribution to cancer health risks) occurred earlier in the period modeled, and both the rate of emissions and their contribution to cancer health risks declined over the period modeled. It should be noted that this decline in the emission rates of diesel equipment, and therefore the cancer health effects of exposure, likely mirrored a similar trend throughout the Bay Area region and the entire state (and nation). Thus, it can be assumed that exposure levels and cancer health effects in past years from other sources (non-quarry operations) were also much higher than present levels.

Impact C4.2-9 describes the incremental increase in cancer risk associated with future emissions from the proposed ARP and AQP. As stated in that impact discussion, without mitigation the rate of incremental increase is estimated to be ~~13.9~~ 14.4 additional cancer cases per million exposed individuals at the site of the MEI; with mitigation (Mitigation Measures C4.2-9a, b, and c) the rate declines to ~~7.4~~ 8.8. While this latter figure is below the significance threshold for the future projects, the addition of the risk values for future exposure to the levels calculated for past exposure would result in an increase in the cancer risk in areas already exposed to a

rate of over ten additional cancer cases per million exposed population, as well as an increase in the area with this level of exposure. Even with mitigation, therefore, the AQP and ARP projects would make a contribution to a significant cancer health risk that is cumulatively considerable. Furthermore, while the ARP currently under consideration would provide sufficient resource for mining through approximately 2024, SRRQ could in the future again seek to amend its reclamation plan to allow for additional mining. It is reasonably foreseeable that the level of operations would be similar to those currently proposed, and that they would result in additional cancer health risk; however, since the rate of DPM emissions will continue to decline (see Figure 4.2-3), the additional cancer risk associated with any future operations beyond that envisioned in the currently proposed ARP would likely be quite small. Taken together, past, current, and reasonably foreseeable future cumulative cancer risks are considered significant. Post-reclamation land-uses are anticipated to include residential, commercial, and open space, as well as the development of a marina. None of these uses and associated transportation are likely to result in emissions of toxic air contaminants in quantities that would cause substantial cancer or non-cancer health risks. However, the possibility of future use of the site for a ferry landing could result in continued exposure of neighbors of the site, as well as future residents of the site, to emissions from marine equipment. While it would be speculative to estimate the level of emissions from future ferry operations, they may be expected to be similar to tugboat emissions associated with Quarry operations.

As previously discussed, acute risks are calculated based on the highest 1-hour exposure; exposures below the significance threshold do not combine in a cumulative manner. Chronic effects are based on the highest 1-year exposure. Exposures resulting in an HI below the significance threshold are considered not to cause chronic health risks; therefore, the level of past exposure to quarry emissions does not add to future exposure in a cumulative manner. For both acute and chronic health risks, the cumulative impact is less than significant.

Mitigation: *No additional mitigation is available to further reduce the cancer health risks from the current projects or from reasonably foreseeable future projects, beyond those stated in Mitigation Measures C4.2-9a, b, and c. This cumulative impact is therefore considered significant and unavoidable.*

- G-8 The possibility that the Quarry may operate beyond the 17-years anticipated under ARP04 is considered in Impact C4.2-12 (Toxic air contaminants from past Quarry operations, in conjunction with planned future operations and reasonably foreseeable future operations, could cause significant cumulative health effects) in Section 4.2, Air Quality, of the Final EIR. The relevant passage is reproduced in the response to the previous comment.
- G-9 The Final EIR HARP files used a crystalline silica emission rate for reclamation activities of 1,738 lb/yr. Per the discussion in response to comment G-7, an adjustment factor of

70/20 (reclamation activities are expected to occur over 20 years) or 3.5 was applied to equate to the 6,084 lb/yr (which represents the average annual emission rate for the reclamation activities).

- G-10 Emission multipliers within HARP are included when the AERMOD analysis includes emission sources which have emissions by hour of day, by day of the week, or by seasonal factors (also known as operational profiles). Otherwise, HARP would dilute the emissions over the entire year (8,760 hours) and would underestimate the health impacts. For example, blasting operations do not occur 365 days per year nor do they occur 24 hours per day. For the proposed project, blasting events were assumed to occur 180 days per year (at one hour per event). The HARP multiplier for blasting activities was $8760/180$ or 48.7. The following table shows the HARP multipliers for the emission sources based on anticipated annual hours of operation.

TABLE G-10.1
MULTIPLIERS USED IN THE HARP ANALYSIS

Source	Annual Hours	Multiplier
Brick Kiln	8,760	1.0
Asphalt Plant	2,080	4.2
Asphalt Silo	2,080	4.2
Blasting	180	48.7
Aggregate Plant	2,080	4.2
Quarry Handling	2,080	4.2
Reclamation	480	18.3
Haul Trucks	2,504	3.5
Barges	5,475	1.6
Unpaved Traffic	2,504	3.5

- G-11 This comment contains citations referred to in the text of the comment letter.

Comment Letter H

March 16, 2009

Mr. Timothy Haddad
 Environmental Plan Coordinator
 Community Development Environmental Planning
 3501 Civic Center Drive
 San Rafael, CA 94903

Re: San Rafael Quarry
 Amended Surface Mining and Quarrying Permit
 And Amended Reclamation Plan
 Draft EIR

Dear Mr. Haddad:

In my previous submission to the your office, I questioned what other reports or applicable information relative to the past operations of the San Rafael Rock Quarry were not furnished to the consultants or the County of Marin by the applicant .

Unfortunately, I believe all the applicable information relative to the 1982 baseline has not been provided by the applicant to the County of Marin in this pending matter. Please see my comments below.

According to the Marin County Grand Jury June 21 report, Who 's minding the San Rafael Rock Quarry?, page 15, Footnote 7(D):

"Because there is insufficient information on historic and current truck traffic levels associated with the Quarry an approach was developed by the Quarry's traffic engineer to estimate the average number of truck trips per day based on **available gate tonnage information**. (emphasis added). ... Since the gate and barge tonnage is available only in an aggregate form..."

H-1

BASELINE 1982 INFORMATION

While there may be no specific gate tonnage information available, a complete analysis of barge shipments of materials shipped from the Basalt Quarry during 1982 and 1983 for repair of levees by the Dutra Group. This analysis was prepared in support of a \$75,000,000 claim prepared by the accounting firm of Lavethol and Howarth, for a consortium of Reclamation Districts seeking reimbursement Federal Emergency Management Agency (FEMA) for repair of levees during the period 1984 to 1986.

This purpose of the 1982-83 analysis of 1982 and 1983 barge shipments was to give support to the volume of materials used in the claim years, i.e. 1984 to 1986



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The preparer of this report was the former Chief Financial Officer of the Dutra Group, William Baird.

During the preparation of the 1982 -1983 report, Mr. Baird and/or his staff reviewed and utilized Dutra's business records stored in a Dutra warehouse in Rio Vista, CA. The business records included tug trip reports, tug billing reports and barge ad-measurement reports. Dutra was the prime purchaser of raw materials from Basalt during this time period.

This report was believed to have complied in 1989 by Mr. Baird and/or his staff.

It is understood that copies of this report and analysis were provided to Mr. Dutra and the various reclamation districts making the \$75,000,000 claim to FEMA. Copies of this barge analysis may be in the office of the Federal Emergency Management Agency, Army Corp of Engineers, California Department of Water Resources, and their engineering consultants

Other sources of information to determine the amount materials shipped by barge during 1982 for levee repairs would be the California Department of Water Resources.

Complete engineering estimate bid requests are maintained by this vital State Agency. This agency information could be secured under the California Records Act relative to all payments made to Dutra Materials, etc for levee repairs during this period 1981, 1982 and 1983. Attached please find information requesting records from DWR. Exhibit 1

Attached please find a sample of summary of bids for emergency levee erosion repair dated June 26, 2006 submitted by Dutra Materials. This sample report shows the detail requirement of the bids as to amounts and type of rock materials used in levee repair. Exhibit 2

A brief narrative of 1982 problems, obtained from the California Department website, that the California Department of Water Resources responded in late 1981 and 1982 are as follows:

"Heavy storms in October and November 1981 raised river levels, leading to another failure of the Prospect Island levee and failure of Little Franks Track, 200 acres, in December 1981. High water of the Cosumnes River in January 1982 breached private levees, flooding farmland and damaging roads and bridges. These areas flooded again when the Cosumnes rose in February 1982. In August 1982, the McDonald Island levee failed, inundating, 5,800 acres of farmland.

H-1
cont.

High tides and winds in November 1982 contributed to the failure of Venice Island. "

The attached comparison of repairs (Exhibit 3) , prepared by the California Department of Water Resources of Major Levee Breaks in the Delta states:

- McDonald Island (RD 2030) break on August 23, 1982 was 600 feet wide, 49-85 feet in depth. It cost \$13 million to repair and Dutra was the contractor.
- Venice Island (RD 2023) break on November 30, 1982, during highest tide since 1955. It cost \$9 million to repair and Dutra was the contractor.

This brief summary indicates the huge volume of materials shipped via during the 1982 baseline period, not just a majority of materials produced. The detailed records for material shipments for the repair of these levees should be available from Dutra Group and the State of California.

The California Department of Water Resources is lead agency for all the 68 reclamation districts in the Delta. See attached list of reclamation districts. Exhibit 4

The Draft EIR At 2-19, item 4 states:

"Because SRRQ has a deep water barge dock, it is able to supply rip-rap materials for revetment of levees in the Sacramento-San Joaquin Delta: "

MATERIALS SUPPLIERS OF MATERIALS

- On October 26, 2007 the California Department of Water Resources released initial study/proposed mitigated negative declaration the DELTA EMERGENCY ROCK AND TRANSFER FACILITIES PROJECT, prepared by EDAW/AECOM. Exhibit 5

The summary of Enhanced Delta Emergency Response 2007-09 Jan 18, 2008 update is attached. Exhibit 6

As the result of this study, 3 rock storage and transfer facilities have been established in the Delta by the California Department of Water Resources.

Some 240,000 tons of riprap materials have been purchased from the Jackson Valley Quarry, Amador County and placed in storage at the Port of Stockton, Hood, CA and Rio Vista, CA. The Rio Vista property is not Dutra's property.

H-1
cont.

H-2

It is duly noted that the San Rafael Rock Quarry was NOT the source of materials used at the rock stockpiling facilities.

The actions of the State of California in securing materials from sources, other than the SRRQ, volumes relative to the continuing mantra of the SRRQ and the needs of the State of California to rely on one source of materials.

The previous California Department of Water Resource Study, provided to you, pointed out the loading capacity or lack thereof the SRRQ in responding to emergencies.

I would hope that this specific information will be duly considered in this process and additional information secured to be presented to the Board of Supervisors.

H-2
cont.

Sincerely yours,

Joseph W. Caramucci

Enclosures
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- Exhibit 1 Requesting records from Department of Water Resources
- Exhibit 1-A Summary of Emergency Levee Repair June 26, 2006
- Exhibit 2 Comparison of Repairs Major Levee Breaks in Delta (CA DWR)
- Exhibit 3 Listing of Islands and Reclamation District numbers (CA DWR)
- Exhibit 4 Delta Emergency Rock and Transfer Facilities Project 10/25/07
- Exhibit 5 Enhanced Delta Emergency Response 2007-2008 update 1-28-08

Feshi

Comment Letter H**Requesting Records from DWR**

The Department of Water Resources Imaging and Records Management Unit provides records and file services to the public, including public records requests and subpoena requests.

For more information or questions about public record or subpoena requests please contact:

Public Records Coordinator
(916) 653-7791
FAX (916) 654-5506

For other record questions and concerns, please contact:

Chief, Imaging and Records Management Unit
(916) 653-9313
FAX (916) 654-5506

Links

- [Summary of the Public Records Act](#) from the California Attorney General
- [California State Administrative Manual-Section 1600 through 1695-"Records Management"](#)
- [Excerpt from California Government code Section 6250 through 6270-"Public Records Act"](#)

Downloads

- [Department of Water Resources-Guidelines for Access to Public Records\(pdf 3MB*\)](#)
- [The Information Practices Act of 1977](#) with guidelines and commentary, 1991 (pdf 800K*)

Note on File Sizes

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H-3

Exh 1

Exh 1 - A

H-3
cont.

BID DATE: June 26, 2006
TIME: 11:00 A.M.
PLACE: Sacramento, California
SPEC #: 06-17
CONTR #: C51328

**SUMMARY OF BIDS RECEIVED FOR
EMERGENCY LEVEE EROSION REPAIR
CACHE SLOUGH - MILES 16.5L AND 21.8L
STEAMBOAT SLOUGH - MILE 16.2R
SACRAMENTO RIVER - MILES 20.8L, 26.5L AND 32.5R
STATE EMERGENCY EROSION REPAIR PROJECT
SACRAMENTO RIVER BANK PROTECTION PROJECT
FOR THE RECLAMATION BOARD
SACRAMENTO AND SOLANO COUNTIES
CALIFORNIA**

**STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES**

BY: Ls8876		ENGINEER'S ESTIMATE		San Rafael Rock Quarry d/b/a Dutra Materials	
33	Treepot Installation - T8	1,466	EACH	\$125.00	\$183,250.00
34	Treepot Installation - T4	431	EACH	\$115.00	\$49,565.00
35	Deepot Installation - DP	4,042	EACH	\$100.00	\$404,200.00
36	Deepot Installation - DP	1,353	EACH	\$40.00	\$54,120.00
37	Pole Cutting Installation	2,194	EACH	\$20.00	\$43,880.00
38	Fascine Bundle Installation	810	EACH	\$100.00	\$81,000.00
39	Beaver Fence	4,890	LF	\$7.00	\$34,230.00
40	Tree Protection and Pruning	256	EACH	\$500.00	\$128,000.00
41	Erosion Control Fabric	9,000	SY	\$4.00	\$36,000.00
42	Plant Establishment	12	MONTH	\$4,000.00	\$48,000.00
SUBTOTAL				\$4,446,845.00	\$5,045,121.00
STEAMBOAT SLOUGH - MILE 16.2R					
43	Mobilization and Demobilization	1	JOB	LUMP SUM	\$107,000.00
44	Clearing	1.5	ACRE	\$7,000.00	\$10,500.00
45	Earthfill	1,300	TON	\$31.00	\$40,300.00
46	Agricultural Soil	260	TON	\$40.00	\$10,400.00
47	Bedding Layer	260	TON	\$50.00	\$13,000.00
48	Rock Slope Protection	4,000	TON	\$60.00	\$240,000.00
49	Rockfill	9,700	TON	\$50.00	\$485,000.00
50	Geotextile Fabric	320	SY	\$5.00	\$1,600.00
51	Instream Woody Materials	14	EACH	\$700.00	\$9,800.00
52	Irrigation	1	JOB	LUMP SUM	\$8,000.00
53	Seeding	1.5	ACRE	\$8,000.00	\$12,000.00
54	Treepot Installation - T8	113	EACH	\$125.00	\$14,125.00
55	Treepot Installation - T4	46	EACH	\$115.00	\$5,290.00
56	Deepot Installation - DP	356	EACH	\$100.00	\$35,600.00
57	Deepot Installation - DP	102	EACH	\$40.00	\$4,080.00
58	Pole Cutting Installation	194	EACH	\$20.00	\$3,880.00
59	Fascine Bundle Installation	100	EACH	\$100.00	\$10,000.00
60	Beaver Fence	600	LF	\$7.00	\$4,200.00
61	Tree Protection and Pruning	28	EACH	\$500.00	\$14,000.00
62	Erosion Control Fabric	850	SY	\$4.00	\$3,400.00
63	Plant Establishment	12	MONTH	\$4,000.00	\$48,000.00
SUBTOTAL				\$1,176,875.00	\$1,286,851.00
SACRAMENTO RIVER - MILE 20.8L					
64	Mobilization and Demobilization	1	JOB	LUMP SUM	\$88,800.00
65	Clearing	2.1	ACRE	\$7,000.00	\$14,700.00
66	Earthfill	0	TON	\$31.00	\$0.00
67	Agricultural Soil	1,400	TON	\$40.00	\$56,000.00
68	Bedding Layer	300	TON	\$50.00	\$15,000.00
69	Rock Slope Protection	4,300	TON	\$60.00	\$258,000.00
SUBTOTAL				\$48,750.00	\$208,625.00

SUMMARY OF BIDS RECEIVED FOR										STATE OF CALIFORNIA									
EMERGENCY LEVEE EROSION REPAIR										THE RESOURCES AGENCY									
CACHE SLOUGH - MILES 16.6L AND 21.8R										DEPARTMENT OF WATER RESOURCES									
STEAMBOAT SLOUGH - MILE 16.2R																			
SACRAMENTO RIVER - MILES 20.8L, 26.5L AND 32.5R																			
STATE EMERGENCY EROSION REPAIR PROJECT																			
SACRAMENTO RIVER BANK PROTECTION PROJECT																			
FOR THE RECLAMATION BOARD																			
SACRAMENTO AND SOLANO COUNTIES																			
CALIFORNIA																			
BY: Lasarte																			
BID DATE: June 26, 2006																			
TIME: 11:00 A.M.																			
PLACE: Sacramento, California																			
SPEC.#: 06-17																			
CONTR.#: C51323																			

SUMMARY OF BIDS RECEIVED FOR									
EMERGENCY LEVEE EROSION REPAIR									
CACHE SLOUGH - MILES 18.5L AND 21.8R									
STEAMBOAT SLOUGH - MILE 16.2R									
SACRAMENTO RIVER - MILES 20.8L, 26.5L AND 32.5R									
STATE EMERGENCY EROSION REPAIR PROJECT									
SACRAMENTO RIVER BANK PROTECTION PROJECT									
FOR THE RECLAMATION BOARD									
SACRAMENTO AND SOLANO COUNTIES									
CALIFORNIA									
BID DATE: June 28, 2006									
TIME: 11:00 A.M.									
PLACE: Sacramento, California									
SPEC.#: 06-17									
CONTR.#: C51328									
SY: Lasarte									
					ENGINEER'S ESTIMATE		San Rafael Rock Quarry		
							aka Dutra Materials		
107	Clearing	14.5	ACRE		\$7,000.00	\$101,500.00	\$5,000.00	\$72,500.00	
108	Earthfill	0	TON		\$31.00	\$0.00	\$31.00	\$0.00	
109	Agricultural Soil	3,300	TON		\$40.00	\$132,000.00	\$55.00	\$191,400.00	
110	Bedding Layer	200	TON		\$50.00	\$10,000.00	\$55.00	\$11,600.00	
111	Rock Slope Protection	87,200	TON		\$60.00	\$4,032,000.00	\$53.25	\$3,578,400.00	
112	Rockfill	154,700	TON		\$60.00	\$9,282,000.00	\$53.25	\$8,237,775.00	
113	Geotextile Fabric	4,960	SY		\$5.00	\$24,800.00	\$5.00	\$24,800.00	
114	Instream Woody Materials	110	EACH		\$700.00	\$77,000.00	\$1,700.00	\$187,000.00	
115	Irrigation	1	JOB		LUMP SUM	\$50,000.00	LUMP SUM	\$825,000.00	
116	Seeding	14.5	ACRE		\$9,000.00	\$87,000.00	\$12,000.00	\$174,000.00	
117	Treepot Installation - T8	1,175	EACH		\$125.00	\$146,875.00	\$380.00	\$446,500.00	
118	Treepot Installation - T4	426	EACH		\$115.00	\$48,890.00	\$380.00	\$161,880.00	
119	Deepcot Installation - DE	3,411	EACH		\$100.00	\$341,100.00	\$28.00	\$95,919.00	
120	Deepcot Installation - DB	1,056	EACH		\$40.00	\$42,240.00	\$28.00	\$30,624.00	
121	Pole Cutting Installation	1,802	EACH		\$20.00	\$36,040.00	\$14.00	\$25,228.00	
122	Fascine Bundia Installation	777	EACH		\$100.00	\$77,700.00	\$100.00	\$77,700.00	
123	Beaver Fence	4,650	LF		\$7.00	\$32,550.00	\$18.00	\$74,400.00	
124	Tree Protection and Pruning	437	EACH		\$600.00	\$262,200.00	\$400.00	\$174,800.00	
125	Erosion Control Fabric	10,260	SY		\$4.00	\$41,040.00	\$10.00	\$102,600.00	
126	Plant Establishment	12	MONTH		\$4,000.00	\$48,000.00	\$10,500.00	\$126,000.00	
					SUBTOTAL	\$16,350,435.00	SUBTOTAL	\$15,387,905.00	
					BID TOTAL	\$30,395,925.00	BID TOTAL	\$30,725,975.00	
							Ten percent (10%) of the amount bid		
Guarantee									
Surety							Safeco Insurance Company of America		
Comments	X	Denotes corrected figure					Awarded: JUNE 28, 2006		

H-3
cont.

Fisher

Comment Letter H

408-201-091

9610

Comparison of Repairs of Major Levee Breaks in Delta

Brannan-Andrus Levee Maintenance District, Levee Break: June 21, 1972

- National Disaster declared June 27, and Breach closed July 26.
- Estimated total damages 1981 dollars: \$91 million
- US Army Corps repaired break,
- 35% of City of Isleton was inundated

Webb Tract, RD 2026, Levee Break: Jan. 18, 1980

- 850 feet wide, 60 feet deep
- US Army Corps repaired break Approximately \$12 million
- 4 month delay in breach repair
- Corps first repaired Holland Tract due to availability of equipment, materials
- Sustained extensive landside erosion damage; Corps rocked inside

Holland Tract-RD 2025, Levee Break: Jan. 18, 1980 (about 1 hour after Webb)

- 250 feet wide, 40 feet deep
- US Army Corps repaired break Approximately \$8 million

Lower Jones Tract-RD 2038, Levee Break Sept. 26, 1980

- 275 feet wide, 55 feet deep
- Reclamation District managed Levee Break contract, paid with warrants
- Breach repaired prior to AT & SF railroad embankment failure
- Fearing flood surge Trapper Slough was raised by US Army Corp
- Total estimated costs to RD, SJ County, EBMUD and DWR: \$5.6 million
- Corps costs estimated \$700,000

McDonald Island- RD 2030, Levee Break August 23, 1982, Governor's Disaster August 25, 1982

- 600 feet wide, 40-85 feet in depth
- Approximately \$13 million in total levee damages
- RD instigated repairs immediately, Contract with Dutra, paid with warrants
- FEMA Disaster declared on Sept. 24, 1982
- Breach 90 % complete in last week of September

Venice Island-RD 2023, Levee Break Nov. 30, 1982, during highest tide since 1955

- 500 feet wide, 40 feet deep
- Approximately \$ 9 million in total levee damages
- DWR sent inspectors on Dec. 1, 1982, State Disaster Assistance was initiated
- Corps performed limited PL-84-99
- District signed emergency repair contract with Dutra on December 8,
- District paid for repairs using warrants
- FEMA disaster declared Feb. 22, 1983 and was backdated to Nov 1982.
- As of Dec. 30 the break repair was 90% complete

Mildred Island, RD 2021, Levee Break Jan 27, 1983, 1000 Acres Not Reclaimed

- Corps of Engineers under PL-84-99 rocked inside levee to protect adjoining islands
- FEMA approved request to help repair after approximately one month
- District let island stay flooded; chose not come up estimated \$250,000 share of costs

Bradford Island-RD 2059, Levee Break: December 3, 1983

- 600 feet wide, 40-50 feet deep
- State Disaster declared December 9, 1983, NO federal disaster declaration
- District paid repairs with warrants
- Approximately 84% of rock placed in break by Feb 29, 1984

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Exh 2

Source: CA DWR, warrants

Comment Letter H

New Hope Tract, February 20 1986

- 170 feet wide levee break, repaired at approximately \$900,000
- Finished placing rock in break on March 20, 1986
- RD paid for levee work with warrants, FEMA Disaster declared Feb 21, 1986

Tyler Island- RD 563, 1986 Levee Break, February 19 1986, Two levee breaks in same general area

- RD paid for levee work with warrants, FEMA Disaster declared Feb 21, 1986
- 2 levee breaks approximately, each about 300 feet in length; began repairs immediately
- Approximate cost to repair both breaks: \$3 million

RD 2107 and RD 2095, 1996-97 Flood

- Projects levees on San Joaquin River System
- Corps of Engineers repaired under Public Law 84-99

H-4
cont.

Exh

Fdh3

Table 4
2007-08 DELTA LEVEE MAINTENANCE SUBVENTIONS PROGRAM
ELIGIBLE REIMBURSEMENT BASED ON APPLICATION AMOUNT FOR \$20,000/LM

RD NO	Island Name/ (Engineer)	Application Amount \$	Net Allowable Maintenance \$	Levee Rehabilitation				Priority 2 \$	Priority 3
				Category 2 Fish & Wild. \$	Category 3 HMP \$	Category 4 Eligible Buil. 192-82 \$			
2126	Atlas Tract	136,000	43,700	5,000	0	85,000		0	0
2028	Bacon Island	1,245,000	273,600	0	0	957,000		0	0
	Bethel Island MID	220,000	193,500	15,000	0	0		0	0
2042	Bishop Tract	1,710,000	148,200	30,000	500,000	250,000		774,000	0
404	Boggs Tract	237,000	13,300	30,000	0	40,000		153,000	0
756	Bouldin Island	2,326,000	342,000	-	255,000	1,545,000		166,000	0
2033	Brack Tract	1,015,500	205,200	-	0	795,500		0	0
2059	Bradford Island	56,300	44,900	4,000	0	0		0	0
	Brannan-Andrus LMD	2,208,500	558,600	35,000	0	1,585,500		0	0
800	Byron Tract	1,995,000	184,300	10,000	250,000	710,000		831,000	0
2098	Cache-Haas Slough	265,000	209,000	500	0	44,500		0	0
	Collinsville LD	40,000	19,000	-	0	20,000		0	0
2117	Coney Island	259,000	102,600	3,500	125,000	22,500		0	0
2111	Deadhorse Island	240,000	49,400	9,000	70,000	109,000		0	0
2137	Dutch Slough	397,500	98,800	9,000	87,000	197,500		0	0
536	Egbert Tract	73,500	62,900	-	0	0		0	0
2029	Empire Tract	751,000	199,500	-	420,000	121,000		0	0
773	Fabian Tract	261,000	217,400	25,000	0	0		0	0
2113	Fay Island	286,500	30,400	26,500	60,000	73,500		94,500	0
3	Grand Island	842,000	547,200	-	0	265,000		0	0
2060	Hasting Tract	314,800	298,800	-	0	0		0	0
2025	Holland Tract	1,222,500	209,000	-	0	1,002,500		0	0
799	Hotchkiss Tract	120,000	111,100	-	0	0		0	0
830	Jersey Island	670,000	284,500	13,000	50,000	297,000		0	0
2038	Jones Tract Lower	2,238,000	171,000	100,000	0	800,000		1,158,000	0
2039	Jones Tract Upper	1,265,000	176,700	70,000	0	860,000		149,000	0
2044	King Island	999,500	172,900	-	0	817,500		0	0
307	Lisbon Island	367,500	125,400	35,000	0	200,500		0	0
2118	Little Mandeville Island	214,000	85,500	-	0	124,000		0	0
2027	Mandeville Island	7,047,500	271,700	12,500	1,417,500	0		5,331,500	0
2030	McDonald Island	7,715,000	260,300	10,000	50,000	1,310,000		6,071,000	0
2041	Medford Island	391,000	112,100	-	100,000	173,000		0	0
160	Merritt Island	485,000	343,900	-	0	125,000		0	0
999	Netherlands	399,000	296,600	10,000	0	0		0	0
348	New Hope Tract	1,674,000	330,600	25,000	0	1,301,000		0	0
2024	Orwood/Palm Tract	1,430,000	264,100	50,000	0	1,102,000		0	0
551	Pearson District	391,000	267,900	-	0	109,000		0	0
2058	Pescadero Tract	130,000	47,500	5,000	20,000	55,000		0	0

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CA DWR

Table 4 Continued									
1007	Pico/Naglee	128,000	89,700	30,000	0	0	0	0	0
2090	Quimby Island	987,000	133,000	6,000	300,000	384,000	147,000	0	0
2037	Rindge Tract	592,500	300,200	-	275,000	1,500	0	0	0
684	Roberts, Lower	1,030,000	244,000	100,000	0	670,000	0	0	0
524	Roberts Island, Middle	314,500	184,300	4,500	25,000	91,000	0	0	0
544	Roberts Island, Upper	484,000	285,000	5,000	0	179,000	0	0	0
403	Rough & Ready Island	536,800	108,400	200,000	0	224,800	0	0	0
501	Ryer Island	241,900	214,900	5,500	0	0	0	0	0
2074	Sargent-Bernhart Tract	4,231,100	66,500	-	0	350,000	3,811,100	0	0
341	Sherman Island	515,000	370,500	10,000	0	115,000	0	0	0
2115	Shina Tract	15,178,500	125,400	22,500	637,500	0	2,286,500	12,100,000	0
1614	Smith Tract	669,000	53,200	2,500	0	277,500	333,000	0	0
2089	Stark Tract	117,500	66,500	1,000	0	46,500	0	0	0
38	Staten Island	782,000	487,400	-	0	290,000	0	0	0
548	Terminus Tract	1,396,000	305,900	15,000	0	1,059,000	0	0	0
1601	Twitshell Island	1,143,000	226,100	11,500	125,000	768,500	0	0	0
563	Tyler Island	4,865,000	435,100	5,000	2,285,000	0	2,117,000	0	0
1	Union Island, East	616,500	266,000	3,500	0	333,000	0	0	0
2	Union Island, West	735,500	307,800	10,000	0	401,500	0	0	0
1607	Van Sickle Island	179,000	70,300	-	29,000	76,000	0	0	0
2065	Veale Tract	525,000	98,900	92,500	210,000	120,500	0	0	0
2023	Venice Island	1,027,500	233,700	15,000	625,000	141,500	0	0	0
2046	Victoria Island	799,000	286,900	6,500	125,000	365,500	0	0	0
554	Walnut Grove	50,000	45,200	-	0	0	0	0	0
2026	Webb Tract	1,270,500	245,100	-	0	1,012,500	0	0	0
828	Weber (Rosten)	100,000	32,300	30,000	0	36,000	0	0	0
2122	Winter Island	273,500	91,200	-	174,000	3,500	0	0	0
2072	Woodward Island	1,176,000	167,200	100,000	0	780,000	120,000	0	0
2119	Wright-Elmwood Tract	729,500	134,900	65,000	0	522,500	0	0	0
2068	Yolano	62,000	53,300	-	0	0	0	0	0
Total 68 Districts		82,333,500	13,088,000	1,274,000	8,215,000	23,359,800	23,542,800	12,100,000	0

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cont.

CA DWR

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PUBLIC DRAFT

INITIAL STUDY/PROPOSED MITIGATED NEGATIVE DECLARATION
DELTA EMERGENCY ROCK AND TRANSFER FACILITIES PROJECT



H-6

PREPARED FOR:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

OCTOBER 26, 2007

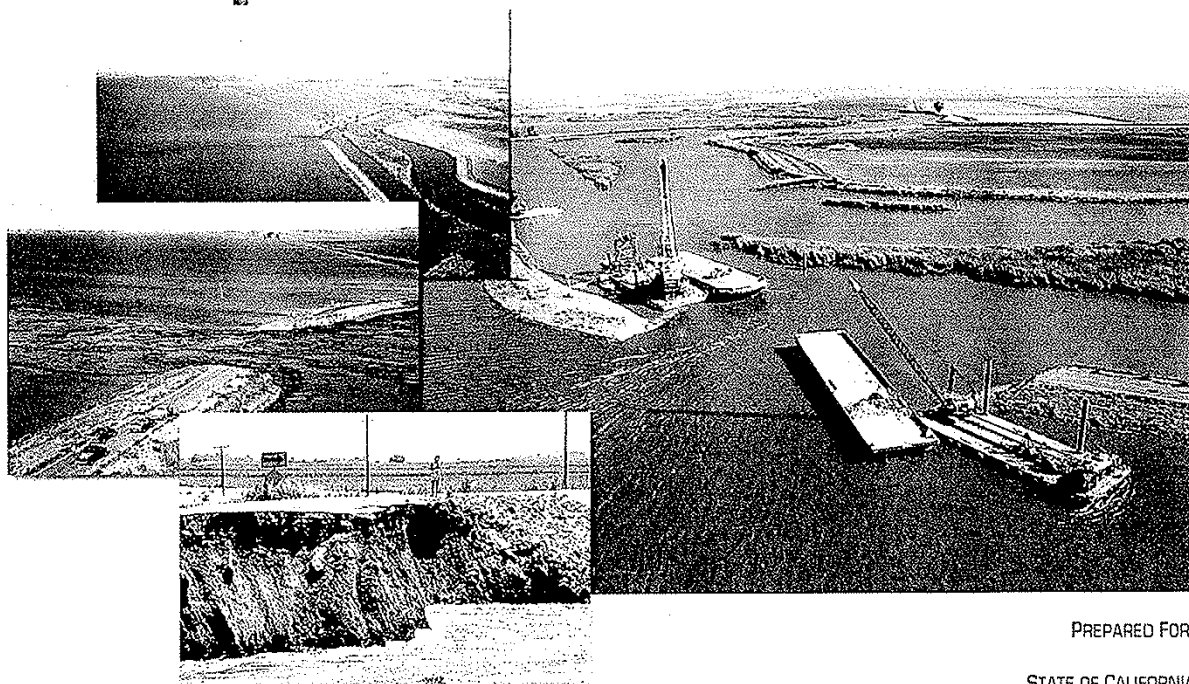
PREPARED BY: V

EDAW

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PUBLIC DRAFT ↗

INITIAL STUDY/PROPOSED MITIGATED NEGATIVE DECLARATION
DELTA EMERGENCY ROCK AND TRANSFER FACILITIES PROJECT



H-6
cont.

PREPARED FOR:

STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF ENGINEERING
1416 9TH STREET,
SACRAMENTO, CA 95814

CONTACT:

DAVID RENNIE
916/653-6396

PREPARED BY:

EDAW
2022 J STREET
SACRAMENTO, CA 95811

CONTACT:

ANDREA SHEPHARD
916/414-5800

OCTOBER 26, 2007 ↘

EDAW

Date: October 26, 2007

To: Responsible and Trustee Agencies, Interested Parties, and Organizations

Subject: **NOTICE OF INTENT TO ADOPT AN INITIAL STUDY/MITIGATED
NEGATIVE DECLARATION FOR THE DELTA EMERGENCY ROCK AND
TRANSFER FACILITIES PROJECT**

The California Department of Water Resources (DWR) has prepared and intends to adopt a Mitigated Negative Declaration (MND) for the proposed project in compliance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines.

Project Title: Delta Emergency Rock and Transfer Facilities Project

Lead Agency: Department of Water Resources, Division of Engineering

Project Location: Rock stockpiling and barge loading facilities that would be part of the proposed project would be located at the Port of Stockton in Stockton, on property along the Sacramento River in Hood, and on state-owned land in Rio Vista. The Port of Stockton is located along the eastern edge of the Sacramento-San Joaquin River Delta (Delta), approximately 50 miles south of Sacramento. Barge loading facilities would be located on Rough and Ready Island adjacent to the Stockton Deep Water Channel. Stockpiling would occur approximately 1,500 feet southwest of the barge loading area on an existing gravel-covered open storage area. Hood is a small farming community located along the Sacramento River in the northeastern Delta approximately 20 miles southeast of Sacramento. The rock stockpile in Hood would be located on a privately owned section of widened levee adjacent to the Sacramento River. In Rio Vista, DWR would establish a rock stockpile on approximately 3.4 acres of land owned by the State of California Reclamation Board (The Reclamation Board) that is currently under lease to ASTA Construction, Inc.; DWR would contract with Dutra Group for barge loading services at its established barge loading facilities located approximately 1,000 feet southeast of the proposed stockpiling area.

Project Description: The project proposes to stockpile riprap for emergency flood fighting operations at the three sites described above. The project would create a readily accessible state-owned inventory of riprap-size rock to be used in a large-scale disaster in which resources such as quarry production and truck hauling would be strained by excessive demands. The project also proposes to establish new transfer facilities at the Port of Stockton to load large rock from stockpiles and inland quarries onto barges for water-based emergency operations in the Delta. The proposed project would enhance readiness and improve operational flexibility to transport rock into the Delta during a flood emergency.

Environmental Review Process: DWR has prepared an initial study/proposed mitigated negative declaration (IS/MND) on the proposed project in accordance with the requirements of CEQA. The IS/MND describes the proposed Delta Emergency Rock and Transfer Facilities Project and provides an assessment of the project's potential impacts on the environment. The IS/MND concludes that any potentially significant impacts that may result from the proposed project can be avoided, eliminated, or reduced to a level that is less than significant by the adoption and implementation of specified mitigation measures.

Public Review Period: The IS/MND is being circulated for public review and comment for a review period of 30 days starting October 26, 2007. Written comments should be submitted and received at the following address no later than close of business (4:00 p.m.) on November 24, 2007.

H-6
cont.

Mr. David Rennie
Division of Engineering
California Department of Water Resources
1416 9th Street, Room 510
Sacramento, CA 95814
Fax (916) 653-7348
Email rennie@water.ca.gov

To Review or Obtain a Copy of the Environmental Document: Copies of the draft IS/MND may be reviewed at the following locations:

- ▶ Port of Stockton Administration Building, at 2203 W. Washington Street Stockton, California
- ▶ Sacramento County, County Clerk's Office, 600 8th Street, Sacramento, California
- ▶ Rio Vista City Hall, One Main Street, Rio Vista, California.

Your views and comments on how the project may affect the environment will be welcomed.

H-6
cont.

PROPOSED MITIGATED NEGATIVE DECLARATION

Project: Delta Emergency Rock and Transfer Facilities Project

Lead Agency: Department of Water Resources, Division of Engineering

PROJECT DESCRIPTION

This Initial Study and Proposed Mitigated Negative Declaration (IS/MND) evaluates the environmental effects of the proposed Delta Emergency Rock and Transfer Facilities Project. As part of its emergency preparedness efforts, the Department of Water Resources (DWR) proposes to stockpile rock and set up barge loading facilities at strategic locations around the Delta for use during emergency flood fighting operations in the event of a catastrophic flooding event in the Delta. Rock stockpiling and barge loading facilities that would be part of the proposed project would be located at the Port of Stockton in Stockton, on property along the Sacramento River in Hood, and on state-owned land in Rio Vista. The Port of Stockton is located along the eastern edge of the Sacramento-San Joaquin River Delta (Delta), approximately 50 miles south of Sacramento. Barge loading facilities would be located on Rough and Ready Island adjacent to the Stockton Deep Water Channel. Stockpiling would occur approximately 1,500 feet southwest of the barge loading area on an existing gravel-covered open storage area. Hood is a small farming community located along the Sacramento River in the northeastern Delta approximately 20 miles southeast of Sacramento. The rock stockpile in Hood would be located on a privately owned section of widened levee adjacent to the Sacramento River. In Rio Vista, DWR would establish a rock stockpile on approximately 3.4 acres of land owned by the State of California Reclamation Board (The Reclamation Board) that is currently under lease to ASTA Construction, Inc. DWR would contract with established local barge loading facilities or haul stockpiled rock by truck from the Hood and Rio Vista sites during a declared flood emergency. The proposed project would enhance readiness and improve operational flexibility to transport rock into the Delta during a flood emergency.

H-6
cont.

FINDINGS

An IS/MND has been prepared to assess the project's potential effects on the environment and the significance of those effects. Based on the IS/MND, it has been determined that the proposed project would not have any significant effects on the environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project would have no effects related to Agricultural Resources, Geology and Soils, Hazards and Hazardous Materials, Mineral Resources, Population and Housing, Public Services, or Recreation.
2. The proposed project would have a less-than-significant impact on Aesthetics, Hydrology and Water Quality, Land Use, Transportation/Traffic, and Utilities.
3. The proposed project would have potentially significant impacts related to Air Quality, Biological Resources, Cultural Resources, and Noise, but mitigation measures are proposed that would reduce these effects to less-than-significant levels.

Following are the mitigation measures that would be implemented by the state to avoid or minimize environmental impacts. Implementation of these mitigation measures would reduce the environmental impacts of the proposed project to a less-than-significant level.

Mitigation Measure Air-1: Enter into a Voluntary Emissions Reduction Agreement with San Joaquin Valley Air Pollution Control District (SJVAPCD). DWR shall implement the following mitigation measure to reduce project-generated construction-related emissions impacts to a less-than-significant level. DWR shall enter into a voluntary emissions reduction agreement with the SJVAPCD to mitigate the portion of construction-generated emissions of NO_x that exceed SJVAPCD's annual emission threshold of 10 tons/year for each year of project operation. The calculation of the fee shall be determined in coordination with the SJVAPCD and paid prior to the occurrence of any construction-related activities, including replenishment of stockpiles, within areas under the jurisdiction of the SJVAPCD on a yearly basis.

Mitigation Measure BIO-1: Conduct Raptor Nesting Surveys and Monitoring. DWR shall implement the following mitigation measure to reduce potential impacts to nesting raptors to a less-than-significant level. This measure applies to activities that either start during the March through August raptor breeding season, or start prior to that season but where activities lapse for 2 weeks or more. If rock would be stockpiled or replenished during the March through August nesting season, a qualified biologist to be retained by DWR shall conduct a survey for any nesting raptors, including Swainson's hawk and white-tailed kite, within 500 feet of all sites where rock is being placed or moved. In the event activities would start late in the breeding season (e.g., after May 1), multiple surveys are recommended, however, at least one survey shall be conducted no more than 2 weeks in advance of the start of activities. Any active raptor nests within a 500-foot buffer from activities shall be documented and reported to the Department of Fish and Game (DFG). If non-emergency stockpiling or replenishment would occur within 500 feet of an active raptor nest, all work within 500 feet of the active nest shall be stopped until the nest is no longer active, or until DFG is satisfied that activities would not endanger the nest.

Mitigation Measure BIO-2: Install and Maintain Fencing of the 20-Foot Buffer at Rio Vista. DWR shall implement the following mitigation measure to reduce potential impacts to jurisdictional wetlands to a less-than-significant level. In order to prevent inadvertent discharge of sediments or other fill into potentially jurisdictional wetlands at the Rio Vista site, the contractor and/or DWR shall install orange exclusion fencing on T-posts (or equivalent), with silt fence material installed along the bottom, on the limit of the 20-foot buffer flagged by EDAW on October 3, 2007. The fencing shall be maintained annually, and may be replaced with permanent fencing, if the site will be used long-term.

If fill, including sediments, enters the buffer, DWR shall immediately have the location and extent of the accidental discharge evaluated and documented by a qualified wetland specialist. If the wetland specialist determines that the accidental discharge is not limited to upland vegetation, DWR shall immediately notify the United States Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB), and shall compensate for any impacts to wetlands (e.g., through on-site restoration and/or the purchase of credits at an approved mitigation bank) to ensure that there is no net loss of wetland functions and services.

Mitigation Measure CUL-1: Immediately Halt Construction if any Cultural Resources are Discovered. DWR shall implement the following mitigation measure to reduce the potential impacts to buried historic cultural resources to a less-than-significant level. If cultural materials (e.g., unusual amounts of shell, animal bone, glass, ceramics, etc.) are discovered during project-related construction activities, DWR shall halt ground disturbances in the area of the find and notify a qualified professional archaeologist regarding the discovery. The archaeologist, to be retained by DWR, shall determine whether the resource is potentially significant per the California Register of Historical Resources (CRHR) and develop appropriate mitigation. Mitigation may include, but not be limited to, in-field documentation, archival research, archaeological testing, data recovery excavations, or recordation, and shall be implemented before resuming construction in the immediate vicinity.

Mitigation Measure CUL-2: Immediately Halt Construction if any Human Remains are Discovered. DWR shall implement the following mitigation measure to reduce the potential impacts to human remains to a less-than-significant level. In accordance with the California Health and Safety Code, if human remains are uncovered during ground-disturbing activities, DWR shall immediately halt potentially damaging excavation in the area of

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the burial and notify the County Coroner and a professional archaeologist to determine the nature of the remains. The coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code Section 7050.5[b]). If the coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code Section 7050[c]). Following the coroner's findings, DWR, an archaeologist, and the NAHC-designated Most Likely Descendent (MLD) shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section (PRC) 5097.9.

Mitigation Measure NOI-1: Implement Measures to Control Construction Equipment Noise Levels. DWR shall implement the following mitigation measure to reduce potential impacts from exposure to noise from construction equipment to a less-than-significant level. The contractor and/or DWR shall properly maintain construction equipment, and equip with noise control devices, such as exhaust mufflers or engine shrouds, in accordance with manufacturers' specifications.

Questions or comments regarding this Initial Study and Proposed Mitigated Negative Declaration may be addressed to:

Mr. David Rennie
Division of Engineering
California Department of Water Resources
1416 9th Street, Room 510
Sacramento, CA 95814
Fax (916) 653-7348
Email rennie@water.ca.gov

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APPROVAL OF INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Certification by Those Responsible for Preparation of this Document. The Department of Water Resources, Division of Engineering has been responsible for the preparation of this Proposed Mitigated Negative Declaration and the incorporated Initial Study. I believe this document meets the requirements of the California Environmental Quality Act, is an accurate description of the proposed project, and that the lead agency has the means and commitment to implement the project design measures that will assure the project does not have any significant, adverse effects on the environment. I recommend approval of this document.

Jim Peddy, Assistant Chief
Division of Engineering
California Department of Water Resources

Date

*(*To be signed upon completion of the public review process and preparation of a final project approval package including responses to comment, if any, on the environmental document and any necessary modifications to project design measures.)*

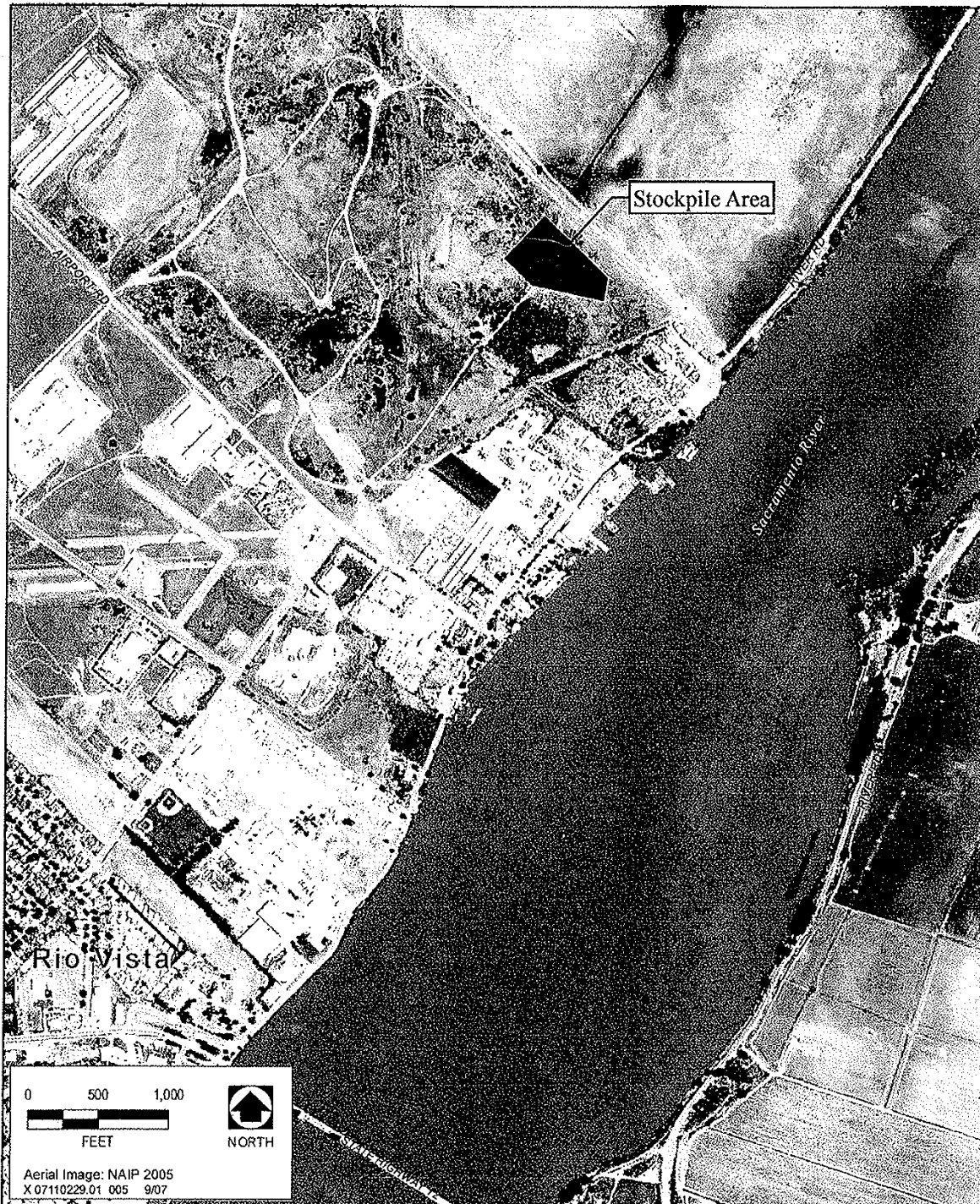
Approval of the Project by the Lead Agency. Pursuant to Section 21082.1 of the California Environmental Quality Act, the California Department of Water Resources has independently reviewed and analyzed the Initial Study and Proposed Mitigated Negative Declaration for the proposed project and finds that the Initial Study and Proposed Mitigated Negative Declaration reflect the independent judgment of the California Department of Water Resources. The lead agency finds that the project design features will be implemented as stated in the Mitigated Negative Declaration.

I hereby approve this project:

Richard Sanchez, Chief
Division of Engineering
California Department of Water Resources

Date

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Source: Data provided by EDAW in 2007

Rio Vista Site

Exhibit 2-3

EDAW
Project Description

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Emergency Rock and Transfer Facilities IS/MND
California Department of Water Resources

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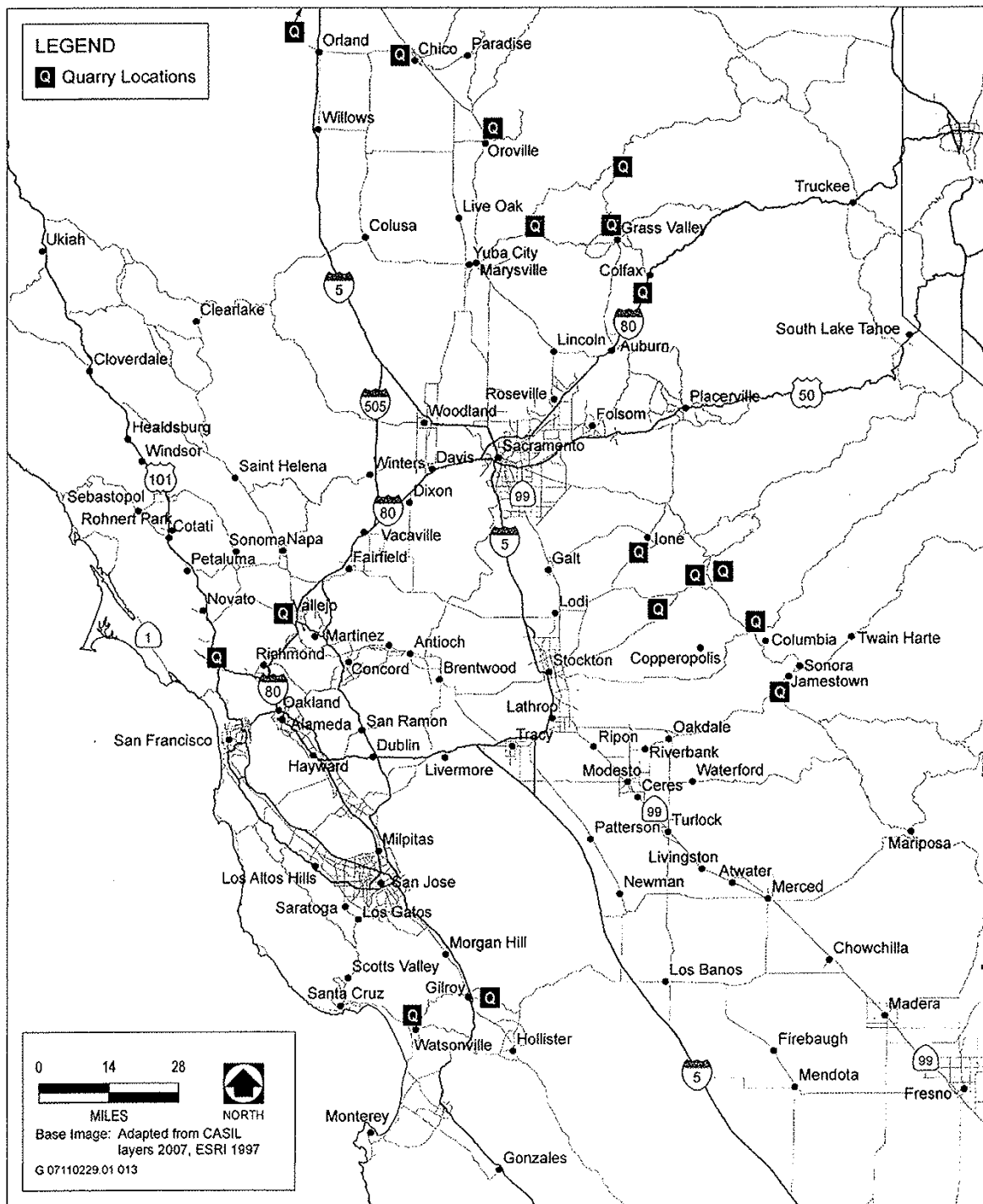
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Source: Data provided by EDAW in 2007

Potential Quarry Sites

Exhibit 2-4

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EDAW
 Project Description

events, levee failures during summer (similar to the 2004 failure on Upper Jones Tract) or other periods, and earthquake-induced levee failures. These events can be limited to a few islands or spread across the entire region, and can be exacerbated by high tides in the Delta.

Although the DEOP will be focused on detailing the standard operating procedures that DWR would use in a Delta flood fight and documenting the feasibility of specific response actions, DWR is still engaged in other planning efforts aimed at protecting the Delta. A parallel effort to the development of the DEOP is focused on increasing DWR's stockpile of rock and standard flood fight materials in the Delta region and building new facilities to quickly deploy these materials. This project is an early-implementation component of DEOP as outlined in the Delta Emergency Operations Plan Concept Paper (DWR 2007).

The proposed project would enhance DWR's emergency response capabilities for natural and human-made disasters in the Delta. Materials and facilities included in the project would be mobilized for emergency response during an activation of the State-Federal Flood Operation Center (FOC). The predeployed stockpiles would provide an inventory of materials available for an immediate emergency response. The proposed transfer facilities would significantly increase DWR's capability to load rock onto barges for water-based emergency operations. The three project locations were selected based on their proximity to major Delta rivers and sloughs and their accessibility for loading barges.

2.3 PROJECT PURPOSE AND OBJECTIVES

The project purpose is to prevent loss of life, minimize property damage, reduce significant environmental impacts, and protect Delta water quality and supplies when floods occur in the Delta. This purpose is achieved through the following objectives:

- ▶ Create a readily accessible state-owned inventory of riprap-size rock to be used in a large-scale disaster in which resources such as quarry production and truck hauling may be strained by excessive demands.
- ▶ Establish new material transfer facilities to load large rock from stockpiles and inland quarries onto barges for water-based emergency operations in the Delta.
- ▶ Enhance readiness and improve operational flexibility to transport rock into the Delta during a flood emergency.

2.4 EMERGENCY STOCKPILE AND TRANSFER FACILITIES

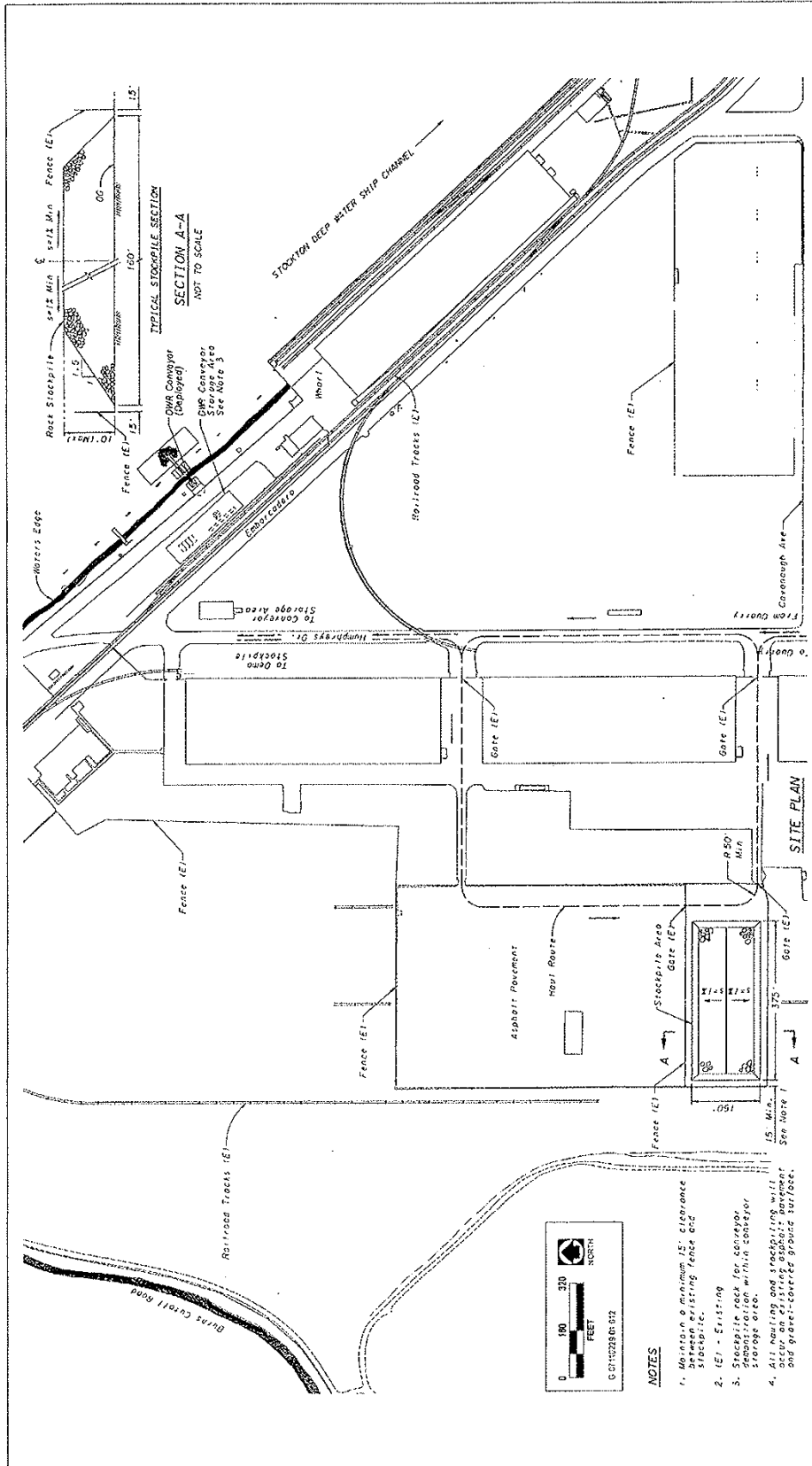
As part of its emergency preparedness efforts, DWR proposes to stockpile rock and set up barge loading facilities at strategic locations around the Delta for use during emergency flood fighting operations in the event of a catastrophic flooding event in the Delta. Three rock-stockpile sites and associated barge loading areas have been identified, as described below:

- ▶ Port of Stockton
- ▶ Hood
- ▶ Rio Vista

2.4.1 PORT OF STOCKTON

The Port of Stockton sites are located on Rough and Ready Island, which is a largely industrialized area with existing warehousing and industrial structures, approximately 40 miles of railroad tracks, and more than 6,600 linear feet of wharf area. The proposed stockpile site is a flat, gravel-covered open storage area near the northern portion of Rough and Ready Island, south of the confluence of Burns Cutoff and the Stockton Deep Water Ship Channel (Exhibit 2-5). The site has historically been used by the Port of Stockton as an outdoor

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Source: Data provided by EDAW in 2007

Port of Stockton Barge Loading Facilities and Stockpile Area

Exhibit 2-6

Emergency Rock and Transfer Facilities IS/MND
California Department of Water Resources

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EDAW
Project Description

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storage yard for large commercial products. No site improvements would be required to stockpile rock at this location.

A stockpile consisting of up to 25,000 tons of rock would be established on 2 acres of gravel-covered open storage area at the southern end of an existing asphalt apron (Exhibit 2-5). Access would be by an existing paved ingress at the northeast corner of the lot, and a similar existing paved egress at the southeast corner of the lot. The northern section of the existing concrete apron contains stockpiles of construction supplies, such as wood planks, structural steel, and other building materials. A parking lot and warehouses border the stockpile area on the east, and scattered ruderal and wetland vegetation borders the site to the south and west.

DWR's plans at the Port of Stockton also could include leasing of additional outdoor storage area that would allow stockpiling up to an additional 105,000 tons of rock riprap this year, which would allow for a total stockpile of 130,000 tons. Any additional storage area utilized by DWR on Rough and Ready Island would be leased from the Port of Stockton in a ready-for-use condition such that no site improvements or additional site permits would be required prior to initiating stockpiling activity on the site.

The barge loading equipment for the Port of Stockton site would be manufactured by a contractor, delivered to the site and demonstrated, then stored at the site until needed for deployment during an emergency flood fighting event. The proposed barge loading area would be located along the wharf approximately 1,000 feet northeast of the stockpile site and would be accessed by way of Humphrey's Drive and Embarcadero Drive (Exhibit 2-5). Barge loading equipment would include a conveyor (minimum 80 feet long with 4-foot-wide belt), hopper/feeder system, and intermediate support barge. The rock conveyor and hopper/feeder system would be capable of loading barges from shore with up to 24-inch minus rock at a maximum rate of 500 tons per hour.

When deployed, the hopper/feeder system would be skid mounted and anchored to a 6- to 12-inch-thick, 20-foot by 30-foot reinforced concrete pad that would be installed approximately 15 feet from the edge of the levee. Installation of the concrete pad would require removal of approximately 20–30 cubic yards of soil. The intermediate barge would be a modular barge system with support mast that would be anchored near shore with spuds when deployed.

All components of the barge loading equipment (conveyor, hopper/feeder system, modular barge) would be staged on land in a long-term storage area adjacent to the barge loading area. In the event of a declared flood emergency, the support barge, conveyor, and hopper/feeder components would be assembled using a land-based crane. A 30-foot-wide swing gate would be installed along the existing perimeter fencing that extends along the wharf area to provide access to the Stockton Deep Water Channel for deployment. A demonstration test would be performed when the equipment is delivered to the site. The demonstration would include setting up the equipment (2–3 days) and loading up to 500 tons of 24-inch minus rock onto a rock barge (1 day). Upon completion of the demonstration, the system would be disassembled (2–3 days) and staged in the long-term storage location adjacent to the barge loading area.

2.4.2 Hood

The Hood site is bordered by the Sacramento River on the west and River Road (SR 160) along its northern, eastern, and southern boundaries, which separate the site from the surrounding Hood community. A modular home park is located north of the site. A small commercial area and residential housing are located to the east, and a large irrigated pasture used for cattle grazing is located south of the site. The Hood site is privately owned and occupied by several large warehouse buildings. One of the warehouses is located on the bank of the river on the west side of the property, and several others occupy the east side with a partially paved loading/storage lot in between. Currently, Dutra Group leases the northern portion of the property and has established a barge loading facility currently equipped with a conveyor with an attached hopper/feeder system and an intermediate support barge anchored next to the riverbank by spud piles. DWR currently owns a portion of the property on the southern

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end of the site near the entrance, where it has established a water quality sampling station in the Sacramento River.

DWR would lease additional property on the site to accommodate up to 10,000 tons of stockpiled rock and provide ingress and egress for haul trucks (Exhibit 2-6). DWR would also either lease the existing conveyor system or establish a similar barge loading operation in the same location that would replace the existing equipment owned by Dutra Group.

2.4.3 RIO VISTA

The stockpile site in Rio Vista would occupy approximately 3.6 acres of land owned by The Reclamation Board that is located northwest of River Road, west of the Sacramento River, northeast of Airport Road and approximately 1.2 miles northeast of SR 12, and south of the Yolo Bypass (Exhibit 2-7). ASTA Construction currently leases the property and uses the site for surface mining of dredge spoils that were deposited on the site in the early to mid-1900s. In addition to mounds of dredge spoil, the site contains scattered debris and areas of ruderal vegetation, as well as some seasonal wetland habitat. The site would be accessed from Airport Road via ASTA Construction's existing site entrance and haul roads into their surface mining area.

Site preparation would occur after the installation of temporary construction fencing to establish exclusion zones with 20-foot buffers around potentially sensitive habitat areas (Exhibit 2-7). Site preparation activities would include minor clearing, grading and compaction of the stockpile area (3.6 acres); and covering the stockpile area with up to 6 inches of aggregate base (4,670 tons) depending on weather conditions. These site preparation activities would occur over 4 days using the following equipment: 5–10 dump trucks, one grader, one roller, one compactor, one bulldozer, and one water truck. A total of 212 truckloads would be required for the laying of aggregate base if required due to weather conditions.

DWR proposes to stockpile 75,000 to 100,000 tons of rock riprap at the Rio Vista site. Emergency operations at Rio Vista assume an agreement with a neighboring company to provide barge loading services at existing facilities on River Road. Alternately, stockpiled rock may be transported to emergency flood fighting locations by truck, depending on accessibility.

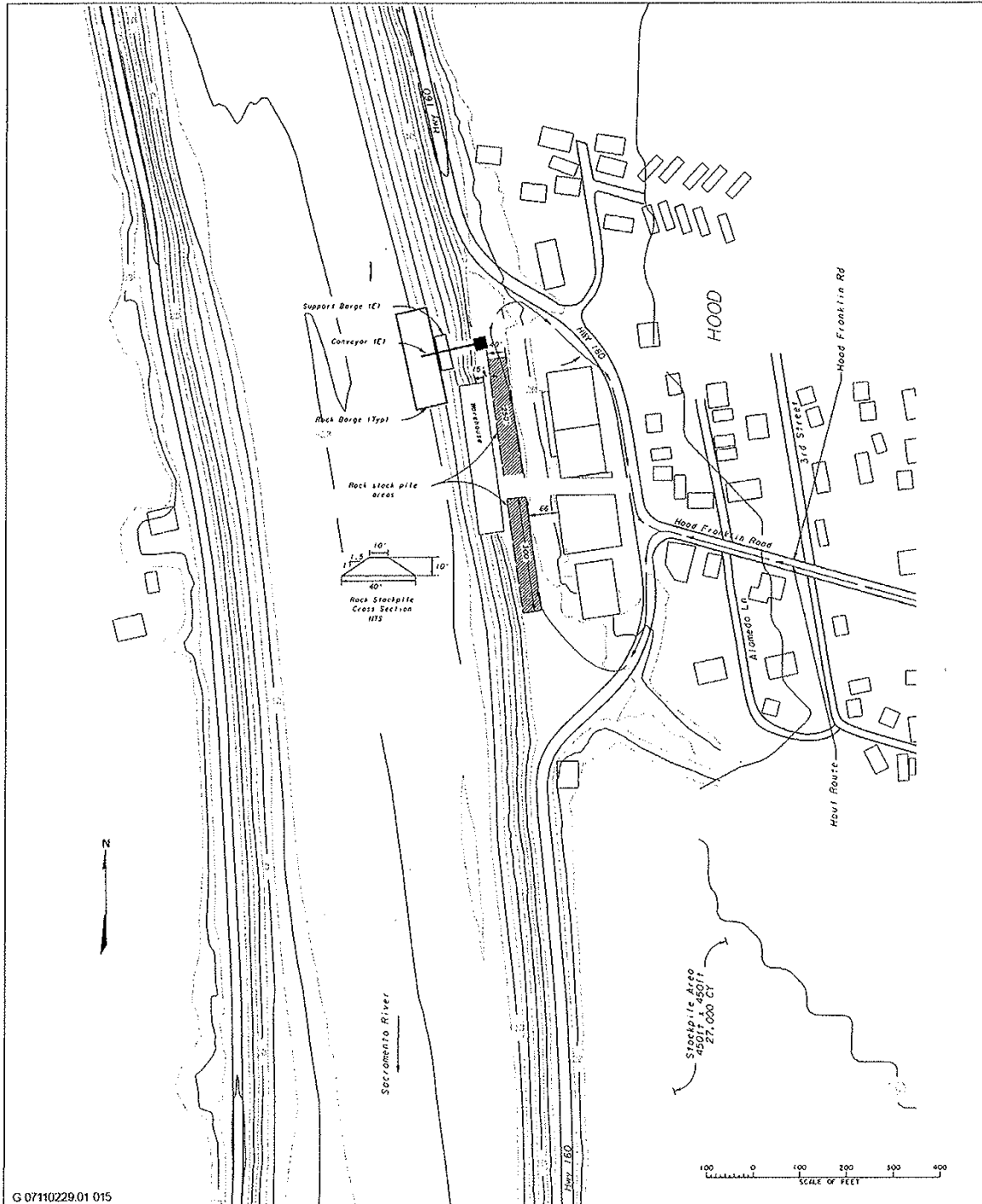
2.5 ROCK STOCKPILING OPERATIONS

The tonnage of rock delivered to the three stockpile locations would be limited to the amounts below. All rock deliveries would occur during normal working hours (7 a.m. to 7 p.m.). Following mobilization of the stockpiled rock at these locations during emergency flood fighting operations, the stockpiles would be replenished in accordance with the quantities listed below to prepare for future flood emergencies. Again, the rock deliveries would occur during normal working hours. Given it is impossible to predict the time and location of future Delta flood emergencies, the timing and frequency of stockpile replenishment are too speculative to estimate at this time.

- ▶ Port of Stockton: Up to 130,000 tons
- ▶ Hood: Up to 10,000 tons
- ▶ Rio Vista: Up to 100,000 tons

Air quality calculations are based on conservative assumptions that rock would be transported by truck from quarries in the central Sierra Nevada foothills and delivered to the Port of Stockton, Hood, and Rio Vista sites in December 2007 through mid-2008. No more than 100 truckloads (20 tons per truckload) would be transported daily during stockpiling operations; and that daily offloading would require the use of two loaders. The actual location of the rock sources would be determined by a competitive bidding process, and air quality emissions

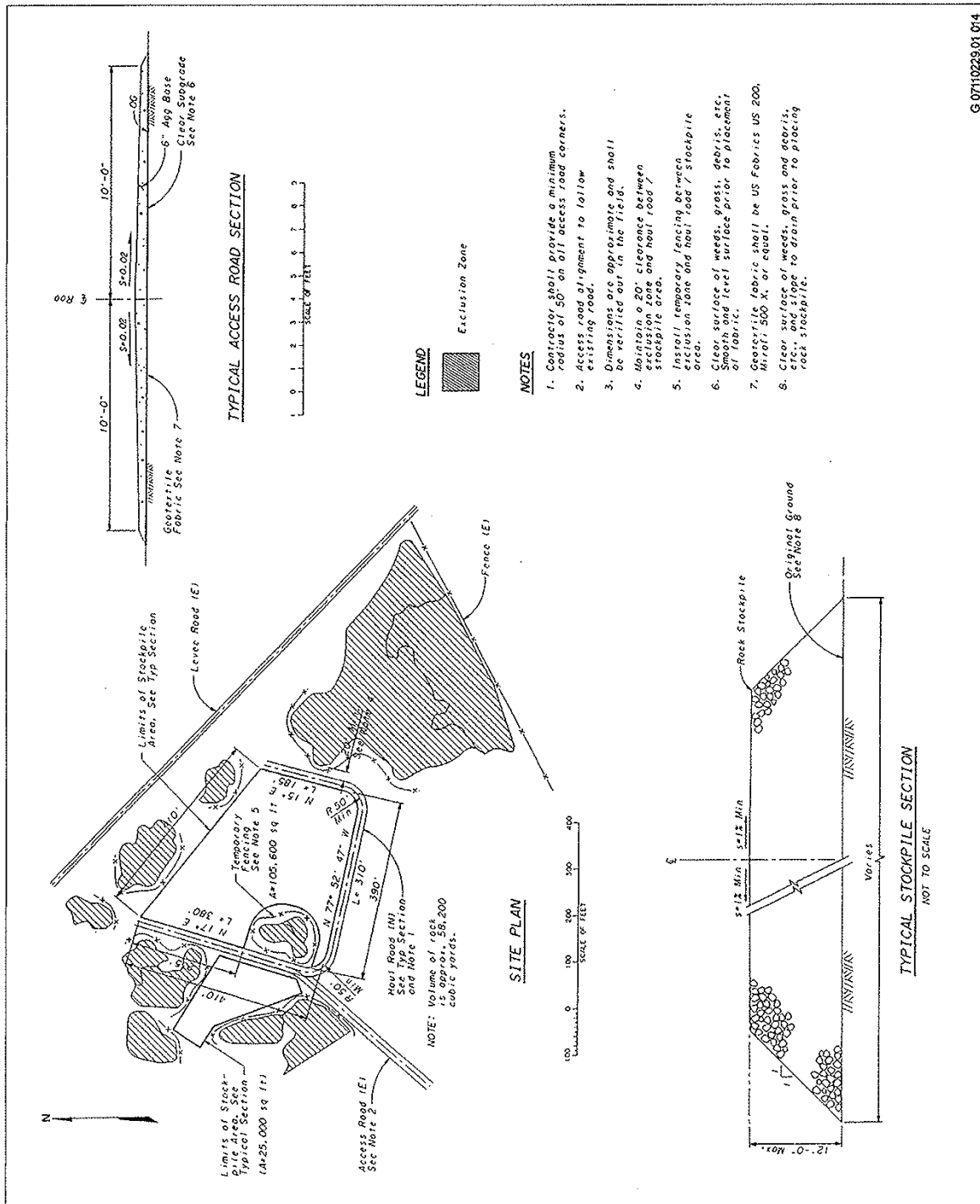
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Hood Site Plan

Exhibit 2-6



Rio Vista Site Plan

Exhibit 2-7

would be reevaluated after awarding of the contracts to ensure that emissions thresholds are not exceeded or are mitigated to a less-than-significant level if awarded quarry locations are farther away from the stockpile sites than those used in this analysis. Although the specific rock quarries to supply the rock have not yet been determined, a number of quarry sites have been identified as potential sources for the rock (Exhibit 2-4).

2.6 EMERGENCY FLOOD FIGHTING OPERATIONS

The following discussion of the emergency response actions is provided to address the whole of the action. These actions would occur with or without the project.

2.6.1 MOBILIZATION OF ROCK TO FLOOD FIGHT SITES IN THE DELTA

Activities that would occur during an emergency would depend on the location and severity of the emergency situation. Emergency situations could involve a natural or human-made disaster such as levee failures or imminent threat of failure caused by earthquake damage, high water (flood) levels, erosion, or other slope stability mechanisms (i.e., Jones Tract failure in 2004). In general, emergency flood fighting operations that would mobilize stockpiled rock using the above-described barge loading facilities would likely include the following set of actions:

1. DWR's Director and/or the Governor would declare a flood emergency and activate the State-Federal FOC.
2. DWR's Division of Flood Management would initiate a response to the declared flood emergency.
3. DWR would mobilize personnel, materials, and equipment through emergency contracts.
4. Rock conveyor system at the Port of Stockton would be deployed (2–3 days) and mobile generators would be delivered to the Port of Stockton and Hood sites to power the conveyor systems. The neighboring barge loading company in Rio Vista would be brought online.
5. Loading equipment, including front-end loaders and dump trucks, would be mobilized to all three stockpile locations.
6. Rock barges and tug boats would be mobilized to the transfer facilities to receive rock from the conveyors.
7. Depending on the scale of the disaster, multiple rock quarries would begin producing rock, and trucking companies would begin hauling rock (20 tons per load) from the quarries to the transfer facilities for loading onto barges.
8. Rock from existing stockpiles would be loaded onto barges in conjunction with quarry-run rock coming directly from the quarries.
9. Barge-mounted cranes would be deployed to emergency locations for in-water placement of rock from the rock barges.
10. Barge and truck traffic would be continually adjusted based on need for rock and availability of resources (e.g., rock, barges, tugs, trucks, fuel, personnel).

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2.6.2 USE OF ROCK AT FLOOD SITES IN THE DELTA

Three primary uses are envisioned for rock in the Delta during the emergency operations:

1. *Flood fighting (before levee breach).* This may involve placement of rock on the waterside slope and/or crest of a levee to armor the levee against erosion, mitigate crest settlement, add freeboard, or address other slope stability issues. Rock placement may also be on the landside slope or toe to buttress the levee and improve slope stability.
2. *Levee breach closure (after failure and island inundation).* It is assumed that once a levee is breached, levee closure would not take place until the island is filled with water and the water levels in the river and islands have equalized. Rockfill may be used to armor the ends of the breach (initially), then close the breach and rebuild the failed section of levee. Rock may also be used to armor critical portions of the levee interior (i.e., former landside slopes) from wind-driven wave erosion.
3. *Channel closures/Levee armoring.* Significant impacts on water quality from the intrusion of saltwater are predicted under the catastrophic earthquake/multi-island failure scenario. After the response planned for protecting life and property is complete (i.e., flood fighting, levee closures), constructing temporary channel closures at strategic locations would protect the area from saltwater intrusion and reestablish municipal and agricultural water supply operations in the Delta. The emergency effort would be designed to flush saltwater from the south Delta and restore water supplies for State Water Project (SWP), Central Valley Project (CVP), and local water agencies. Channel closure designs would likely be similar to DWR's temporary rock barriers installed each year in the south Delta (DWR 2000).

Emergency flood fighting operations could be required at any time and at virtually any location throughout the Delta, which contains more than 1,100 miles of levees. It is important to note that large quantities of rock would be used at flood fight sites in the Delta as described above with or without the proposed project. The proposed stockpiles represent a fraction of the rock required during a large-scale disaster scenario. Predeployment of these materials and establishment of the transfer facilities would greatly improve the operational flexibility and reliability during the emergency response.

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2.7 ENVIRONMENTAL PROTECTION

This section describes features of the proposed project that DWR has adopted as part of the project design and construction process to reduce potential environmental impacts. In addition to these features, DWR would adopt and implement the mitigation measures identified in Chapter 3 and incorporate them into the project design.

2.7.1 WATER QUALITY PROTECTION

Erosion is the process by which soil particles are displaced and transported by wind or water. Site preparation activities at Rio Vista and to a very limited extent at the Port of Stockton may expose the project sites to possible erosion. DWR will implement Best Management Practices (BMPs) in accordance with applicable federal and state regulations that provide for protecting the quality of stormwater discharge at all three project sites. Before the start of any construction work, clearing, or site grading associated with preparation of the Rio Vista or Port of Stockton sites, and any stockpiling activities at all three sites, measures to control soil erosion and waste discharges will be prepared. DWR will require all contractors conducting work at the sites to implement the measures to control soil erosion and waste discharges of other construction-related contaminants, and the general contractor(s) and subcontractor(s) conducting the work will be responsible for constructing or implementing, regularly inspecting, and maintaining the measures in good working order.

The plans developed by DWR or its contractor(s) will identify the grading, erosion, and tracking control BMPs and specifications that are necessary to avoid and minimize water quality impacts to the extent practicable.

Standard erosion control measures (e.g., management, structural, and vegetative controls) will be implemented for all construction activities that expose soil. Grading operations will be conducted to eliminate direct routes for conveying potentially contaminated runoff to drainage channels. Erosion control barriers such as silt fences and mulching material will be installed, and disturbed areas will be reseeded with grass or other plants where necessary. Tracking controls shall be required year-round, as needed, to reduce the tracking of sediment and debris from the construction site. At a minimum, entrances and exits shall be inspected daily, and controls implemented as needed. The following specific BMPs will be implemented:

- ▶ Conduct all work according to site-specific construction plans that identify areas for clearing, and grading so that ground disturbance is minimized.
- ▶ Avoid riparian and wetland vegetation wherever possible and identify vegetation to be retained for habitat maintenance (i.e., as identified through preconstruction biological surveys), cover cleared areas with mulches, install silt fences near riparian areas or streams to control erosion and trap sediment, and reseed cleared areas with native vegetation.
- ▶ Stabilize disturbed soils before the onset of the winter rainfall season.
- ▶ Stabilize and protect stockpiles from exposure to erosion and flooding.
- ▶ Stabilize all construction access by providing a point of entrance/exit to the construction sites to reduce the tracking of mud and dirt onto public roads by construction vehicles.
- ▶ Grade each construction entrance/exit to prevent runoff from leaving the construction site, and ensure that all runoff from the stabilized entrances/exits are routed through a sediment-trapping device before discharge.
- ▶ Ensure that entry/exitways are able to support the heaviest vehicles and equipment that will use them.

BMPs will also specify appropriate hazardous materials handling, storage, and spill response practices to reduce the possibility of adverse impacts from use or accidental spills or releases of contaminants. Specific measures applicable to the project include, but are not limited to, the following:

- ▶ Develop and implement strict onsite handling rules to keep construction and maintenance materials out of drainages and waterways.
- ▶ Conduct all refueling and servicing of equipment with absorbent material or drip pans underneath to contain spilled fuel. Collect any fluid drained from machinery during servicing in leak-proof containers and deliver to an appropriate disposal or recycling facility.
- ▶ Maintain controlled construction staging, site entrance, concrete washout, and fueling areas at least 100 feet away from stream channels or wetlands to minimize accidental spills and runoff of contaminants in stormwater.
- ▶ Prevent raw cement; concrete or concrete washings; asphalt, paint, or other coating material; oil or other petroleum products; or any other substances that could be hazardous to aquatic life from contaminating the soil or entering watercourses.
- ▶ Maintain spill cleanup equipment in proper working condition. Clean up all spills immediately according to the spill prevention and response plan, and immediately notify DFG and the RWQCB of any spills and cleanup procedures.

H-6
cont.

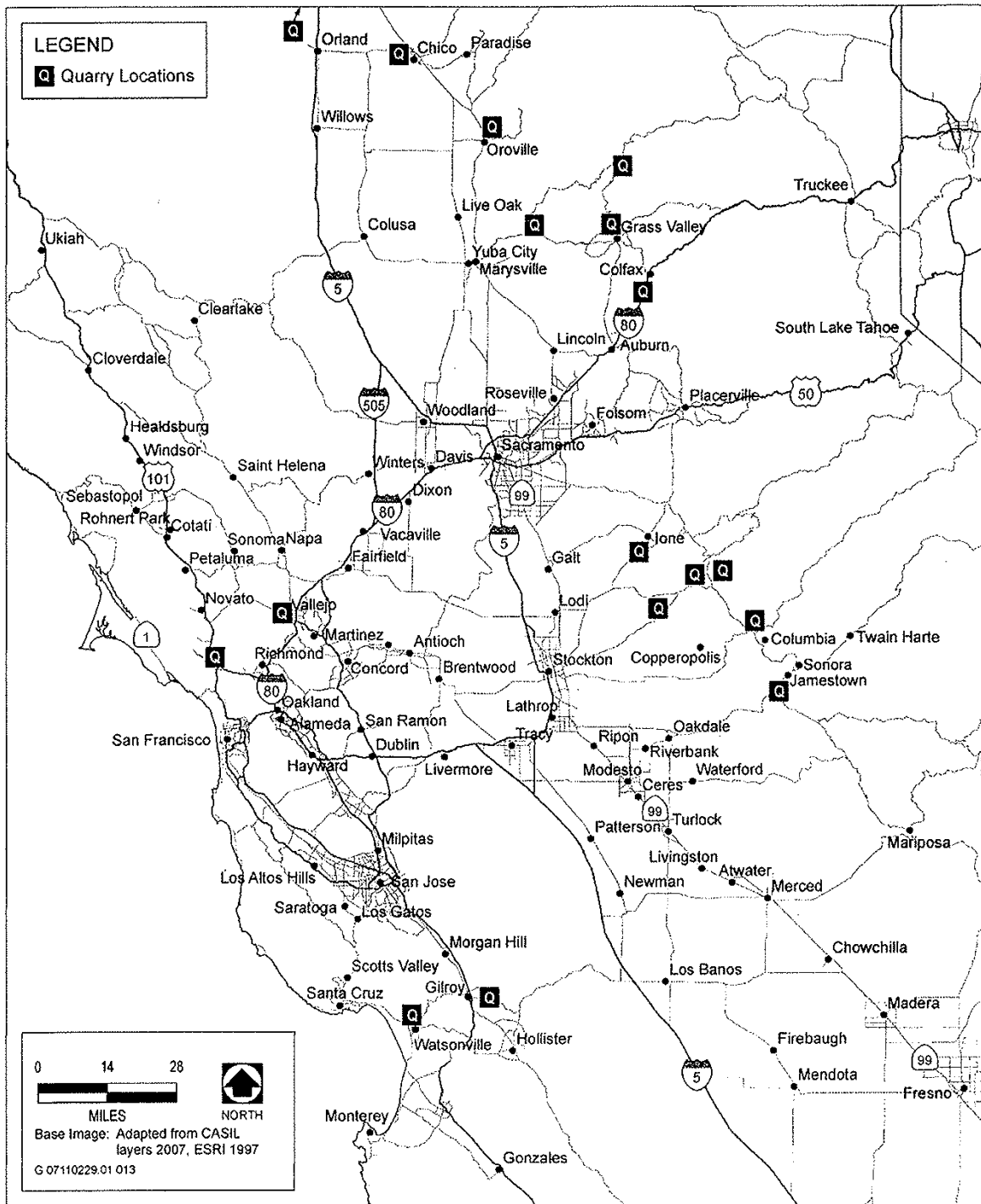
3 ENVIRONMENTAL CHECKLIST

PROJECT INFORMATION	
1. Project Title:	Delta Emergency Rock and Transfer Facilities
2. Lead Agency Name and Address:	California Department of Water Resources 1416 9 th Street, Sacramento, CA 95814
3. Contact Person and Phone Number:	David Rennie, Senior Water Resources Engineer, Division of Engineering (916) 653-6396
4. Project Location:	Lot 1004, Rough and Ready Island, Port of Stockton, CA. River Road 1 mile north of State Route 12, Rio Vista, CA. Franklin Road and River Road, Hood, CA
5. Project Sponsor's Name and Address:	California Department of Water Resources 1416 9 th Street, Sacramento, CA 95814
6. General Plan Designation:	Port of Stockton site: Institutional Use Rio Vista site: Extensive Agriculture Hood site: Intensive Industrial
7. Zoning:	Port of Stockton site: Public Lands (P-L) Rio Vista site: Agriculture Hood Site: Industrial
8. Description of Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)	Attached.
9. Surrounding Land Uses and Setting: (Briefly describe the project's surroundings)	See Chapter 2.
10. Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)	See Chapter 1.
ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:	
The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.	
<input type="checkbox"/> Aesthetics	<input type="checkbox"/> Agriculture Resources
<input type="checkbox"/> Biological Resources	<input type="checkbox"/> Cultural Resources
<input type="checkbox"/> Hazards & Hazardous Materials	<input type="checkbox"/> Hydrology / Water Quality
<input type="checkbox"/> Mineral Resources	<input type="checkbox"/> Noise
<input type="checkbox"/> Public Services	<input type="checkbox"/> Recreation
<input type="checkbox"/> Utilities / Service Systems	<input type="checkbox"/> Mandatory Findings of Significance
	<input type="checkbox"/> Air Quality
	<input type="checkbox"/> Geology / Soils
	<input type="checkbox"/> Land Use / Planning
	<input type="checkbox"/> Population / Housing
	<input type="checkbox"/> Transportation / Traffic
	<input checked="" type="checkbox"/> None With Mitigation

H-6
cont.

DETERMINATION (To be completed by the Lead Agency)	
On the basis of this initial evaluation:	
I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.	<input type="checkbox"/>
I find that although the proposed project COULD have a significant effect on the environment, there WILL NOT be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.	<input checked="" type="checkbox"/>
I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.	<input type="checkbox"/>
I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.	<input type="checkbox"/>
I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION , including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.	<input type="checkbox"/>
<div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="margin-bottom: 5px;">Signature</div> </div> <div style="width: 45%;"> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="margin-bottom: 5px;">Date</div> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="margin-bottom: 5px;">Printed Name</div> </div> <div style="width: 45%;"> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="margin-bottom: 5px;">Title</div> </div> </div> <div style="margin-top: 20px;"> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="margin-bottom: 5px;">Agency</div> </div>	

H-6
cont.



H-6
 cont.

Potential Quarry Sites

Exhibit 2-4

Emergency Rock and Transfer Facilities IS/MND
 California Department of Water Resources

2-5

EDAW
 Project Description

Exh 5

Enhanced Delta Emergency Response 2007-09 Jan. 18, 2008 Update

This update covers all of the progress the Department of Water Resources (DWR) has made from Oct. 24, 2007 through Jan. 18, 2008 in enhancing the Department's ability to respond to large-scale levee failure or flood related emergencies in the Sacramento-San Joaquin Delta. The majority of DWR's work activities these three months have focused on improving the physical response to an emergency via pre-event planning preparation work (i.e. stockpiling flood response materials and developing plans to use these materials in a DWR emergency response effort) and in expanding its outreach activities with other groups that are developing their own Emergency Operations Plans (EOP).

Emergency Operations Plan

No significant changes have been made to the Interim EOP. However, the plan has been presented to the Delta Protection Commission (DPC) and DWR personnel have been engaged with the DPC and others in the development of non-DWR Delta-specific EOPs. Improvements in the Interim EOP will continue to focus on DWR's legislated water-focused emergency response responsibilities, but by participating in the development of other Delta-specific EOPs, DWR's plan will better integrate into an overall Delta emergency response planning effort that can address a larger cross section of emergencies.

Pre-Event Prep Work

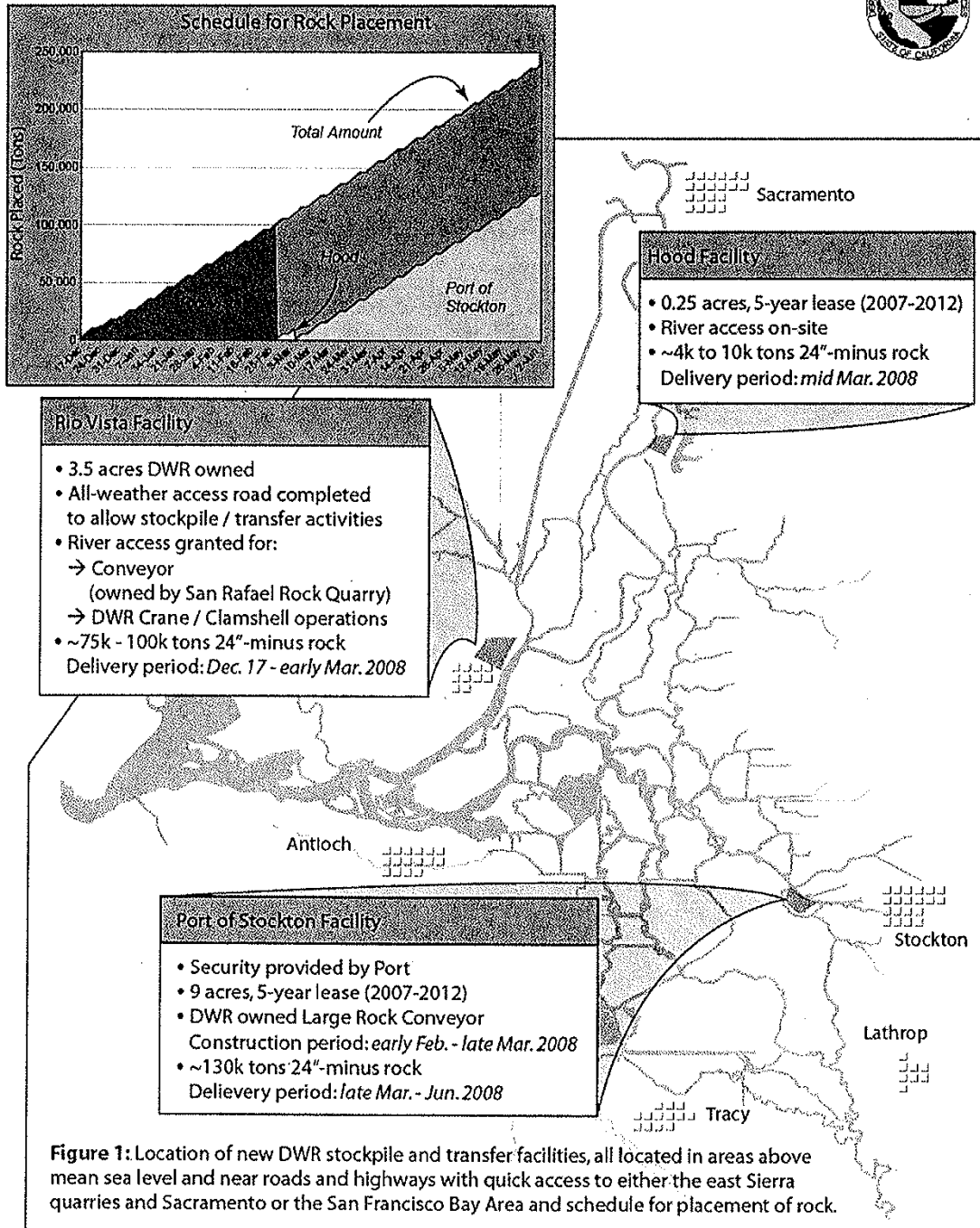
Based on the preliminary design estimates of material needed to repair multiple levee breaches and block 8 river channels following a large-scale levee failure (and massive salinity intrusion) in the Delta, preparatory work for three new joint stockpile / transfer facilities located on the periphery of the Delta has been completed. Jackson Valley Quarry started placing rock (see Figure 1 for the schedule of rock placement) at DWR's Rio Vista Facility on Dec. 17, 2007. Rock will continue to be delivered to Rio Vista through Mar. 2008, when the rock will then be delivered first to the Hood Facility and later to the Port of Stockton. Currently the delivery of materials is slightly ahead of the original contracted schedule, but the final delivery date based upon the supply contract is shown below.

Facility	Total Quantity of Rock [Tons]	Contracted Delivery Date
Rio Vista	100k	Mar. 3, 2008
Hood	10k	Mar. 13, 2008
Port of Stockton	130k	Jun. 27, 2008
Total	240k	

The San Rafael Rock Quarry has been contracted to construct a complete conveyor system at the Port of Stockton that will be capable of transferring large rock from either the above referenced stockpiles or directly from trucks to barges. The construction and demonstration of this conveyor should be completed in Mar. 2008. Although located at the Port, the conveyor will be owned and operated by the Department.

The second phase of design work and contracts will focus on increasing the quantity of rock stockpiled at the facilities, as well as procuring other breach closure materials, such as sheet piles and increasing current wave wash protection supplies. DWR will also develop strategies for transporting rock from the stockpile / transfer facilities to various potential breach locations.

H-7



H-7

Comment Letter H: Joseph W. Caramucci

- H-1 Compilation of information from diverse state and local agencies, reclamation districts, and private sources from a period nearly 30 years ago is beyond the scope of this EIR, and would not likely result in a definitive conclusion regarding the volume of materials shipped by barge from what is now San Rafael Rock Quarry.
- H-2 The Final EIR does not state that SRRQ is the sole source of aggregate materials for the Delta region.
- H-3 The County acknowledges receipt of this information but fails to see its relevance to the environmental analysis.
- H-4 The County acknowledges receipt of this information but fails to see its relevance to the environmental analysis.
- H-5 The County acknowledges receipt of this information but fails to see its relevance to the environmental analysis.
- H-6 The County acknowledges receipt of this information but fails to see its relevance to the environmental analysis.

Comment Letter I

Community Development Agency
Att. Mr. Tim Haddad
3501 civic Center Dr. Room 308
San Rafael, Ca. 94903

16 Marin Bay Park Ct.
San Rafael Ca 94901
March 14, 2009

Dear Mr. Haddad:

This letter contains our comments with respect to the recently issued FEIR on the SRRQ Amended Reclamation Plan and Amended Mining Permit. We are particularly concerned with the Items 1 & 10 of the Mining permit and for the Rec Plan the section relating to the NE Quadrant of the Quarry. The FEIR does not effectively answer our questions in these areas and in our view should not be certified.

I-1

MAR 17 2009 PM 12:14 Planning

Mining Permit --1. Blasting - The intense vibrations we experience within our home when the Quarry blasts are ignored in the FEIR.. Mr. Revy in his off repeated response informs us that we only get "barely perceptible" vibrations from quarry blasts.. This is not true. Blasts consistently, move pictures on the wall , bang pots together, rattle widows and doors and on occasion moves chairs- "barely perceptible"? Revy has given no explanation why his conclusions are different from what we regularly experience. He has not produced and demonstrated blasting protocols (for e.g. see attached summary of re Stony Point Quarry) which will reduce the intense vibrations we receive from standard quarry blasts. We were paid \$10,700 for damages to our home from a Quarry blast . We are very skeptical of experts who keep repeating as infinitum that Quarry Blasts are "barely perceptible" when once a week or more our house shakes violently. It does not matter incidentally whether the shaking is caused by ground shock or over blast.

I-2

Why in the FEIR was the peak particle limit raised without any reason?

2---Under the reduced alternative page 2-14 volume I a new condition has been added which proposes the granting of the Quarry Mining Permit and then conducting a study of quarry operating conditions for a year and then allowing another year for the installation of the study recommendations. This in our view is a proper approach to mitigating Quarry impacts but why wasn't it done in the EIR. There is no basis for giving the Quarry Permits before the study and actions are implemented in light of the Quarry history of violations and the county history of non enforcement. .

I-3

The limit of \$5300 imposed in the description above as per BAQMD is not explained . Does it mean this is the only economic standard applied- how is it applied?. What is the maximum expenditure limit that would occur under this constraint? Does it apply to noise reduction equipment.? Would it provide funds to implement study findings?

3 -Do the hours of operation limitations include barge loading?

I-4

Reclamation Plan--Under the amended Rec Plan proposed by the Quarry is a proposal for building a new berm in the NE Quadrant of the property to "shield the neighbors" This action in the 4 phase proposal for reclamation moves some 2 million cubic yards of material over an apparent 16 year period. It is primarily from Table 3-3 of Volume I and is an exercise in mixing "pond fines" waste from operations with material already in the NE Quadrant and is a part of operations not reclamation . It is a continuous process. We raised this question in our letter of comment on the DEIR. It is not answered.

I-5

Sincerely Yours

William E Hosken see attachments



ATTACHMENT TO LETTER OF W.E.HOSKEN 3/14/09

Summary of
Stony Point Quarry Permit BLASTING CONDITIONS

- 1 Any explosives spilled during the loading of the blasting holes be cleaned up prior to detonating the explosives.
- 2 blasting shall only be conducted by a licensed certified personnel consistent with federal, State and Local regulations.
- 3 blasting shall only occur between 11:30 am and 1:00PM Mondays through Fridays
- 4 All blasts shall be seismically monitored and a formula used to calculate the maximum amount of explosives that shall not be exceeded per each delay, to a maximum of 200 pounds , in order to assure no adverse vibration impacts result from blasting activities.
- 5 in the event that blasting generates noise complaints the blasting design for future blasts shall be modified in one or more of the following ways to achieve a reduction in impacts
 - a. avoid blasting during weather conditions such as inversions or when wind conditions are not favorable
 - b. use quiet initiation systems or bottom hole initiation
 - c. avoid short delay periods.

I-6

Note Both Revy and Floyd in their SRRQ blasting studies. State that the most effective way of reducing blast vibrations is to reduce the charge per delay of the blast. Why wasn't this considered in either study for the Quarry. Quarry management in the press stated this would be done. It could result in additional blasts but if they are not felt that is not a concern in our view W.E.Hosken

Comment Letter I: William E. Hosken

- I-1 This comment primarily addresses the merits of the project, not the environmental analysis.
- I-2 Please see Master Response 8: Blast Effects in Volume II of the Final EIR, and also responses to comments C-12 and F-20, above. Blast vibrations are discussed extensively in the Final EIR, and are identified as a significant impact (Impact P4.7-7). Blast vibrations are also a component of the significant unavoidable land use incompatibility impact identified in the Final EIR (Impact C4.6-7).
- I-3 The additional measures to reduce dust and noise from Quarry operations are considered in the Reduced Alternative, and not as mitigation for project impacts, because individual dust and noise impacts are already either less-than-significant, or they are mitigated below the level of significance. The additional measures contained in the Reduced Alternative are intended to reduce the land use incompatibility impact expressed in Impact 4.6-7 in Volume I of the Final EIR.
- The current standard of \$5,300 per ton of PM10 reduction is established in the BAAQMD's BACT Guideline. The cost-effectiveness of an abatement system or strategy is defined as the ratio of the annualized cost of that abatement system over the reduction in annual pollutant emissions achieved by the system for the pollutant in question. Further explanation can be found in the section on Policy and Implementation Procedure in the Guideline.¹³ The BAAQMD does not regulate noise sources, nor does it provide funds; funds for implementation of pollution control equipment would be the responsibility of the Quarry.
- I-4 The hours of operation limitations contained in the Reduced Project Alternative to the AQP do include barge loading.
- I-5 The Final EIR examines impacts of proposed reclamation activities, including proposed mixing of pond fines, grading, and movement of materials in and out of the NE Quadrant. The potential effects of these activities are considered in the following sections: Aesthetics, Air Quality, Biological Resources; Hydrology and Water Quality; Geology, Soils, and Seismicity, Land Use and Planning, and Noise and Vibration. The Mitigated Alternative to the ARP would eliminate use of the NE Quadrant as a staging area for storage and processing of materials for phased reclamation grading, and no new berm would be constructed in the NE Quadrant.
- I-6 This comment includes a summary of permit conditions for blasting at the Stony Point Quarry. The note at the end of the comment asks why reducing charge-per-delay for blasts at SRRQ was not considered. In fact, Mitigation Measure P4.7-7b in Section 4.7, Noise and Vibration, in Volume I of the Final EIR requires limitation of charge-per-delay.

¹³ Available online at: <http://www.baaqmd.gov/pmt/bactworkbook/default.htm>

A note from...

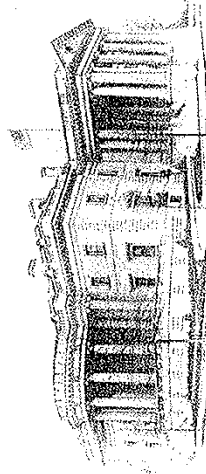
Ruth Anne Hosken

March 15, 2009

I wrote this letter to the Lf
in 2001.
Nothing has changed —
intolerable summer hours
persist.
A whole area of San Rafael
suffer from truck traffic,
dust and fumes. Over not
this population deserves better?

Ruth Anne Hosken

MAR 17 2009 PM 12:11 Planning



Celebrating 100 years of Memorial Continental Hall

HEAVEN'S FURY

ill automatically vote
against affordable housing
projects that draw the ire of
er supporters?

I, for one, say no. I believe
Ms. Adams should receive
the benefit of the doubt, and
should not be found guilty
y association.

I only hope that Ms.
Adams and her supporters
will show the same respect
or candidate Cohen.

Todd W. Smith
San Rafael

Quarry in the wrong

Your blatantly outrageous
editorial about the neigh-
bors of the San Rafael
Quarry being "patient" ap-
peared on a warm lovely
evening when windows were
opened to cool the house
and neighbors might have
enjoyed decks and yards and
your recommended view of
the August meteors. Howev-
er, that was not possible be-
cause the San Rafael Quar-
ry, ever "considerate" of its

will be an earthquake — it
does not lessen the shock,
the magnitude the damage,
nor the dust cloud that re-
sults.

As for "patience," you
should know that the neigh-
bors of East San Rafael have
been meeting with Mr.

Dutra, the county Board of
Supervisors, and county and
city officials about mitigat-
ing the impacts of the quar-
ry's operation since 1992.

No action has been taken by
the quarry or the county to
reduce the impact of the

quarry on its neighbors in all
that time (that seems to me
to be 10 years and you ask
for patience). In fact, the op-
posite has been true — the
size and scope of the quar-
ry's activity and the impacts
on the neighborhood have

increased in magnitude and
intensity each year. This in
spite of the fact that the
quarry has operated as a
non-conforming use that
prohibits expansion of its
activities since 1982.

It is not just the neigh-

bors suing the quarry but
the state of California and
the county of Marin. We
would suggest you might be
better informed if you read
the report of last year's
Marin Grand Jury, "Who's
Watching the Quarry?"

This past week, those
gravel trucks with the
checkered flags on San
Pedro Road hauling the
"valuable Marin

resource" are probably going
to the Oakland Airport. It is
interesting to note that
Alameda County has towns,
such as Pleasanton, that
have closed their quarries —
so they come to Marin to get
rock.

Ruth Anne Hosken
San Rafael

J-1

Comment Letter J: Ruth Anne Hosken

J-1 This comment addresses the merits of the projects, not the environmental analysis.

Donald Widder, M.D.
12 Marin Bay Park Ct.
San Rafael, CA 94901
3/5/2009

MAR 17 2009 PM 12:05 Planning

Mr. Tim Haddad
Environmental Coordinator
Marin County Community Development Agency
3501 Civic Center Drive, Room 308
San Rafael, CA 94903

Re: Comments to Final EIR for San Rafael Rock Quarry

Dear Mr. Haddad:

The FEIR outlines non-mitigable environmental impacts of allowing an incompatible mining operation in close proximity to residential property. To many residents who moved to the Pt. San Pedro area under the premise of a quarry operation in wind-down phase, unaware of any health risk consequences, their health, wellbeing, quality of life and value of their property is entrusted to the permit process. The report presents a compromise proposal which is an improvement over the original proposal, but falls far short of an acceptable solution. I contend that, unless sufficient mitigation is provided irrespective of cost, to preclude the cumulative health consequences of ongoing quarry operations, which will prevent premature loss of life, morbidity and nuisance, quarry operations should not continue. If cost precludes safety, the quarry should not continue operation. The FEIR understates all of the above.

K-1

If further environmental studies are required, then no permits should be issued until such studies have been satisfactorily completed and adequate mitigation achieved. Absent mitigation, the health consequences of continued quarry operations is unacceptable.

Response to Comment Letter 47

Health Risk

I appreciate the acknowledgement that aerosolized polymorphous crystalline silica, a direct consequence of blasting, mining and grinding operations, is potentially lethal. The methodology for modeling for chronic exposure using the REL has been analyzed and disputed in the DEIR with the contention that aerosolized crystalline silica exceeds tolerable thresholds on an annual basis. Modeling aside, there is empiric evidence of "piles" of dust, analyzed and shown to contain crystalline silica in our own backyards, schoolyards and parks, which, if aerosolized (that is, if the wind blows) could cause respiratory morbidity or mortality to the "statistic" who happened to be at the wrong place at the wrong time. Given the pathophysiology of silicosis described in my prior letter (*i.e.*, that sub-alveolar sized crystalline silica, when inhaled, remains in the alveoli of the lung as an irritant for life), it is impossible to consider any incremental exposure as anything but significant, particularly for those in close proximity. The risk is due to each

K-2

individuals maximum inhaled dose, and cumulative lifetime exposure, not a statistical average dose of exposure. Pictures of piles of dust and analyses of dust have been submitted. The threshold dose is only meaningful to each individual, based on their prior life-long exposure and as such an allowable threshold based on modeling is meaningless in assessing health risk. Therefore, since the effect of crystalline silica is cumulative, not cleared from the lungs, any ongoing burden of crystalline silica superimposed on the cumulative burden from years of quarry operations (which is not clearly determined, but no doubt significant) is significant, and from a medical perspective, unacceptable.

K-2
cont.

Contrary to statements in the FEIR, I have not seen scientific documentation that the polymorphous crystalline silica as demonstrated in dust analysis micrographs to be anything but a product of quarrying activity. It is not a normal constituent in nature. It is a marker of fugitive dust. If there is scientific evidence the the contrary, please provide it. The sharp edged crystalline silica is a product of blasting and not nature. This is the active agent that causes silicosis and related health problems.

To my understanding, among the modeling problems that generate numbers below a false threshold going forward are averaging crystalline silica levels over a 70 year period excluding "static sources" (*i.e.*, blasting) which artificially lowers number possibly in half. Health consequences are significant particular for those in close proximity to the quarry. The most vulnerable are the elderly, children and those with other respiratory ailments, compounded by diesel soot-particulate toxicity.

Blasting

The tolerance for blasting should be significantly lowered, not increased as proposed in the FEIR. Conclusions of the EIR expert supports the analysis of a structural engineer who assessed blasting-related neighborhood house damage. Both concluded that vertically oriented frame homes such as those in close proximity to the quarry (including my house) are subject to vibration damage that is most marked in the upper levels (the usual living quarters). Ground vibrations transmit through the house framing like a "tuning fork." Nonetheless, the EIR comments only on ground vibration tolerances which markedly underestimate the vibration damage to the upper levels of the structures. According to a structural engineer, my neighbors and I have sustained characteristic vibration related house damages. Whether this is due to a single blast or repeated blasting, the result is the same. The FEIR does not address mitigating the consequences of repeat blasting on the neighboring houses. This needs to be mitigated. The FEIR allowance of doubling tolerable blast levels based on single ground level measurements is not acceptable and exacerbates the problem rather than alleviating it. Obviously, the larger the blasts, the larger the aerosolized crystalline silica dust risk, noise and other issues.

K-3

Dust Mitigation

Covering the area of the pit where there is active blasting should be explored. It does not entail covering the entire pit, but the area of activity. Dry blasting has been known to be

K-4

a severe public health hazard for nearly a century and would be inexcusable if it has occurred during quarry operations. Has it? If there are blasts, the area should be flooded (not sprinkled with water) prior to a blast. Small contained blasts or other technology to minimize vibration damage, noise/nuisance issues should be explored to mitigate these problems. If not economically feasible, no permit should be allowed. The highest technology irrespective of cost should be the standard, since there are significant health consequences to making an economically driven decision.

K-4
cont.

Diesel/Trucking

Truck volume needs to be further reduced and diesel emissions contained with the latest technology. While barging results in significant noise problems, I fail to see the logic of allowing trucking of product on Pt. San Pedro Road without significant diesel emission restrictions. Carcinogenic effect of diesel is clear and the path passes public schools. The health consequences of diesel, greenhouse gas impact, traffic issues, nuisance and dust issues, wear and tear on the roads warrants tighter restrictions on trucking of product out of SRRQ. Local consumption is a small fraction of the truck volume.

K-5

Too Important to Close

The argument has been made that the quarry is a convenient local resource. The level of activity of the quarry to sustain local Marin demand should be explored as a percentage of total quarry sales. My understanding is that local supply is a small fraction of quarry activity and sales, and therefore the neighborhood is sustaining a significant environmental impact with marginal convenience or economic benefit locally. Furthermore, as the quarry is not a retail site, there are ample alternative sources for local needs within essentially the same distance to Marin. I raise this in the context of the FEIR and potential permit restrictions.

Toxic Real Estate

In an era of toxic investments, the last thing that the citizens of San Rafael need is an EIR concluding that the quarry poses an environmental impact to the neighborhood that cannot be mitigated and then providing the permit for its continued operation as such. This could have unintended but real consequences to local housing prices, and secondarily the local economy and Marin housing in general. Falling county sales and real estate taxes will follow in suit.

K-6

Mitigated Alternative

The mitigated alternative ignored the option of closing the quarry. If the quarry cannot mitigate its environmental impact on the community within its economic restraints, then no permit should be allowed.

Summary of Specific Proposals

Blasting. Units of intensity should be cut to eliminate vibration damage as measured in the top floors of the nearest homes, not at ground level, and to eliminate nuisance. Instead of doubling the allowable intensity, it should be reduced below existing levels.

Blasting Site. Should be contained without allowable fugitive dust. No aerosolized crystalline silica should be allowed. Cost should not be a consideration regarding this issue and if not economically feasible, no permit should be allowed.

Truck Traffic. Should be minimized. Diesel emissions need to be minimized or eliminated with lower traffic and improved technology.

Operating Noise. Should be contained to San Rafael maximum noise standards.

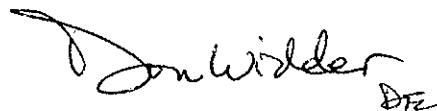
Operating Hours. Need to be further limited. A baseline of operation might be sufficient for local needs, barring emergent need.

Permit Issuance. Not to be issued until adequate mitigation of health and environmental impacts are achieved. If further studies are necessary, including possible epidemiology studies, these should be conducted prior to, not after, the permit process. The track record of quarry behavior in ignoring oversight rules and regulations should be sufficient evidence that acceptable parameters need to be defined before any permit process is considered. If there is any continued operation, it should be as a state-of-the-art contained site irrespective of cost. Cost is not an acceptable excuse for compromising the health and lives of the neighboring communities.

Reclamation. The alternatives are interesting, and require further discussion. Running a power grid out to the quarry is not without its own problems, however, and probably not the optimal solution.

Thank you for your consideration of my comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Don Widder". To the right of the signature, the letters "DFE" are handwritten.

Don Widder, M.D.

K-7

Comment Letter K: Don Widder, M.D.

- K-1 This comment addresses the merits of the projects, not the environmental analysis.
- K-2 The model used for estimating dispersion of crystalline silica includes a factor for dust that has been deposited and then re-entrained by the wind. OEHHA has not established a relative exposure level for lifetime exposure to crystalline silica, only a chronic (i.e., 1-year) exposure.

Contrary to the statement of the commenter, crystalline silica is a common component of dust, both from “natural” sources and from anthropogenic activities such as mining operations (U.S. Bureau of Mines, 1996; OEHHA, 2005). The following is from OEHHA, 2005, pages 1-2 (emphasis added):

At least 11 chemically identical forms (polymorphs) have been described for crystalline silica. *Alpha-quartz is the most abundant polymorph and constitutes 12% of the earth's crust* (Elzea, 1997). Silica is also found in the amorphous (non-crystalline) state. The amorphous silica in diatomaceous earth (composed mainly of the cell walls of diatoms) can be converted to the crystalline form cristobalite by heating to 1000-1100 °C (calcining). Silica is often associated with silicates, which, in addition to silicon and oxygen, contain other metals such as iron, magnesium, aluminum, calcium, potassium, and sodium.

The major uses of silica are in the manufacture of glass, abrasives, ceramics, and enamels, in scouring and grinding compounds, and in molds for castings. Silica is also used in decolorizing and purifying oils and petroleum products; as a clarifying agent; in filtering liquids; and in the manufacture of heat insulators, firebrick, and fire- and acid-proof packing materials. As diatomite (naturally occurring diatomaceous earth), silica is used as a filtration agent, as an abrasive, and as an industrial filler. *Sources of ambient respirable crystalline silica in California include mines, quarries, diatomaceous earth calcining plants, sand blasting, and entrained fines (e.g., PM10) from surface soil.* The annual statewide industrial emissions from facilities reporting under the Air Toxics Hot Spots Act in California based on the most recent inventory were estimated to be 2,514,981 pounds of crystalline silica.... The fraction, which is respirable as defined either occupationally or environmentally, is not known.

As previously described in the responses to comment letter G, the modeling of respirable crystalline silica emissions, dispersion, and exposure examines the highest 1-year exposure during the projected remaining life of the Quarry and reclamation, and contains many conservative elements to ensure that human health risks are not understated.

- K-3 The Final EIR does not change the mitigation measure restricting blast vibration. See Mitigation Measure 4.7-7b in Section 4.7, Noise and Vibration, in Volume I of the Final EIR. See also Master Response 8, Blast Effects, in Volume II of the Final EIR.

- K-4 The suggestion to enclose the area where blasting is to occur is technically infeasible, as the force of the blast can be expected to destroy the enclosing structure. Wetting the blast area prior to blasting is considered of limited effectiveness in reducing dust, since the water does not penetrate much below the rock surface, and problematic, since spraying the surfaces of benches prior to a blast could dislodge blasting caps, resulting in unexploded charges or other safety concerns.
- K-5 SRRQ is not proposing to increase truck traffic above the baseline level. Therefore, under CEQA, there is no impact associated with truck traffic. The Reduced Project Alternative to the Amended Quarry Permit includes a reduced level of truck trips. See Chapter 6 of Volume I of the Final EIR. Health risks, including cancer risks, associated with diesel emissions are examined in Section 4.2, Air Quality, in Volume I of the Final EIR. See also response to comment G-7, above.
- K-6 These comments go to the merits of the project, not the environmental analysis.
- K-7 These comments repeat the points made in the prior comments in this letter. Please see responses to comments K1-K6, above.
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CHAPTER 3

Text Changes to the FEIR

This chapter compiles all changes to the text of the Final EIR that appear in the responses to comments in Chapter 2. Additions to the text of the Final EIR are underlined; deletions are ~~struck through~~.

Text Changes to Chapter 2, Summary

Chapter 2, pages 2-12 and 2-13 of the Final EIR is changed as follows:

Comparison and Conclusion Regarding Alternatives to the Amended Reclamation Plan

As described in Chapter 6, each of the three alternatives would likely result in fewer significant impacts than the project. However, the No Project/Status Quo Alternative would result in impacts not associated with the project, notably interference with the extraction of the mineral resource. ~~The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.~~ The Alternative Reclamation with Alternative Beneficial End Use Alternative avoids or reduces most impacts associated with the project as proposed, but could result in significant impacts related to use of the unflooded Main Quarry Bowl as a recreational area, including a large-event venue. The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.

In conclusion, the Mitigated Alternative ~~and the Alternative Reclamation with Alternative Beneficial End Use both~~ appears to have the ability to meet most of the project objectives, to reduce significant impacts associated with the project, and to result in additional benefits not realized by the project itself. Therefore, these Mitigated Alternative is determined to be two alternatives are coequally the Environmentally Superior Alternative.

Text Changes to Chapter 3, Project Description

A modified version of Table 3-3, appears below, showing which of the planned phased reclamation grading activities specified in ARP04 could reasonably have been expected to occur under ARP82.

**TABLE 3-3
RECLAMATION GRADING CUT AND FILL VOLUMES, ARP04 AND ARP82
(TABLE HAS BEEN REVISED TO INCLUDE ESTIMATES OF ARP82 GRADING VOLUMES)**

Quadrant	Work Description	ARP04 Cut	Fill	ARP82 Cut and Fill	ARP82 volume as Percent of ARP04 Volume
Phase 1					
NW	Topsoil stockpile		14,500	14,500	
SW	Remove overburden from area SW-1	58,800		58,800	
	Remove topsoil from area SW-1	19,600		19,600	
NE	Mix South Hill overburden material with pond fines and regrade area NE-1		58,800		
	Remove pond fines to mix	62,100			
	Remove pond fines to stockpile	86,800			
	Erosion control		5,100	5,100	
	Build new berm with pond fines and overburden material from existing berm		171,700		
	Stockpile pond fines on back of berm		86,800		
	Mixed material to begin new grade		80,000	80,000	
	Remove from existing berm to mix with pond fines	189,600		189,600	
Total Phase 1		416,900	416,900	367,600	44%
Phase 2					
NW	Topsoil stockpile		7,500	7,500	
	Surcharge berm		218,100		
SW	Remove topsoil from SW-2	29,300		29,300	
	Remove overburden from SW-2 for mix with pond fines and existing berm material	87,800		87,800	
NE	Existing berm material for mix with pond fines and overburden	247,500		247,500	
	Pond fines for mix with existing berm material and overburden	83,800			
	1' topsoil to cover pond fine berm		15,800		
	Amend topsoil for Area NE-1 and revegetate		6,000	6,000	
	Re-grade area NE-2 to final grade		201,000	201,000	
Total Phase 2		448,400	448,400	579,100	65%
Phase 3					
NW	Create topsoil stockpile (from SW Quadrant Move and re-contour surcharge material to final grades	218,100	12,800 218,100	12,800	Information not provided by applicant on amount of material to be moved
SW	Remove 2' topsoil from SW-3	24,900		24,900	
	Remove 8' overburden from SW-3	74,800		74,800	
	Create stockpile from overburden material plus 18,700 cy of pond fines stockpiled in NE quadrant		93,500		
	Re-soil SW-2 benches from topsoil stockpile				

TABLE 3-3 (Continued)
RECLAMATION GRADING CUT AND FILL VOLUMES, ARP04 AND ARP82
(TABLE HAS BEEN REVISED TO INCLUDE ESTIMATES OF ARP82 GRADING VOLUMES)

Quadrant	Work Description	ARP04		ARP82	ARP82 volume as Percent of ARP04 Volume
		Cut	Fill	Cut and Fill	
Phase 3 (cont.)					
NE	Remove pond fines from stockpile to SW	18,700			
	Quadrant to mix with overburden				
	Remove remaining pond fines stockpile to	46,600			
	meet final grade; mix with material from				
	existing berm, use for re-grading				
	re-grade portion of NE Quadrant		233,000	233,000	
	Place topsoil in NE-2 and revegetate		12,100	12,100	
	Remove material from existing berm, mix				
	with pond fines, for re-grading of portion				
	of NE Quadrant	186,400		186,400	
Total Phase 3		569,500	569,500	544,000	48%
Phase 4					
NW	Demolish McNear Brickworks buildings				
	Place fill to raise McNear site		199,500	199,500	
	Remove topsoil stockpiles	34,800		34,800	
	Remove surcharge berm	218,100			
	Lower hill behind brick manufacturing	291,100			
	facility to +50' MSL				
SW	Place fill mix over quarry plane		440,000	440,000	
	Place topsoil in resoil areas				
	Material to go offsite for levee repairs		191,200		
NE	Remove remaining West end of berm just	300,000		129,000	
	to the north of North Hill and berm at NE-				
	1 and regrade north side of Main Quarry				
	Bowl				
	Remove pond fines stockpile	21,500			
	Place pond fines in bottom of pit				
	Resoil areas at finished grade		20,000	20,000	
SE	Complete mining of Main Quarry bowl - to				
	elevation -350 MSL				
	Remove crushing and asphalt plants				
	Place topsoil		14,800	14,800	
	Regrade south side of Quarry				
	excavate connection to the bay (optional)				
Total Phase 4		865,500	865,500	838,100	48%
Grand Total, Phases 1-4		2,300,300	2,300,300	2,328,800	51%

SOURCE: ARP04 and ARP82

The discussion of the baseline for the AQP on page 3-66 in Chapter 3, Project Description, of the Final EIR is revised to include the following:

The level of production for the Quarry in 1982 was 1,473,000 tons of finished product; for the prior two years, the levels were 1,467,000 tons in 1980 and 1,304,000 tons in 1981. In 1979, production levels were about half of 1980 levels (Marin County Community Development Agency, 2000). The average annual production level for the period 1980–1982 was 1,414,667 tons (see Table 3-8). Records of annual production before 1979 are incomplete, but production was at times higher than in the period 1980-82, particularly in years in which the Quarry was providing materials for emergency repairs. Because the California Supreme Court has ruled that where there is a vested right to mine, an increase in extraction, unless substantial, does not intensify the non-conforming use, the baseline (and the scope of non-conforming use) is defined as follows:

- The annual average production level is no greater than the 1980-1982 annual average of 1,414,667 tons. This is calculated by averaging each year's production with the prior four years' production (five-year rolling average).
- The maximum annual production level in any calendar year is the 1980-82 average (1,414,667 tons), plus 20 percent, or 1,697,600 tons.
- Daily production can also be expected to fluctuate, but is limited, at a minimum, by hours of operation and number of truck trips.

Table 3-9, page 3-72 of the Final EIR is revised as follows:

**TABLE 3-9
PROPOSED HOURS OF OPERATION**

Activity	Monday-Friday	Saturday, Sunday, Holidays	Declared Public Emergencies
Crushing Plant	<u>December 1 – April 30:</u> 7:00 a.m. to 5:00 p.m.; 7:00 a.m. to 10 p.m. on up to 30 calendar days during this period <u>May 1-November 30:</u> 7:00 a.m. to 10:00 p.m.	None.	Restrictions suspended
Maintenance Activities	7:00 a.m. to 5:00 p.m. <u>No restrictions</u>	Up to 15 Saturdays per year, 7:00 a.m. to 5:00 p.m.	Restrictions suspended
Barge Operation or Loading	7:00 a.m. to 10:00 p.m.	7:00 a.m. to 10:00 p.m.	Restrictions suspended
Truck Access at SRRQ Gate	7:00 a.m. to 5:00 p.m.	No trucks hauling mineral resources	Restrictions suspended
Blasting	11:30 a.m. to 1:30 p.m., with 36 hours advance notification	None	Restrictions suspended
Other mining activities, including drilling, materials handling and transport, etc., other than blasting	7:00 a.m. to 10:00 p.m.	7:00 a.m. to 10:00 p.m.	Restrictions suspended
Office operations	7:00 a.m. to 5:00 p.m.	None	Not specified

Text changes to Section 4.1, Aesthetics

Revisions to the affected impacts, mitigation measures, and associated tables follow:

Impact P4.1-9: Proposed nighttime operations would introduce new sources of light and glare (Significant).

Under the existing Surface Mining and Quarrying Permit and Amended Reclamation Plan, there are no permit restrictions on Quarry hours of operations, nor a record of hours of operations in 1982. ARP82 states, however, that noise generating operations (presumably including barge loading, quarrying activities, and operation of the crushing plant) are generally limited to daylight hours on weekdays, except in case of emergencies. Proposed hours of operation for barge loading, quarrying activities other than blasting, maintenance, and operation of the crushing plant include nighttime and weekends (see Table 3-9 in the Project Description). These activities would be visible from public vantage points, including the Bay and some vantage points across the Bay, from public roadways, from McNear's Beach County Park, and from nearby residences. Visible activities that would cause nighttime light and glare would include mining operations on South Hill, operation of the crushing plant, some maintenance activities, and barge loading operations. Some of these activities, including operation of trucks and mobile equipment, would produce light sources that could not be shielded effectively. Therefore, the proposal would have a significant negative aesthetic effect on existing nighttime visual resources.

Mitigation Measures Proposed as Part of the Project

None.

Mitigation Measures Identified in this Report

Mitigation Measure P4.1-9: The AQP will restrict operations that have the potential to cause nighttime sources of light and glare and that are visible from public vantage points (including the Bay and vantage points across the Bay), roadways, and residences to daytime hours, except during emergency operations. See Mitigation Measure 4.6-6b in Section 4.6, Land Use and Planning.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.1-9: The Marin County DPW will verify SRRQ's compliance with Mitigation Measure P4.1-9. See also Mitigation Monitoring Measure 4.6-6 in Section 4.6, Land Use and Planning.

Level of Significance with Mitigation

This Mitigation Measure would reduce Impact P4.1-9 to a less-than-significant level.

Impact P4.1-10: Visual impacts from McNear's Beach County Park (Less than Significant).

As shown in Figure 4.1-6, the Quarry's operations area and barge loading dock are visible from the pier at McNear's Beach County Park; this area of the Quarry is also visible to a lesser degree from other areas of the park. Ongoing operations of the Quarry under the AQP are not expected to change these views from their current industrial character. While the proposed AQP could result in increased production and increased use of barges for shipping material which could be considered by some to be an adverse aesthetic impact; however, Mitigation Measure 4.6-6b in Section 4.6, Land Use and Planning, would limit production to the 1982 baseline levels described in Chapter 3, Project Description; no increase in barge traffic above the levels associated with the baseline level of production is therefore expected.

Because the AQP would not degrade the character of views from McNear's Beach County Park, this impact is considered less than significant.

Text changes to Section 4.2, Air Quality

The revised impacts, mitigation measures, and associated tables follow:

Impact R4.2-1: Reclamation grading under Phases 1-3 of the ~~The proposed Amended Reclamation Plan~~ would result in an increase in daily emissions of criteria air pollutants above emissions that would have occurred under as a result of reclamation activities being conducted simultaneously with mining activities, instead of at the end of quarrying activities, as contemplated in the 1982 Amended Reclamation Plan. This increase in daily emissions would exceed the Bay Area Air Quality Management District-established significance thresholds for ~~reactive organic gases, nitrogen oxides, carbon monoxide,~~ and particulate matter equal to or less than 10 microns (Significant).

The proposed amended reclamation plan would result in reclamation activities for Phases 1, 2, 3, and part of Phase 4 being conducted during the remaining operational life of the Quarry, instead of at the end of quarrying activities, as contemplated in ARP82. Emissions associated with reclamation grading under ARP82 were never quantified. However, using details of proposed reclamation grading under ARP04 and reasonable assumptions regarding which of these activities would have occurred under ARP82 (Table 3-3 in Chapter 3, Project Description), an estimate has been made of the level of emissions that can reasonably be assumed to have occurred under ARP82. These are summarized in Table 4.2-9.1, and are also shown in Table 4.2-10 as a percentage of emissions calculated for each ARP04 phase. ~~These r~~ Reclamation activities under ARP04 would result in an increase in daily emissions rates of criteria pollutants, including ozone precursors and PM-10 in an air basin that is designated as non-attainment with respect to state and federal ozone standards and state PM-10 standards.

**TABLE 4.2-9.1
COMPARISON OF RECLAMATION GRADING VOLUMES, ARP04 AND ARP82
(ENTIRE TABLE IS NEW IN THIS FINAL EIR AMENDMENT)**

ARP 04 Reclamation Phase	ARP04 Cut and Fill (yds3)	ARP82 Cut and Fill (yds3)	ARP82 as % of ARP04
Phase 1	833,800	367,600	44%
Phase 2	896,800	579,100	65%
Phase 3	1,139,000	544,000	48%
Phase 4	1,731,000	838,100	48%
Total	4,600,600	2,328,800	51%

SOURCE: Table 3-3

Appendix N of the Marin County Environmental Impact Review Guidelines identifies any project that would cause or contribute substantially to existing or projected air quality violations to have a significant impact on air quality.

Emissions resulting from reclamation activities would include fugitive particulate emissions (including PM-10 and PM-2.5) from earthmoving and disturbance and truck travel on unpaved Quarry roads, as well as criteria pollutants from the exhaust of trucks and equipment used in earthmoving. Reclamation activities would be separated into four phases with portions of the fourth and final phase being conducted after the end of mining operations. As indicated in the Project Description, each reclamation stage would occur over an approximately 5 year period. Additionally, SRRQ proposes to limit disturbance of neighbors by conducting reclamation grading activities only during an 8-10 week period during the dry season of each year.

Daily pollutant emissions resulting from Phases 1 to 3 of reclamation were calculated based on emission factors published by the USEPA, BAAQMD and the South Coast Air Quality Management District and data sheets for these calculations are presented in Appendix C of this document. ~~and are considered new~~ New emissions associated with reclamation grading activities not contemplated in ARP82 are shown in Table 4.2-10, since that plan contemplated no reclamation activities during the operational life of the Quarry. Because a portion of the grading conducted under Phase 4 would occur after the cessation of mining, Phase 4 reclamation activities are considered a change from ARP82 only to the extent that they differ from those proposed in ARP82. Consequently, Phase 4 emissions are addressed separately in the following impact statement.

The emissions from Phases 1 through 3 are presented in Table 4.2-10 and assume the cut and fill volumes presented in Table 3-3 and activity over an eight week period for each of five consecutive years. These emission estimates for ARP04 include reclamation activities not previously proposed under ARP82 including: mixing of pond fines with overburden material in Phase 1, construction of the berm in the NE Quadrant in Phase 1, construction of the surcharge berm in the NW Quadrant in Phase 2, and the stockpiling of topsoil in the NW Quadrant in all phases.

The increased daily emissions shown in Table 4.2-10 indicate that for reclamation Phases 1, 2 and 3, the increase in daily emissions of ~~ROG~~, NO_x, and PM-10 ~~and CO~~ would ~~at both~~ be greater than the significance standards established by the BAAQMD.

Consequently, the proposed ARP would be considered to result in a significant air quality impact resulting from increases in daily emission rates as compared to ARP82.

As noted above, ARP82 did not contemplate any reclamation activities during the active life of the Quarry; all reclamation was to occur after the cessation of mining operations. Phases 1-3, and a portion of phase 4 of ARP04, however, would take place while the Quarry is still operating. This is considered a change from the baseline, in that reclamation-related emissions that occur simultaneously with mining-related emissions could together exceed the baseline for either project, and the combined emissions could exceed threshold values for criteria pollutants established by the BAAQMD. This potentially significant adverse effect of the ARP is addressed in Mitigation Measure R4.2-1j, below.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure R4.2-1a: The project applicant has recently initiated the use of biodiesel fuel in all quarry rolling stock. Biodiesel is the only alternative fuel for which a detailed emissions evaluation has been submitted to the United States Environmental Protection Agency (USEPA). The effectiveness of emission reduction resulting from the use of biodiesel is dependant upon the percent of biodiesel contained in the mixture (USEPA, 2002). The most common blend, and that currently used at SRRQ, is a 20 percent biodiesel and 80 percent conventional diesel (B-20). B-20 will reduce particulate and CO emission by approximately 12 percent, and reduce hydrocarbon emissions by approximately 20 percent. Use of biodiesel may increase or decrease NO_x emissions (McCormick et al, 2006).

Mitigation Measure R4.2-1b: SRRQ has already upgraded SRRQ's entire fleet of off-road diesel equipment to USEPA Tier 3 standards, ahead of regulatory requirements that at least 10 percent of the fleet be upgraded each year. SRRQ also plans to upgrade its tug boat fleet to Tier 2 standards prior to the end of 2008.

Mitigation Measure R4.2-1c: SRRQ already implements several measures to control dust. These will be continued under the project:

- All trucks leaving the Quarry shall be washed down, including the undercarriage, prior to entering Point San Pedro Road (except trucks transporting asphalt). The wash down and adjoining areas shall be paved to minimize tracking of dust and dirt. Point San Pedro Road will be swept up to two times per day, except on rain days, when no sweeping will occur, subject to the approval of the City of San Rafael;
- The Quarry shall maintain all required erosion control measures and stormwater management plans, and shall keep current and comply with all permits required by the Regional Water Quality Control Board; and
- The Quarry shall maintain all dust abatement devices, and shall keep current and comply with all permits required by the BAAQMD.

**TABLE 4.2-10
INCREASES IN EMISSIONS OF CRITERIA AIR POLLUTANTS FROM THE ARP
(Without Mitigation Measures)**

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10 ^a
Phase I				
Exhaust Emissions from Earthmoving Equipment	527	35	162	8.4
Exhaust Emissions from On-Site Truck Travel	164	54	506	19
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	534
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	12
TOTAL QUANTIFIED PHASE I EMISSIONS	691	89	668	573
<u>ARP 82 Estimated Emissions (44% of ARP04)</u>	<u>304</u>	<u>39</u>	<u>294</u>	<u>252</u>
<u>ARP04 Increased Emissions over ARP82</u>	<u>387</u>	<u>50</u>	<u>374</u>	<u>321</u>
BAAQMD Significance Criteria	550	80	80	80
<u>Reduction required to reduce to below significance threshold</u>			<u>294</u>	<u>241</u>
Phase 2				
Exhaust Emissions from Earthmoving Equipment	567	38	174	9.0
Exhaust Emissions from On-Site Truck Travel	139	47	387	14
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	574
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	13
TOTAL QUANTIFIED PHASE 2 EMISSIONS	706	85	561	610
<u>ARP 82 Estimated Emissions (65% of ARP04)</u>	<u>459</u>	<u>55</u>	<u>365</u>	<u>397</u>
<u>ARP04 Increased Emissions over ARP82</u>	<u>247</u>	<u>30</u>	<u>196</u>	<u>214</u>
BAAQMD Significance Criteria	550	80	80	80
<u>Reduction required to reduce to below significance threshold</u>			<u>116</u>	<u>134</u>
Phase 3				
Exhaust Emissions from Cut and Fill Equipment	720	48	221	11.5
Exhaust Emissions from On-Site Truck Travel	158	51	335	12
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	729
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	17
TOTAL QUANTIFIED PHASE 3 EMISSIONS	878	99	556	769
<u>ARP 82 Estimated Emissions (48% of ARP04)</u>	<u>421</u>	<u>48</u>	<u>267</u>	<u>369</u>
<u>ARP04 Increased Emissions over ARP82</u>	<u>457</u>	<u>51</u>	<u>289</u>	<u>400</u>
BAAQMD Significance Criteria	550	80	80	80

TABLE 4.2-10 (Continued)
INCREASES IN EMISSIONS OF CRITERIA AIR POLLUTANTS FROM THE ARP
(Without Mitigation Measures)

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10 ^a
Phase 3 (cont.)				
<u>Reduction required to reduce to below significance threshold</u>			<u>209</u>	<u>320</u>

^a Fugitive dust emissions of PM-10 are uncontrolled and do not account for water application to site areas, which can reduce emissions by 70 percent.

NOTE: **Bolded** values are in excess of significance thresholds.

SOURCE: Environmental Science Associates

Mitigation Measures Identified in This Report

Mitigation Measure R4.2-1d: The project sponsor shall be required to continue existing emission reduction practices, including use of alternative fuels, use of low-emission diesel equipment, and dust abatement measures.

Mitigation Measure R4.2-1e: The applicant shall implement additional dust abatement measures identified by BAAQMD as feasible dust control, during all reclamation grading activities:

- Cover all trucks hauling soil, sand, and other loose materials as a part of reclamation activities, or require such trucks to maintain at least two feet of freeboard between the top of the material and top of truck;
- Pave, apply water at a minimum three times daily in dry weather, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at the Quarry;
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at the Quarry;
- Hydroseed, apply non-toxic soil stabilizers, or water to inactive reclamation areas (previously graded areas inactive for ten days or more);
- Limit traffic speeds on unpaved roads to 15 miles per hour;
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways;
- Replant vegetation in disturbed areas as soon as the growing season dictates;
- Install wind breaks or plant trees/vegetative wind breaks at the windward sides of the reclamation areas until such time as the vegetation is established;
- Suspend reclamation-related excavation and grading activities when wind (as instantaneous gusts) exceeds 25 miles per hour; and

- Limit the area subject to reclamation-related excavation, grading and other construction activity at any one time.

Mitigation Measure R4.2-1f: The project applicant shall keep all off-road equipment well-tuned and regularly serviced to minimize exhaust emissions, and shall establish a regular and frequent check-up and service/maintenance program for all operating equipment at the Quarry.

Mitigation Measure R4.2-1g: To further reduce emissions from off-road diesel equipment, the applicant shall fuel on-site diesel-powered mobile equipment used in reclamation activities with a minimum 80 percent biodiesel blend (B-80) or use other equipment and/or fuel that achieves the same reduction in particulate (PM-10) and CO emissions. The applicant shall also use Purinoxtm, another approved additive, or other measures to reduce NOx and PM-10 emissions to the maximum extent feasible given current technologies.

Mitigation Measure R4.2-1h: Off-road diesel equipment operators shall be required to shut down their engines rather than idle for more than 5-minutes, unless such idling is necessary for proper operation of the vehicle.

Mitigation Measure R4.2-1i: If the mitigation measures listed above do not reduce emissions to below threshold values, the ~~The~~ applicant will acquire BAAQMD off-site emission offset credits in sufficient quantity to reduce emissions from reclamation grading to levels below significance thresholds.

Mitigation Measure R4.2-1j: The applicant will limit on-site mining operations on days on which reclamation grading activities are performed, such that total emissions from the site are not increased above significance thresholds. To ensure the effectiveness of this measure, the Quarry will be required to maintain and report to the BAAQMD and the County Public Works Department a record of reclamation and operations activities, with an estimate of emissions from each. ~~Since emissions related to reclamation grading were not quantified in ARP82, and since simultaneous reclamation and mining was not contemplated in ARP82, the~~ The baseline for combined emissions is the current level of emissions for mining operations only, as shown in Table 4.2-5, 4.2-13.1, plus the baseline emissions for the reclamation grading phase, as shown in Tables 4.2-10 and 4.2-11. The limit for combined emissions from mining and reclamation will therefore be the sum of the current emissions levels from mining operations, the baseline emission levels for reclamation grading, plus and the BAAQMD's threshold values for criteria pollutants, as shown in Table 4.2-10.1 for each reclamation phase.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure R4.2-1: The Marin County Public Works Department will be responsible for monitoring implementation of all the above mitigation measures, which will become conditions of approval of the project. Monitoring will occur during periodic inspections of the Quarry. The BAAQMD is the administrator of the emissions credit program, and will be responsible for ensuring compliance with the terms of participation in this program.

TABLE 4.2-10.1
ALLOWABLE EMISSIONS LEVELS FOR SIMULTANEOUS MINING AND RECLAMATION

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10
Total Existing Quarry Operational Emissions (from Table 4.2-5 4.2-13.1 ¹)	<u>450.9</u>	<u>77.28</u>	<u>2,272</u>	<u>493</u>
Phase 1 Baseline Emissions	<u>304</u>	<u>39</u>	<u>294</u>	<u>252</u>
Phase 2 Baseline Emissions	<u>459</u>	<u>55</u>	<u>365</u>	<u>397</u>
Phase 3 Baseline Emissions	<u>421</u>	<u>48</u>	<u>267</u>	<u>369</u>
Phase 4 Baseline Emissions	<u>598</u>	<u>56</u>	<u>269</u>	<u>556</u>
BAAQMD Significance Criteria for Increased Emissions	550	80	80	80
Phase 1 Allowable Emissions from Combined Operations and Reclamation	<u>1,305</u>	<u>196</u>	<u>2,646</u>	<u>825</u>
Phase 2 Allowable Emissions from Combined Operations and Reclamation	<u>1,460</u>	<u>213</u>	<u>2,717</u>	<u>969</u>
Phase 3 Allowable Emissions from Combined Operations and Reclamation	<u>1,422</u>	<u>205</u>	<u>2,619</u>	<u>942</u>
Phase 4 Allowable Emissions from Combined Operations and Reclamation	<u>1,599</u>	<u>213</u>	<u>2,621</u>	<u>1,129</u>
Maximum Allowable Emissions from Combined Operations and Reclamation Activities	<u><960</u>	<u><152</u>	<u><1,877</u>	<u><544.4</u>

SOURCE: Tables 4.2-5, 4.2-10, 4.2-11, 4.2-13.1, BAAQMD

TABLE 4.2-11
INCREASES IN EMISSIONS OF CRITERIA AIR POLLUTANTS FROM PHASE 4 RECLAMATION
(Without Mitigation Measures)

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10
Phase 4				
Exhaust Emissions from Earthmoving Equipment	1,095	73.0	336	17.4
Exhaust Emissions from On-Site Truck Travel	150	43	225	8
Fugitive Dust Emissions from Off-road Truck Travel Associated with Cut and Fill Operations	--	--	--	1,108
Fugitive Dust Emissions from Material Loading and Unloading Associated with Cut and Fill Operations	--	--	--	25
TOTAL QUANTIFIED PHASE 4 EMISSIONS	1,245	116	561	1,158
ARP 82 Estimated Emissions (48% of ARP04)	<u>598</u>	<u>56</u>	<u>269</u>	<u>556</u>
ARP04 Increased Emissions over ARP82	647	60	292	602
BAAQMD Significance Criteria	550	80	80	80
Reduction required to reduce to below significance threshold	<u>97</u>		<u>212</u>	<u>522</u>

NOTE: **Bolded** values are in excess of significance thresholds.

¹ See revisions to Table 4.2-13.1 in the response to comment D-21, below.

Level of Significance after Mitigation

Given current technologies, conversion of diesel equipment to USEPA Tier 3 standards, which SRRQ has already implemented for on-site mobile diesel equipment used in mining operations, would achieve a maximum NO_x reduction of ~~only~~ about 50 percent. Use of fuel additives, such as PuriNoxtm, would also reduce NOx emissions. It is therefore ~~unlikely~~ likely that Mitigation Measures 4.2-1b, d, f, ~~g~~, and h could achieve ~~an 85-90 percent the~~ reduction in NO_x emissions, ~~the level~~ necessary to reduce emissions from these sources to a level below the BAAQMD's 80 pounds per day significance threshold. ~~In order to reduce~~ If NOx emissions are not reduced to below significance with these measures, it will be necessary for the Quarry to implement ~~either~~ Mitigation Measure R4.2-1i and/or j.

Use of B-20 biodiesel (Mitigation Measure R4.2-1a) would reduce emissions of ROG ~~to less than significance thresholds of 80 pounds per day, reduce~~ and CO emissions, and marginally reduce equipment exhaust emissions of PM-10. Increasing the biodiesel blend to B-80 or use of other alternative fuels or fuel additives (Mitigation Measure R4.2-1g) would further reduce PM-10 emissions from mobile equipment: use of B-80 results in approximately 40 percent reduction in PM-10 and CO, and approximately 50 percent reduction in ROG emissions (McCormick et al, 2006). ~~÷ CO emissions would be reduced to less than significant.~~ Use of higher biodiesel blends may, however, increase NO_x emissions.

Conditions of the BAAQMD permit apply to stationary sources that would presumably not be involved in proposed reclamation processes. Therefore, no emissions reductions would be realized from implementation of these conditions relative to the calculated emissions resulting from the ARP.

Implementation of dust control measures (Mitigation Measures R4.2-1c and R4.2-1e) is expected to result in a decrease in fugitive dust emissions of 70%. ~~Even with~~ With this reduction, daily PM-10 emissions during reclamation grading would ~~exceed~~ likely be reduced to below significance thresholds ~~in each for all reclamation Phase 3 phases. In order to reduce PM-10 emissions to below significance it will be necessary for the Quarry to implement either Mitigation Measure R4.2-1i or j. If PM-10 emissions are not reduced to below significance with these measures, it will be necessary for the Quarry to implement Mitigation Measure R4.2-1i and/or j.~~

The combination of Mitigation Measures R4.2-1a-h, with Mitigation Measures R4.2-1i and j, will reduce this impact to less than significant.

Impact R4.2-2: Phase 4 of the 2004 Amended Reclamation Plan would include cut and fill activities that were not included in 1982 Amended Reclamation Plan. These new reclamation activities would result in emissions of criteria pollutants that would exceed Bay Area Air Quality Management District significance thresholds (Significant).

Proposed Phase 4 reclamation includes several activities that were not contemplated in ARP82. These activities include the demolition of McNear's Brickyard buildings, ~~placement of fill to raise McNear's Brickyard site~~, removal of the surcharge berm, and removal of the NE Quadrant berm and the pond fines stockpile. As shown in Table 4.2-9.1, 3-3 in Chapter 3, Project Description, these Phase 4 activities planned under ARP04 would involve approximately double the amount of reclamation grading contemplated in ARP82. Emissions from reclamation grading under ARP04 in excess of those that can reasonably be expected to have occurred under ARP82 are considered new emissions. activities would require the cut and fill of approximately 865,500 cubic yards of soil.

Emissions resulting from Phase 4 reclamation activities would include fugitive particulate emissions (including PM-10 and PM-2.5) from earthmoving and disturbance and truck travel on unpaved Quarry roads, as well as criteria pollutants from the exhaust of trucks and equipment used in earthmoving. As with the first three reclamation phases, Phase 4 reclamation would occur over an approximately five-year period (see Table 3-2 in Chapter 3, Project Description). SRRQ proposes to limit disturbance of neighbors by conducting reclamation grading activities only during an 8-10 week period during the dry season of each year.

Daily pollutant emissions resulting from Phase 4 reclamation not contemplated in ARP82 were calculated based on emission factors published by the USEPA, BAAQMD and the South Coast Air Quality Management District and data sheets for these calculations are presented in Appendix C of this document.

The increased daily emissions shown in Table 4.2-11 indicate that in Phase 4 reclamation, the increase in daily emissions of ~~ROG~~, NOx, PM-10 and CO would all be greater than the significance standards established by the BAAQMD. Appendix N of the Marin County Environmental Impact Review Guidelines identifies any project that would cause or contribute substantially to existing or projected air quality violations as having a significant impact on air quality. Consequently, Phase 4 of the proposed ARP would be considered to result in a significant air quality impact resulting from increases in daily emission rates as compared to those calculated for this EIR for ARP82.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure R4.2-2a: Mitigation measures R4.2-1a, b, and c apply to Phase 4 as well.

Mitigation Measures Identified in this Report

Mitigation Measure R4.2-2b: Implement Mitigation Measures R4.2-1d through R4.2-1j for Phase 4.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure R4.2-2: The Marin County Public Works Department will be responsible for monitoring implementation of all the above mitigation measures. This will occur during periodic inspections of the Quarry.

Level of Significance after Mitigation

The increase in NO_x emissions from off-road equipment use and on-site truck travel would be ~~561~~ 292 pounds per day (Table 4.2-11) from new Phase 4 reclamation activities. Given current technologies, converting or modifying diesel equipment could achieve a maximum NO_x reduction of ~~only~~ about 50 percent. Use of fuel additives, such as PuriNoxtm, would also reduce NOx emissions. It is therefore ~~unlikely~~ likely that the mitigation measures identified above could achieve ~~an 85-90 percent~~ the reduction in NO_x emissions, ~~the level~~ necessary to reduce emissions from these sources to a level below the BAAQMD's 80 pounds per day significance threshold.

The project applicant has already converted all rolling stock using the facility to B-20 biodiesel. Use of biodiesel would reduce emissions of ROG to less than significance thresholds of 80 pounds per day and marginally reduce equipment exhaust emissions of PM-10. Increasing the use of biodiesel to B-80 (Mitigation Measure R4.2-1g) would further reduce diesel particulates and CO emissions (by about 40%, compared to conventional diesel; McCormick et al, 2006), which would be ~~but not~~ enough to reduce CO beneath the significance threshold.

Implementation of dust control measures (Mitigation Measures R4.2-1c and R4.2-1e) is expected to result in a decrease in fugitive dust emissions of about 70 percent, compared to emissions without dust control. ~~Even with this~~ This reduction in PM-10 emissions would be sufficient to reduce Phase 4 emissions below the significance threshold. ~~exceed significance thresholds in Phase 4 of reclamation. In order to reduce PM-10 emissions to below significance, it will be necessary for the Quarry to implement Mitigation Measures R4.2-1i or j for Phase 4 reclamation grading as well.~~

The application of Mitigation Measures R4.2-1a-h, ~~with Mitigation Measures R4.2-1i and j,~~ to Phase 4 reclamation grading will reduce this impact to less than significant.

Impact R4.2-3: Reclamation activities will generate greenhouse gas emissions that will contribute to climate change (Significant).

The proposed ARP would result in GHG emissions, primarily CO₂, emitted by trucks and earthmoving equipment associated with planned reclamation activities. Operation of diesel-powered equipment proposed to be used for reclamation activities (including five scrapers, four bulldozers, one front-end loader, one backhoe, a road grader, a water truck, and three light-duty trucks) over the 15 to 20 year phased reclamation period will result in considerable daily CO₂ emissions during each year's 8-10 week reclamation grading

period. A small amount of GHGs would also be generated by employee vehicle trips (Table 4.2-12).

**TABLE 4.2-12
EMISSIONS OF GREENHOUSE GASES FROM PROPOSED RECLAMATION ACTIVITIES**

Emission Source	Emissions (tons eCO ₂ per year)			TOTAL
	CO ₂	CH ₄	N ₂ O	
Exhaust Emissions from On-Site Excavation and Transport Equipment	277	0.7	-	278
Worker vehicle trips (a)	10	0.0	0.4	10
Total Reclamation GHG Emissions	286	0.7	0.4	287
Project Lifecycle emissions (20 years)	5,720	13.7	8.4	5,742
<u>Estimated GHG emissions from ARP82</u>	<u>2,917</u>	<u>7</u>	<u>4</u>	<u>2,928</u>
<u>Increase in ARP04 GHG emissions over ARP82</u>	<u>2,803</u>	<u>7</u>	<u>4</u>	<u>2,814</u>

SOURCE: ESA

Emission factors for CO₂ for on road vehicles are available from the Emissions Factors (EMFAC2007) program of the CARB, while emission factors for N₂O and CH₄ are available from the California Climate Action Registry. Both CO₂ and CH₄ emission factors for reclamation truck and equipment may be calculated using the OFFROAD2007 model of the CARB, which shows no substantive emission of N₂O from these sources. Based on output from these models and emission data sources, GHG emissions from reclamation were estimated and are presented in Table 4.2-12. GHG emissions of the ARP04 from proposed reclamation activities are estimated to be 286 tons per year of CO₂, 0.687 tons per year of methane as eCO₂ and 0.421 tons per year of nitrous oxide as eCO₂.² Over the lifecycle of the project (up to 20 years of reclamation activities), the total emissions of GHGs is estimated to be 5,742 tons of eCO₂. Based on Table 4.2-9.1, ARP82 grading volumes, and related air emissions, are estimated to be 51% of projected ARP04 emissions. For GHGs, this would be equivalent to 2,928 tons of eCO₂, as shown in Table 4.2-12. The increase in eCO₂ emissions attributable to increased reclamation grading activities under ARP04 is 2,814 tons (Table 4.2-12). Because these emissions are from a source that did not exist and was not planned for in 1990, the impact is significant.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure R4.2-3a: The applicant already uses a 20 percent biodiesel blend (B-20) in on-site mobile equipment; see Mitigation Measure R4.2-1a. The CO₂ produced by burning biodiesel is considered “biogenic,” that is, it is part of the natural cycling of carbon in the atmosphere and biosphere. Because it is not from a

² N₂O has a global warming potential 298 times that of CO₂ over a 100 year period; CH₄ has a global warming potential 25 times that of CO₂ (IPCC, 2007). The unit of measure “eCO₂” is an expression of the CO₂ equivalent global warming potential of the emission. Thus one ton of CH₄ is equivalent to 25 tons of eCO₂.

fossil source it is not included in GHG inventories.³ Therefore, the use of B-20 reduces CO₂ emissions that contribute to global climate change from on-site mobile equipment by approximately 20 percent.

Mitigation Measures Identified in This Report

Mitigation Measure R4.2-3b: Implementation of Mitigation Measure R4.2-1d, f, g, and h will reduce running time of diesel equipment, replace diesel equipment with less polluting equipment, and increase the use of biodiesel in on-site equipment. The amount of reduction in GHG emissions is estimated to be approximately an additional 65 percent.

Mitigation Measure R4.2-3c: Within one year of project approval, the applicant shall prepare and implement a GHG reduction plan. The plan will include a complete inventory of reclamation-related GHG emissions and will demonstrate how the Quarry will reduce or offset remaining un-mitigated GHG emissions. The plan will prioritize emission reduction through energy conservation and other measures; for those emissions that cannot be reduced, the plan shall specify how emissions will be offset. Offsets may take the form of installation of on-site alternative energy generation facilities (such as solar power) or off-site compensation, such as monetary contribution to a project that sequesters carbon. Examples of such projects include wetland restoration, purchase of carbon credits verified by the California Climate Action Registry, and reforestation. On-site offsets will be given higher priority than off-site offsets, and offsets with co-benefits, such as reduction of particulate emissions within the vicinity of the Quarry, and restoration of habitat for special status species, will be given higher priority. The plan must demonstrate how, at a minimum, the Quarry will reduce reclamation-related, non-biogenic GHG emissions consistent with the Marin County Greenhouse Gas Reduction Plan and Countywide Plan Update policies: ~~since no reclamation-related emissions were occurring in 1990,~~ the plan must demonstrate how reclamation-related emissions are reduced or offset, such that ~~there are no net emissions from reclamation.~~ total emissions are 15% below the emissions associated with ARP82, or no more than 2,489 tons of eCO₂. The plan will include an implementation schedule. The plan will be submitted to the Marin Public Works Department for review and approval. In addition, the initial emissions inventory prepared as part of the plan will be reported to the California Climate Action Registry or a successor organization as a baseline inventory, and the Quarry will conduct and report additional inventories annually.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure R4.2-3: In addition to Draft Mitigation Monitoring Measure R4.2-1, the Marin County Public Works Department will be responsible for reviewing and approving the GHG reduction plan, which must be

³ The California Air Resources Board currently is performing lifecycle analyses of biodiesel and other so-called “low-carbon fuels” as part of the AB32 regulatory process. Preliminary results indicate that biodiesel derived from soy beans grown conventionally (i.e., with synthetic pesticides and fertilizers) in the Midwest and used in California has a total “well to wheel” greenhouse gas emission rate about one third that of petroleum diesel: GHG emissions associated with biodiesel are calculated to be 35.26 grams of CO₂ equivalent per megajoule of energy content, versus 99.4 for California ultra-low sulfur diesel (CARB, 2008a, 2008b). Biodiesel derived from used vegetable oil can be expected to have substantially lower greenhouse gas emissions than soy-derived biodiesel, since about half of the GHG emissions associated with use of soy-derived biodiesel is from farming soy beans and extracting the oil from the beans (CARB, 2008b).

submitted within one year of project approval. The Marin County Public Works Department will also be responsible for monitoring implementation of the GHG reduction plan.

Level of Significance after Mitigation

Implementation of Mitigation Measures R4.2-3a, b, and c will together result in no net increase in GHG emissions related to reclamation activities compared to baseline levels, thus reducing the impact to less than significant.

Impact P4.2-6: Future Quarry operations under the proposed Amended Surface Mining and Quarrying Permit could exceed baseline levels of production, with concomitant increases in emissions of criteria air pollutants above threshold values (Significant).

Current estimated emissions of criteria air pollutants from Quarry operations for the average annual baseline level of production (1,414,667 tons) are presented in Table 4.2-5. The level of production of the Quarry in recent years is within the baseline fluctuation (i.e., no more than 20 percent above the baseline annual average, or 1,697,600 tons per year). Estimates of emissions at a rate of 1,697,600 tons per year are shown in Table 4.2-13.1. similar to or less than production in the years leading up to 1982, when the Quarry became a legal nonconforming use. Since pollutant emissions from most sources have likely decreased on a unit basis since 1982 because of improvements in diesel engine technology and improved management practices to reduce fugitive dust emissions, it can be assumed that, given the same level of production now as in 1982, emissions would be lower now. The emissions presented in Tables 4.2-5 and 4.2-13.1 do not reflect emissions that would be generated by reclamation activities, which are considered under a separate impact statement.

For evaluating operational-phase emissions, the BAAQMD recommends that local agencies consider individual development projects that exceed a net increase in pollutant emissions of reactive organic gases (ROG), NO_x, or PM-10 exceeding 80 pounds per day or 15 tons per year to have a significant impact on the environment.

The proposed AQP imposes no limits on the annual rate of production for the Quarry. Therefore, SRRQ could, during the remaining life of the Quarry, increase production over baseline (1982) levels, as defined in Chapter 3, Project Description. Increases in production above the baseline would require increased use of stationary equipment and mobile on-site and off-site equipment, resulting in increases in emissions of criteria air pollutants. This analysis assumes that, in the absence of a limit on annual production levels, production could increase by up to more than the 20 percent fluctuation above 1982 levels that is considered within the above-baseline (i.e., above 1,697,600 tons) (i.e., 1982) levels. ~~This is a conservative (i.e., worst case) assumption, because it is approximately equivalent to the highest single year production level reported by the Quarry, and is higher than any 5 year average since 1982. Projected emissions associated with increased production under the AQP~~

TABLE 4.2-13.1
PROJECTED EMISSIONS OF CRITERIA AIR POLLUTANTS FROM
QUARRY OPERATIONS UNDER THE AQP,
ASSUMING MAXIMUM ANNUAL PRODUCTION OF 1,697,600 TONS

Emission Source	Emissions (pounds per day)			
	CO	ROG	NO _x	PM-10
Permitted Stationary Sources ^a	2	1.6	7	297
Exhaust Emissions from On-Site Excavation and Transport Equipment ^b	63.6	14.4	158.4	6.1
Fugitive Dust Emissions from On-site Excavation and Transport Equipment (controlled) ^{b,c}				124.6
Blasting ^d				4
Off-Site Truck Emissions (trucks hauling materials to and from the project site) ^e	254	48.8	761	32
Barge (Tugboat) Emissions ^f	131.3	12.48	1,345.5	28.99
Total Projected Quarry Operational Emissions under the AQP	450.9	77.28	2,271.9	492.71
Existing Quarry Operational Emissions	440	72	4,797	464.4
Projected Increase: AQP above Existing	40.9	5.28	474.9	28.31
BAAQMD Significance Criteria	550	80	80	80

BOLDED values indicate significance threshold is exceeded.

^a Currently actual emissions are well below permitted levels; therefore, no increase in emissions is projected for stationary sources.

^b Assumed to increase 20 percent above current emissions, due to 20% increase in production.

^c Controlled emissions of PM-10 assume on-site watering to reduce fugitive emissions by 70 percent.

^d Daily emissions from blasting assumed not to be a maximum of increase (would remain at one blast per day, maximum)

^e Assumes no increase in truck traffic.

^f Assumes maximum of three barge trips per day 50 percent increase in barge emissions (based on one additional barge trip per day).

SOURCE: Table 4.2-5, ESA and KB Environmental

are shown in Table 4.2-13.1. Different assumptions are used for different emissions sources, as explained in the table footnotes. Since truck trips would be limited to 250 per day, while barge trips would not be limited, an increase in production could be expected to increase the average number of daily barge shipments. The baseline condition, however, assumes some fluctuation in the number of barge trips, but a substantial increase in production above the baseline could increase the average daily number of barge trips to the extent that increased emissions from tug boats would exceed the significance threshold for NO_x and other criteria pollutants. The value of 897 pounds per day of NO_x from barge emissions shown in Table 4.2-5 for existing conditions is based on an assumption of two barge trips per day. One additional barge shipment per day would result in increased NO_x emissions of approximately 448 pounds per day, which itself would greatly exceed the BAAQMD significance threshold of 80 pounds per day. The AQP would also be expected to result in an increase of other criteria pollutants, but not above threshold values, as shown in Table 4.2-13.1.

Each blast at the Quarry is estimated to release about 4 pounds of PM-10 to the atmosphere. Since the Quarry does not set off more than one blast per day, increased production is not expected to increase the daily emission of PM-10 related to blasting, but more frequent blasting would be expected to increase the amount of dust experienced by neighbors of the Quarry.

An increase in production above the baseline level would be expected to result in an increase in daily and annual emissions of criteria pollutants, which could exceed the threshold levels established by the BAAQMD, thereby causing a significant impact.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure P4.2-6a: Mitigation measures R4.2-1a, R4.2-1b, and R4.2-1c apply to equipment used in ongoing quarrying operations as well.

Mitigation Measures Identified in This Report

Mitigation Measure P4.2-6b: Implement Mitigation Measures R4.2-1d through R4.2-1j for ongoing quarrying operations as well as reclamation activities.

Mitigation Measure P4.2-6c: Implement Mitigation Measure P4.6-6b (see Section 4.6, Land Use and Planning), which would limit Quarry operations to the ~~maximum level of annual production as of 1982.~~ baseline level.

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.2-6: The Marin County Department of Public Works (DPW) will be responsible for oversight and enforcement of these provisions. DPW will verify that a revised application for the AQP that contains the above provisions, including the Operational Dust Mitigation Plan/Program, and will approve said provisions prior to issuance of the AQP. After issuance of the AQP, DPW will conduct routine field inspection to verify implementation of these provisions. The Quarry must report its annual production to the County and to the State each year.

Level of Significance after Mitigation

The combination of Mitigation Measures P4.2-6a, b, and c would reduce this impact to less-than-significant. Mitigation Measure P4.6-6b, which limits production to ~~1982 baseline~~ levels of production, would prohibit SRRQ from increasing its daily emissions resulting from any increase in intensity of extraction and processing. Therefore, emissions from off-site transport via barge would also remain within the 1982 baseline levels and thus result in no increase in daily emissions from this sources. With adoption of these measures, the AQP would not result in an increase in daily pollutant emissions over existing or ~~1982 baseline~~ emission levels, and this impact would be mitigated to less than significant.

Impact P4.2-7: Proposed amendments to the Surface Mining and Quarrying Permit could result in an increase in greenhouse gas emissions, and contribute to global climate change (Significant).

GHG emissions within Marin County from existing SRRQ mining operations are estimated to be 32,612 tons per year of carbon dioxide (CO₂), 84 tons per year of methane (CH₄) as carbon dioxide equivalent (eCO₂) and 979 tons per year of nitrous oxide (N₂O) as eCO₂. Increases in GHG emissions associated with the proposed AQP would result from possible increases in production rates above baseline levels, as defined in Chapter 3, Project Description. The number of truck trips in and out of the Quarry would not change from baseline levels. However, increases in GHG emissions would result from any increase in production ~~above baseline (1982)-levels~~, which would be expected to result in increases in use of on-site mining equipment and barge shipments. ~~Assuming that the AQP may result in a 20 percent increase in production above baseline levels, GHG emissions from on-site equipment would also increase by about 20 percent, and GHG emissions from tugboats would increase about 30 percent, as indicated in Table 4.2-14. The baseline for GHG emissions is considered the level of emissions associated with the baseline level of production (i.e., a maximum of 1,697,600 tons per year, and a maximum of 1,414,667 tons per year as a five-year rolling average). This also serves as the baseline for the purpose of application of the County's Greenhouse Gas reduction policies. Because the AQP could result in GHG emissions greater than 15 percent below levels allowed in 1990, levels~~ the impact is significant.

**TABLE 4.2-14
EXISTING AND PROPOSED COUNTYWIDE PROJECTED MAXIMUM ANNUAL EMISSIONS OF
GREENHOUSE GASES FROM QUARRY OPERATIONS
(assuming annual production level of 1,697,600 tons)**

Emission Source	Emissions (tons eCO ₂ per year)			
	CO ₂	CH ₄	N ₂ O	TOTAL
Total Existing Average Quarry Operational GHG Emissions (from Table 4.2-9)	39,238 <u>32,612</u>	407 <u>84</u>	4,397 <u>979</u>	33,675 <u>33,675</u>
Maximum Annual Quarry Operational GHG Emissions (assumes 20% above average)	<u>39,134</u>	<u>101</u>	<u>1,175</u>	<u>40,410</u>
Increased Exhaust Emissions from On-Site Excavation and Transport Equipment	457	1,100	2	
Increased Generator Emissions	291	4,40	--	
Increased Barge (Tugboat) Emissions	6,550	21.0	411	
Total Increase in GHG Emission with AQP^b	7,298	26.54	413.1	
Percent Increase over existing Emissions	18.6%	24.8 %	29.6 %	

SOURCE: ESA

Mitigation Measures Proposed as Part of the Project

Mitigation Measure P4.2-7a: The applicant proposes to limit truck trips into and out of the Quarry to 250 trips per day, which is below the baseline level of truck trips. Therefore, GHG emissions from haul trucks would not increase above 1990 levels.

Mitigation Measure P4.2-7b: The applicant already uses a 20 percent biodiesel blend in on-site mobile equipment; see Mitigation Measure R4.2-1a. Biodiesel reduces CO₂ emissions that contribute to global warming, since biodiesel is derived from plant and animal sources, not fossil sources.

Mitigation Measures Identified in This Report

Mitigation Measure P4.2-7c: Mitigation Measure P4.2-6b will further reduce GHG emissions below 1990 levels from on-site mobile equipment used for Quarry operations.

Mitigation Measure P4.2-7d: Mitigation Measure P4.6-6b will limit production to baseline (1982)-levels, which will ensure no increase in emissions from on-site mobile diesel equipment and tugboats.

Mitigation Measure P4.2-7e: The Greenhouse Gas Reduction Plan specified in Mitigation Measure R4.2-3c shall also include an inventory of operations-related GHG emissions and a plan to reduce these emissions ~~by to a level 15 percent below 1990 levels. The plan will include an inventory of 1990 and current GHG emissions related to Quarry operations; the values in Table 4.2-14 may be considered preliminary, and should be confirmed or revised in a new inventory.~~

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.2-7: See Draft Mitigation Monitoring Measures R4.2-1, R4.2-3, P4.2-6 and P4.6-6.

Level of Significance after Mitigation

The above mitigation measures will ensure that GHG emissions associated with quarrying operations do not exceed a level 15 percent below 1990 emissions; therefore, the impact will be mitigated to less than significant.

Impact C4.2-9: Reclamation activities under the Amended Reclamation Plan and Quarry operations under the Amended Surface Mining and Quarrying Permit would result in emissions of toxic air contaminants, including diesel particulate matter, increasing the risk of cancer for nearby sensitive receptors (Significant).

The results of the HRA were used to calculate increased risk of cancer from future TAC emissions associated with the proposed AQP and ARP combined, assuming project-related exposure would continue through 2024. Results of the HRA are summarized in Table 4.2-15.

**TABLE 4.2-15
HEALTH RISK ASSESSMENT RESULTS MAXIMUM EXPOSED INDIVIDUAL,
FUTURE EMISSIONS FROM THE AQP AND ARP COMBINED**

Condition/Years	Cancer Risk ^a	Chronic Impact ^b	Acute Impact ^b
Proposed Projects (for the AQP, this assumes 20 percent increase in production over baseline for the AQP production of 1,697,600 tons per year for the years 2008 – 2024)	13.9 14.4	0.64 0.84	1.0
Project with Mitigation Measure C4.2-9a (use of B80 fuel in on-site mobile equipment)	10.0 10.5	0.59 0.84	1.0
Project with Mitigation Measure C4.2-9b (limit production to average of 1,414,667 tons per year 1982 levels)	10.3 12.2	0.60 0.83	1.0
Project with both Mitigation Measure C4.2-9a and C4.2-9b incorporated	7.4 8.8	0.59 0.82	1.0
Maximum Exposed Individual: Type ^c	Residential	Residential	Recreational

NOTES:

Values exceeding significance thresholds are **BOLDED**.

^a Risk of additional cancer cases per million exposed individuals. The significance threshold is 10.

^b Chronic and acute impacts are measured using the Hazard Index, where the significance threshold is >1.

^c Type of receptor exposed to the maximum modeled concentration of TACs

SOURCE: ESA

For future Quarry operations and reclamation activities through 2024, the modeled receptor location with the highest exposure to TACs would have an incremental cancer risk at a rate of ~~13.9~~ **14.4** cancer cases per million exposed persons, which is above the significance threshold of 10 per million. A hypothetical person at this location is termed the “maximum exposed individual” (MEI). The term MEI refers to a person residing in the location of the highest concentration of TACs from the projects during the entire period included in the modeling exercise. The MEI for future exposure is located to the north of the Quarry (Figure 4.2-4). Figure 4.2-4 indicates that a slightly elevated risk of cancer due to future emissions of the AQP and ARP will be experienced by individuals along Point San Pedro Road and in the Peacock Gap neighborhood. However, the level of exposure does not result in a significant cancer health risk, except for a limited area around the Marin Bay Park development. Please note that, as previously discussed, the HRA examined only health risks associated with emissions from the Quarry and McNear’s Brickyard, and did not include the health risks associated with regional or other local TAC emission sources (see page 4.2-47).

As shown in Table 4.2-16, over 99 percent of the cancer risk at the location of the MEI as a result of the proposed projects is due to DPM emissions, and ~~89~~ **86** percent is due to DPM from onsite mobile equipment operations associated with Quarry operations, not reclamation. Most of the exposure along Point San Pedro Road is from haul trucks.

TABLE 4.2-16
CANCER RISK SOURCE CONTRIBUTIONS TO THE
RISK OF INCREASED CANCER CASES PER 1,000,000 EXPOSED INDIVIDUALS AT THE LOCATION
OF THE MAXIMUM EXPOSED INDIVIDUAL

Source	Incremental Cancer Risk per Million Exposed Individuals	Percent of Risk
DPM from Onsite Mobile Equipment (AQP operations)	12.4	89 86
DPM from Reclamation activities	0.5 1.0	4 7
DPM from Haul Trucks	0.3	2
DPM from Tugs	0.6	4
All DPM Sources	13.8 14.3	99
All Other Sources	0.1	1
All Sources	13.9 14.4	100

NOTE: Values exceeding significance thresholds are BOLDED.

SOURCE: ESA

Because the combined projects would increase the incremental risk of cancer at the location of the MEI by more than 10 per million exposed individuals, the impact is significant.

Mitigation Measures Proposed as Part of the Project

Mitigation Measure C4.2-9a: As noted in Mitigation Measures R4.2-1 and P4.2-6, the applicant has taken measures to reduce DPM emissions from on-site equipment, including upgrading to lower emission engines and use of B-20 fuel.

Mitigation Measures Identified in This Report

Mitigation Measure C4.2-9b: Implement Mitigation Measure P4.6-6b, which would limit ~~proposed project aggregate~~ multi-year annual average production

Mitigation Measure C4.2-9c: Implement Mitigation Measure R4.2-1 and Mitigation Measure P4.2-6 to further reduce DPM emissions from on-site mobile equipment used both for reclamation and for mining operations.

Mitigation Monitoring and Reporting

See Draft Mitigation Monitoring Measures R4.2-1, P4.2-6, and P4.6-6.

Level of Significance after Mitigation

As shown in Table 4.2-15 and illustrated in Figure 4.2-5, incorporation of Mitigation Measures C4.2-9a, b, and c would reduce the incremental increased cancer risk to ~~7.4~~ 8.8 cases per million exposed persons at the site of the MEI, which is below the threshold value of 10. Therefore, the impact would be mitigated to less than significant.

Impact C4.2-10: Reclamation activities under the Amended Reclamation Plan and Quarry operations under the Amended Surface Mining and Quarrying Permit would result in emissions of toxic air contaminants, including crystalline silica, that would increase chronic health impacts (Less than Significant).

The HRA was used to determine the chronic health impacts associated with TAC emissions from both Quarry operations under the AQP and reclamation under the ARP. Chronic health impacts are measured using the “Hazard Index” (HI) rating where values greater than one are considered significant. The results of the HRA are shown in Table 4.2-15, which indicates that emissions from the proposed projects would result in chronic exposure at the location of the MEI with an HI of ~~0.61~~ 0.84. This value is below the threshold value of greater than 1. The approximate distribution of HI ratings for chronic health impacts due to the proposed projects is shown in Figure 4.2-6.

Table 4.2-17 shows that the majority of the chronic health risk from the projects at the location of the MEI will be due to exposure to crystalline silica emissions: ~~92~~ 96 percent of chronic health impacts would be from crystalline silica exposure, and ~~70~~ 54 percent from crystalline silica originating from vehicles traveling over unpaved surfaces.

**TABLE 4.2-17
SOURCES AND SUBSTANCES, AQP AND ARP EMISSIONS CONTRIBUTING TO CHRONIC HEALTH RISK AT LOCATION OF THE MAXIMUM EXPOSED INDIVIDUAL FOR THE PROPOSED PROJECT**

Source	Hazard Index Rating	Percent of Risk
Crystalline Silica from Blasting	0.02	3 <u>2</u>
Crystalline Silica from Aggregate Processing	0.04 <u>0.02</u>	7 <u>2</u>
Crystalline Silica from Other Fugitive Dust	0.06 <u>0.05</u>	40 <u>6</u>
Crystalline Silica from Reclamation Activities	0.02 <u>0.26</u>	3 <u>31</u>
Crystalline Silica from Unpaved Roads	0.43 <u>0.46</u>	70 <u>54</u>
All Crystalline Silica Sources	0.56 <u>0.81</u>	92 <u>96</u>
All Other TACs	0.05 <u>0.04</u>	8 <u>4</u>
All Sources	0.61 <u>0.84</u>	100

NOTES:
Significance threshold is 1.0.
Not all numbers add properly due to rounding.

SOURCE: ESA

Because the highest level of chronic health risk from the projects would be less than the significance threshold of greater than one, the impact is less than significant.

Mitigation: None required.

Impact C4.2-11: Toxic Air Contaminant emissions could cause an acute health impact for nearby receptors (Less than Significant).

The HRA considered potential acute health effects, which are determined by estimating the maximum 1-hour exposure to TACs. The HRA found that the majority of the acute health risk posed by emissions from the Quarry (including ARP, AQP, and brickyard-related emissions) is from hydrogen sulfide (H₂S) emitted by the Quarry's asphalt plant. Like chronic risks, acute risks are measured using the "Hazard Index," where ratings of greater than one are considered significant. As shown in Table 4.2-15, both past and future acute health effects of TAC emissions from the Quarry were found to have an HI rating of 1.0 at the MEI (calculated to the next decimal, the rating is 1.01, which is rounded to 1.0). The approximate distribution of HI ratings for acute health risks in the vicinity of the Quarry is shown in Figure 4.2-7.

H₂S has a highly distinctive, highly disagreeable odor ("rotten egg" smell) at very low concentrations, below the level at which a significant acute health risk would occur. The Marin County Public Works Department reports no such odor complaints in the vicinity of the Quarry, indicating that actual H₂S emission rates from the asphalt plant are likely much lower than those used in the HRA (the HRA estimated emissions based on USEPA's Compilation of Air Pollutant Emission Factors (AP-42), which assumes a certain sulfur content in the produced asphalt). Because the HRA found an HI rating of 1.0, and because there is no record of complaints to suggest that H₂S emissions are detected by neighbors of the Quarry, suggesting that sulfur content in the produced asphalt is lower than USEPA assumption, the impact is considered less than significant.

Mitigation: None required.

Impact C4.2-12: Toxic air contaminants emitted from past Quarry operations, in conjunction with planned future operations under the Amended Surface Mining and Quarrying Permit (as well as currently unplanned but reasonably foreseeable future operations), reclamation activities under the Amended Reclamation Plan, and post-reclamation land uses could cause significant cumulative health effects (Significant).

The HRA modeled past exposure to TACs from past Quarry operations from 1982, when ARP82 was approved, through 2007. Emissions were estimated based on known or estimated rates of production and shipment of quarry products, and on published emission factors for the period modeled. The same receptor locations and types used for the modeling of future (AQP and ARP-related) emissions were used for past emissions, though it should be noted that several residences, including those on Heritage Drive and Marin Bay Park Court, were not built until the late 1980s or early 1990s. As with the modeling of future emissions, the modeling of past emissions examined only quarry-related emissions in isolation from regional and other local sources.

As shown in Figure 4.2-8, cancer risks from past operations (1982-2007) were in excess of the significance threshold of 10 cancer cases per million exposed individuals over a broad area of the neighborhoods around SRRQ. The highest incremental increase in cancer risk (at the MEI, located to the northeast of the Quarry), was 109 cancer cases per million exposed population. Since the area where the MEI is located, that is, in the Marin Bay Park development, was not developed until the late 1980s or early 1990s, no individuals would actually have been exposed to this high a risk. Somewhat lower rates, still in excess of the 10 in a million threshold, were calculated for receptor locations along Point San Pedro Road and throughout the Peacock Gap neighborhood: note in Figure 4.2-8 the area within the 10-50 category. Emissions from quarry operations prior to 1982 were not estimated, nor their health risk effects modeled, but these earlier emissions would have added to the cancer risk depicted in the figure. The higher rate of cancer risk from past emissions (relative to future risk) is due to the higher rates of DPM emissions from diesel trucks and on-site mobile equipment in the past: as indicated in Figure 4.2-3, a greater portion of the emissions (and therefore the contribution to cancer health risks) occurred earlier in the period modeled, and both the rate of emissions and their contribution to cancer health risks declined over the period modeled. It should be noted that this decline in the emission rates of diesel equipment, and therefore the cancer health effects of exposure, likely mirrored a similar trend throughout the Bay Area region and the entire state (and nation). Thus, it can be assumed that exposure levels and cancer health effects in past years from other sources (non-quarry operations) were also much higher than present levels.

Impact C4.2-9 describes the incremental increase in cancer risk associated with future emissions from the proposed ARP and AQP. As stated in that impact discussion, without mitigation the rate of incremental increase is estimated to be ~~13.9~~ 14.4 additional cancer cases per million exposed individuals at the site of the MEI; with mitigation (Mitigation Measures C4.2-9a, b, and c) the rate declines to ~~7.4~~ 8.8. While this latter figure is below the significance threshold for the future projects, the addition of the risk values for future exposure to the levels calculated for past exposure would result in an increase in the cancer risk in areas already exposed to a rate of over ten additional cancer cases per million exposed population, as well as an increase in the area with this level of exposure. Even with mitigation, therefore, the AQP and ARP projects would make a contribution to a significant cancer health risk that is cumulatively considerable. Furthermore, while the ARP currently under consideration would provide sufficient resource for mining through approximately 2024, SRRQ could in the future again seek to amend its reclamation plan to allow for additional mining. It is reasonably foreseeable that the level of operations would be similar to those currently proposed, and that they would result in additional cancer health risk; however, since the rate of DPM emissions will continue to decline (see Figure 4.2-3), the additional cancer risk associated with any future operations beyond that envisioned in the currently proposed ARP would likely be quite small. Taken together, past, current, and reasonably foreseeable future cumulative cancer risks are considered significant. Post-reclamation land-uses are anticipated to include residential, commercial, and open space, as well as the development of a marina. None of these uses and associated transportation are likely to result in emissions of toxic air contaminants in quantities that would cause substantial cancer or non-cancer health risks. However, the possibility of future use of the site for a ferry landing could result in continued

exposure of neighbors of the site, as well as future residents of the site, to emissions from marine equipment. While it would be speculative to estimate the level of emissions from future ferry operations, they may be expected to be similar to tugboat emissions associated with Quarry operations.

As previously discussed, acute risks are calculated based on the highest 1-hour exposure; exposures below the significance threshold do not combine in a cumulative manner. Chronic effects are based on the highest 1-year exposure. Exposures resulting in an HI below the significance threshold are considered not to cause chronic health risks; therefore, the level of past exposure to quarry emissions does not add to future exposure in a cumulative manner. For both acute and chronic health risks, the cumulative impact is less than significant.

Mitigation: No additional mitigation is available to further reduce the cancer health risks from the current projects or from reasonably foreseeable future projects, beyond those stated in Mitigation Measures C4.2-9a, b, and c. This cumulative impact is therefore considered significant and unavoidable.

Text Changes to Section 4.5, Hydrology and Water Quality

The text of Mitigation Measure R4.5-6 on page 4.5-16a of Volume I of the Final EIR is revised as follows:

Within one year of approval of the Amended Reclamation Plan, the applicant shall submit a concept engineering and economic report for use and future maintenance of a mechanical mixing or aeration system, or another engineered approach, that will result in avoidance or elimination of water quality degradation resulting from a stratified water column within the Main Quarry Bowl after it is flooded. The report will be conducted by qualified limnologists and water quality engineers. The system design will be at a schematic level and will be stamped by a California professional engineer, and will include calculations that demonstrate that the system will maintain water quality objectives established in the San Francisco Bay Regional Water Quality Control Board's Basin Plan. The report will include an analysis of operating and maintenance costs for the system, as well as predicted energy requirements and greenhouse gas emissions, and a plan for minimizing both of these; and will identify a funding source to ensure continued operation of the system after reclamation. The need for, and design of a mechanical mixing or aeration system shall be subject to further study and review as part of the final Development Plan, which shall be submitted at least three years prior to cessation of mining.

Text Changes to Section 4.6, Land Use and Planning

Revisions to the affected impacts, mitigation measures, and associated tables follow:

Impact P4.6-6: The Amended Surface Mining and Quarrying Permit would allow for an intensification of quarry operations beyond 1982 levels, in excess of the Quarry's legal nonconforming use under Title 22 of the County Code (Significant).

The following components of the proposed project would potentially exceed the scope of SRRQ's permitted use of the property as a legal nonconforming use:

- The proposed AQP would impose no limits on annual production of quarry materials, allowing SRRQ to operate at an intensity ~~well beyond~~ that of the baseline level, as defined in the Project Description (Chapter 3); 1982;
- The proposed AQP would allow for noise-generating operations until 10 p.m. and on weekends. These would include barge loading and operation of the crushing plant. In addition, the currently proposed AQP would allow maintenance activities, some of which can be expected to generate noise, 24 hours per day on non-holiday weekdays, and on up to 15 Saturdays per year from 7:00 a.m. to 5:00 p.m. The 1982 Amended Reclamation Plan indicates that, "(n)oise generating operations in both the Quarry and the plant are generally limited to daylight hours on weekdays except in times of emergency (Gilroy, 1982, p. 9).
- The proposed AQP would allow blasting to occur at greater frequency than the "approximately two times per week" frequency extant in 1982 and cited in Salter, 1982 (reference 133 in Section IX).

Mitigation Measures Proposed as Part of the Project

Mitigation Measure P4.6-6a: The applicant proposes to limit daily truck traffic to 250 one-way trips per day (125 in and 125 out). This appears to be less than the daily average during the period 1980-1982 and within the baseline for Quarry operations.

Mitigation Measures Identified in this Report

Mitigation Measure P4.6-6b: Quarry operations shall be limited to the levels of intensity extant in 1982, at the time that the Quarry became a legal nonconforming use. This will include the following:

- Maximum annual production shall be limited to the fluctuating baseline level of production as defined in Chapter 3, Project Description in 1982, i.e., a 5-year rolling average of no more than 1,414,667 ~~1,473,000~~ tons per year, and a maximum level of production of 1,697,600 tons in any one year;
- Operations shall be limited to those in place in 1982, i.e., noise-generating operations will be limited to daylight hours on weekdays, except during a declared emergency;
- Blasting shall be limited to approximately an annual (calendar year) average of two times per week (104 times per year).

Mitigation Monitoring and Reporting

Draft Mitigation Monitoring Measure P4.6-6: The specific requirements of these Mitigation Measures shall become conditions of approval of the AQP. As such, responsibility for monitoring implementation of this mitigation measure shall lie with the Marin County Department of Public Works.

Level of Significance after Mitigation:

The above mitigation measures would ensure that SRRQ is operating within the scope of its permitted use, and would therefore fully mitigate Impact P4.6-6.

Text Changes to Section 4.7, Noise and Vibration

Revisions to the affected impacts, mitigation measures, and associated tables follow:

Impact P4.7-5: Continued operation of the Quarry under the proposed Amended Surface Mining and Quarrying Permit would result in increased ambient noise levels above baseline levels (Less than Significant).

The baseline for current operations is considered to be the scope of the Quarry's use of the SRRQ site at the time the Quarry became a legal nonconforming use in 1982. At that time, noise-generating operations occurred generally during daylight hours on weekdays, except during times of declared emergencies, as stated in the 1982 Amended Reclamation Plan. Noise monitoring in 1982 at the location of the then-nearest residences indicated that noise from Quarry operations was not audible, with the exception of mobile equipment back-up alarms.

Under the proposed AQP, the Quarry would conduct noise-generating operations, including rock crushing, barge loading, and mining operations other than blasting, up until 10:00 p.m. (see Table 3-9 in Chapter 3, Project Description). In addition, maintenance activities, some of which generate noise, could occur 24 hours per day on non-holiday weekdays, and on up to 15 Saturdays per year from 7:00 a.m. to 5:00 p.m. Trucks would be restricted from entering the facility prior to 7:00 a.m., as they are under the Marin County Superior Court order.

Noise monitoring conducted for this EIR found that noise at the now-nearest residences on Marin Bay Park Court (Site LT-1) ranged from 52 to 55 dBA, Ldn over the course of three days, and that conveyor loading of materials at the Quarry was the single most substantial noise source, with secondary noise sources including back-up alarms from mobile quarry equipment.

The noise levels monitored at Site LT-1 do not exceed established County noise standards for land use compatibility for residences (i.e., 60 dBA, Ldn), so from this perspective the impact is considered less than significant.

Noise from the quarry's stationary equipment, including rock crushing and sorting, conveyors, and barge-loading, exceeds the County's 50 dBA daytime (7:00 a.m. to 10:00 p.m.) benchmark for allowable noise exposure from stationary sources (see Table 4.7-2). Daytime noise in excess of an hourly Leq of 50 dBA was monitored at Site LT-1: monitored noise levels ranged from 48 to 55 dBA. However, as stated in the Countywide Plan Noise Element guidelines for using the Table 4.7-2 standards, "The allowable noise level standard shall be raised to the ambient noise level in areas where the ambient level already exceeds the standards shown in this table. For example, if the neighborhood already experiences daytime hourly noise levels of 60 dBA as an ambient condition, the noise level standard shall be raised to 60 dBA."

Future Quarry operations are expected to produce less noise than past operations. As part of reclamation grading, the applicant plans to construct a berm in the NE Quadrant, as well as a surcharge berm in the NW Quadrant, both of which will act as noise buffers for nearby residents. In addition, the applicant has already implemented best management practices for noise reduction from operations, including use of rubberized barge feeders and transfer boxes, and installation of directional/reduced noise back-up alarms on all rolling stock (Peer, 2008).⁴

Furthermore, Mitigation Measure P4.6-6b which will limit production levels and hours of operation of the Quarry will further reduce noise levels relative to those currently experienced by neighbors of the Quarry.

Because future Quarry operations are not expected to produce noise that exceeds that which already is experienced at the site of nearby residences, and current noise levels do not exceed the compatibility standards for residential land uses, the impact is less than significant.

Mitigation: None required.

⁴ The Quarry reports that they now voluntarily delay start of operations on Saturdays until 9:00 a.m. if they are loading barges, and that they have voluntarily suspended barge loading on Sundays except during a declared emergency (Peer, 2008).

Text Changes to Chapter 6, Alternatives to the Project

The following revisions are made to the analysis and comparison of impacts of the Amended Reclamation Plan alternatives, on pages 6-8 through 6-10 in Chapter 6 of the Final EIR:

Geology, Soils, and Seismicity

The project itself would have the potential for significant environmental effects related to geology, soils, and seismicity, but these would be reduced to less-than-significant with the mitigation measures specified in Section 4.4. The No Project/Status Quo Alternative would be expected to have similar, but somewhat lesser impacts, since the final depth of the Main Quarry Bowl would be less than for the proposed project, and so would likely be more stable. The Alternative Reclamation with Alternative Beneficial End Use Alternative would specify low-impact land uses and so would likely result in lower levels of erosion and sedimentation. However, slope stability is a concern for use of the un-flooded Main Quarry Bowl for recreational uses. Slope stability evaluation would have to be performed to ensure an adequate factor of safety for the intended end uses, including recreational uses; if an adequate factor of safety could not be achieved, the end use would have to be limited to appropriate uses.

Hydrology and Water Quality

The project is expected to have significant effects on hydrology and water quality related to the potential for contaminated stormwater runoff and stratification of water in the flooded Main Quarry Bowl following reclamation, but these effects can be mitigated to less-than-significant with the measures specified in Section 4.2-5. The Alternative Reclamation with Alternative Beneficial End Use Alternative specifies broader buffers around marsh areas and low-density development, both of which would reduce the potential for contaminated stormwater runoff to reach the marshes and the Main Quarry Bowl, which would remain dry. However, rainwater collecting in the bottom of the Main Quarry Bowl would have to be managed, either by pumping it out, which could have implications for energy use and related air emissions, including greenhouse gases, or by managing it such that water quality does not deteriorate.

The No Project/Status Quo Alternative would not include the aeration or mixing system to prevent stratification, poor water quality, and potential deleterious effects on aquatic organisms in the flooded Main Quarry Bowl, this alternative could be expected to result in significant water quality impacts that would be mitigated or avoided under the Project and the other alternatives.

The Mitigated Alternative would include the aeration or mixing system to prevent stratification of the water column and resulting degraded water quality. This alternative, like the Alternative Reclamation with Alternative Beneficial End Use Alternative, would restore tidal action in the marshes, resulting in restoration of more natural hydrology, a benefit delayed until the cessation of quarrying by the project itself.

Noise

The only significant noise impact of the ARP project is associated with construction and later dismantling of the proposed berm on the northern side of the NE Quadrant. This impact, though temporary, would remain significant and unavoidable even with the incorporation of specified mitigation measures.

While each of the alternatives would be expected to have noise impacts associated with various reclamation activities, it is likely that these would either be less than significant, or could be mitigated to less than significant. ~~Therefore, the noise impacts of the alternatives would likely be less than the project.~~ The Alternative Beneficial End Use Alternative includes the possibility of using the un-flooded Main Quarry Bowl as a concert venue. This use could result in significant noise impacts.

Transportation and Traffic

The project is not expected to result in significant traffic impacts; see Section 4.10. This is due to the low traffic-generation predictions for reclamation activities, and the similarity of post-reclamation land uses under ARP04 and ARP82. None of the alternatives would be expected to have adverse traffic impacts. Reclamation activities would be similarly limited in their traffic generating potential. Post-reclamation land uses would be the same as the project, or, in the case of the Alternative Reclamation with Alternative Beneficial End Use Alternative, lower density.

However, the Alternative Beneficial End Use Alternative includes the possibility of using the un-flooded Main Quarry Bowl as a concert venue. This use could result in significant traffic impacts associated with large events.

Chapter 6, pages 6-21 and 6-22, and Table 6-1 of the Final EIR is changed as follows (only the changed sections of the table are shown below):

Amended Reclamation Plan: Environmentally Superior Alternative

As described above and summarized in Table 6-1, each of the three alternatives would likely result in fewer significant impacts than the project. However, the No Project/Status Quo Alternative would result in impacts not associated with the project, notably interference with the extraction of the mineral resource. ~~The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.~~ The Alternative Reclamation with Alternative Beneficial End Use Alternative avoids or reduces most impacts associated with the project as proposed, but could result in significant impacts related to use of the un-flooded Main Quarry Bowl as a recreational area, including a large-event venue. The Mitigated Alternative would reduce most of the significant impacts of the project, without causing new impacts.

TABLE 6-1
ABILITY OF ALTERNATIVES TO REDUCE OR AVOID SIGNIFICANT IMPACTS OF THE ARP PROJECT

Impact	Project	No Project / Status Quo Alternative	Mitigated Alternative	Alternative Reclamation with Alternative End Use Alternative
Geology, Soils, and Seismicity				
Impact R4.4-1: Prior to the completion of site reclamation, the project site could be subject to slope instability hazards, including landslides, debris flows, and rockfalls caused by seismic or non-seismic mechanisms	Impact can be reduced to less than significant	Existing permits do not contain mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be similar, assuming same geotechnical analysis applied. <u>Slope stability analysis would be required to determine whether the un-flooded Main Quarry Bowl would have an adequate factor of safety for the intended end-uses.</u>
Impact R4.4-2: Soil erosion of exposed cut or fill slopes, native slopes with removed vegetation, and soil stockpiles could result in soil erosion and loss of topsoil	Impact can be reduced to less than significant	Existing permits do not contain mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be the same, assuming mitigation measures would apply
Impact R4.4-3: Unstable slopes or soils could adversely affect post-reclamation land uses of the Quarry site	Impact can be reduced to less than significant	Existing permits do not contain protections of mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be the same or less, since end uses would be less intensive
Hydrology and Water Quality				
Impact R4.5-2: Grading associated with the proposed project would increase the potential for eroded sediments to degrade the quality of surface water sources including the San Francisco Bay	Impact can be reduced to less than significant	Existing permits contain weaker stormwater pollution prevention measures. Impact would be greater.	Impact can be reduced to less than significant	Impact would be the same, assuming similar mitigation measures would apply
Impact R4.5-6: Poor water quality conditions could occur in the deep water within the flooded Main Quarry Bowl due to long residence times and stratification at depth. The proposed project may result in degradation of water quality within the deep areas of the harbor basin	Impact can be mitigated to less than significant.	Under existing ARP, final depth of the Main Quarry Bowl would be shallower than proposed, reducing, but probably not eliminating, this impact	Impact can be reduced to less than significant.	Impact would be avoided. <u>However, rainwater collecting in the bottom of the Main Quarry Bowl would have to be managed to avoid deterioration of water quality.</u>
Impact R4.5-8: The project reclamation and post-reclamation activities would result in an increase in the possibility of inundation by a mudflow, seiche, tsunami, or sea level rise	Impact can be reduced to less than significant	Impact likely to remain significant and unavoidable	Impact can be reduced to less than significant	Impact would be avoided.

TABLE 6-1 (Continued)
ABILITY OF ALTERNATIVES TO REDUCE OR AVOID SIGNIFICANT IMPACTS OF THE ARP PROJECT

Impact	Project	No Project / Status Quo Alternative	Mitigated Alternative	Alternative Reclamation with Alternative End Use Alternative
Impact R4.5-10: Post-reclamation development could produce stormwater runoff that would result in a degradation of surface water quality	Impact can be reduced to less than significant	Existing permits do not contain mitigation measures specified in this report; therefore, the impact would be greater	Impact can be reduced to less than significant	Impact would be less or no impact
Noise and Vibration				
Impact R4.7-1: Construction of a berm along the northern property line of the NE Quadrant would result in temporary construction noise (Significant) but would also result in the creation of a noise buffer for daily operations (Beneficial).	Short-term impact would be significant and unavoidable	Similar impact would occur after cessation of mining	Lesser impacts would occur during early phased reclamation grading and restoration of natural areas; additional impact would occur after cessation of mining	Lesser impacts would occur during early phased reclamation grading and restoration of natural areas; additional impact would occur after cessation of mining, <u>including the possibility of significant noise impacts from use of the un-flooded Main Quarry Bowl as a concert venue.</u>
Transportation and Traffic				
	No significant impacts of the ARP	Alternative would not have significant impacts	Alternative would not have significant impacts	Alternative would not have significant impacts. <u>This Alternative could result in significant traffic impacts associated with use of the un-flooded Main Quarry Bowl as a venue for concerts and other events.</u>

SOURCE: Environmental Science Associates

In conclusion, the Mitigated Alternative ~~and the Alternative Reclamation with Alternative Beneficial End Use both~~ appears to have the ability to meet most of the project objectives, to reduce significant impacts associated with the project, and to result in additional benefits not realized by the project itself. Therefore, these Mitigated Alternative is determined to be ~~two alternatives are coequally~~ the Environmentally Superior Alternative.

CHAPTER 4

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4.3 Persons and Organizations Consulted

Lists of other people and organizations consulted are provided in the references in Chapter 3.