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Attention: Rob Eastwood

Re: Comments on the Draft Environmental Impact Report for the Lehigh Permanent Quarry Reclamation Plan Amendment

San Francisco Bay Regional Water Quality Control Board (“Water Board”) staff appreciate the opportunity to review the Draft Environmental Impact Report for the Lehigh Permanent Quarry Reclamation Plan Amendment December 2011 (“dEIR”) and submit comments for consideration. The dEIR assesses anticipated environmental impacts resulting from the proposed reclamation activities, which are of serious concern to Water Board staff. In general, the Water Board’s comments are:

- The environmental impacts have been significantly underestimated and under-identified.
- The standards of work required under the dEIR are not consistent with level required by the Surface Mining and Reclamation Act (“SMARA”), Title 27 of the California Code of Regulations (“CCR27”), the Federal Clean Water Act and the Porter-Cologne Water Quality Control Act, (at Water Code Sections 13000 et seq.).
- The analysis is based on data not capable of statistical analysis to support the conclusions drawn.
- It is premature to approve the dEIR as it is currently written. To do so would ignore the better practical alternatives and the reclamation activities’ real threats to water quality or human health.

We structure our detailed comments to provide guidance as to how to resolve inconsistencies and how to collect critical information before the County proceeds with approving the Reclamation Plan Amendment.

Introduction

The Lehigh Permanente Quarry Reclamation Plan Amendment (“Project”) proposes to reclaim approximately 637 acres of existing and planned surface mining disturbance area. The Project components include the reclamation of the East Materials Storage Area (EMSA, 75 acres), Quarry Pit (265 acres), West Materials Storage Area (WMSA, 173 acres), Crusher/Quarry Office Support Area (53 acres), Surge Pile (8.8 acres), Rock Plant (19 acres), an area adjacent to and within the Permanente Creek corridor (Permanente Creek Restoration Area or PCRA, 49 acres), and an area south of Permanente Creek that has been disturbed by prior surface mining-related exploratory activities (Exploration Area, 20 acres). The purpose of the reclamation is to make the Project area suitable for future open space use.

The Project would be implemented in three phases over an approximately 20-year period and completed by 2030. During Phase I, mining activities will continue at the Quarry Pit, which has been mined for over 80 years, until 2025. Overburden materials generated from future mining will be disposed against the west wall of the Quarry Pit, namely the WMSA, while reclamation of the EMSA starts immediately after the Project approval. The restoration of EMSA will be completed in Phase I.

After mining is completed in Phase II, overburden materials currently stored at WMSA will be excavated and used to backfill the Quarry Pit. During Phase III, WMSA and Quarry Pit will be graded and revegetated and final reclamation is achieved. Reclamation of other components of the Project will occur during the three phases of the Project.

As an agency charged with water quality and beneficial uses protection, the following are our main concerns of the dEIR:

- The significant water quality impacts, including from the discharge of selenium and sediment-laden water to Permanente Creek during and after reclamation (Impacts 4.4-5, 4.10-1, and 4.10-2).
- The significant impacts on changes to drainage patterns that may cause increased storm water ponding, accumulation of selenium concentrations, on-site, off-site, and downstream flooding (Impacts 4.10-4, 4.10-6, and 6.2).
- Analysis of surface water flow changes in Permanente Creek (groundwater extraction from the creek during continued mining and groundwater recharge back to the creek after reclamation), and asserts the impact to be insignificant (Page 4.4-44 and Impact 4.4-5).
- Mitigation measure proposals for the significant impacts. Among the impacts, the water quality impacts from discharging selenium and sediment-laden water during the reclamation period cannot be mitigated to less than significant levels.

Interaction of CEQA Selection of Baseline and Enforcement

The baseline chosen by the County is June 2007. Water Board policy is typically to choose the current environmental setting. However, the Water Board recognizes the County has significant discretion in selecting the baseline if there is substantial evidence to support the selected baseline. While there is a single comment *infra* regarding baseline and instability, the comments submitted by the Water Board are for the purposes of commenting on the sufficiency and propriety of the dEIR and not for pursuing direct enforcement of Lehigh. Such enforcement,

whether through the administrative or legal process, is separate and distinct from the CEQA process, consistent with *Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1280; *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1453. However, it is the Water Board’s position that comments submitted by staff about the potential for environmental harm gathered through whatever means, whether it be review of the dEIR, interaction with Lehigh personnel, or personal observations at the site, are all appropriate.

List of Water Quality/Hydrology Related Impacts Analysis (Section 4.10)

This chart is excerpted from the dEIR Table ES-3, Summary of Impacts and Mitigation Measures for the Permanente Quarry Reclamation Plan Amendment, Hydrology and Water Quality Section. Water Board Staff does not agree in all regards with the dEIR’s assessment of viability compiled from the Executive Summary and Table ES-3. The Water Board often disagrees with the dEIR’s assessment of viability of mitigation measures and the significance of impact after mitigation. Our comments, presented below, explain our concerns and how our conclusions differ with the dEIR’s.

| Environmental Impact | Significance before Mitigation | Mitigation Measures | Significance after Mitigation |
|--|---------------------------------------|---|--------------------------------------|
| 4.4-5: Project activities could result in selenium burdened runoff reaching aquatic habitats and, thereby, in deleterious effects to aquatic organisms and their prey base. | Significant | 4.4-5: Selenium-related Impacts to Aquatic Habitat (to implement 4.10-2a and 4.10-2b). | Significant and unavoidable |
| 4.10-1: Post-reclamation conditions in the EMSA, WMSA, and Quarry pit would increase selenium concentrations in Permanente Creek to levels exceeding baseline conditions and RWQCB Basin Plan objectives. | Significant | 4.10-1a: Professional geologist Verification of Non-Limestone-Containing Material Use. 4.10-1b: Verification Water Quality Monitoring. | Less than significant |
| 4.10-2: Interim reclamation activities within the Project Area would contribute concentrations of selenium, Total Dissolved Solids (TDS), and sediment in Permanente Creek. | Significant | 4.10-2a: Interim Stormwater Control and Sediment Management. 4.10-2b: EMSA Interim Stormwater Monitoring Plan. | Significant and unavoidable |
| 4.10-3: The Permanente Creek Reclamation Area (PCRA) reclamation activities would contribute concentrations of selenium, Total Dissolved Solids (TDS), and sediment in Permanente Creek. | Less than significant | None required | Less than significant |
| 4.10-4: The Project would alter the existing drainage pattern of the site, which could result increased storm water runoff rates and on- or offsite flooding. | Significant | 4.10-4: Construction of Onsite Detention Facility. | Significant and unavoidable |

| | | | |
|--|------------------------------|--|------------------------------------|
| <p>4.10-5: Groundwater discharge from the Quarry pit after backfilling and reclamation is complete would adversely alter surface water flows to Permanente Creek.</p> | <p>Less than significant</p> | <p>None required</p> | <p>Less than significant</p> |
| <p>4.10-6: The Project would alter the existing drainage pattern of the site, which could result in increased stormwater ponding, accumulation of selenium, and flooding.</p> | <p>Significant</p> | <p>4.10-6: Stormwater Control to Avoid Poned Water and Selenium Accumulation.</p> | <p>Less than significant</p> |
| <p>Impact 6-2: Incremental Project-specific activities could contribute to downstream flooding.</p> | <p>Significant</p> | <p>6-2: Construction of Onsite Detention Facility.</p> | <p>Significant and unavoidable</p> |

I. WATER BOARD STAFF COMMENTS RELATED TO WATER QUALITY STANDARDS AND REGULATIONS

A. California Code of Regulations – Title 27

Comment #1: The dEIR is Inconsistent with the Standards Set Forth in SMARA

As described throughout this letter, the Water Board’s comments articulate the deficiencies in the dEIR, in the analysis done prior to issuing the dEIR, in the planned 20 years of reclamation activities, and the inadequate mitigation. The Water Board’s initial concern is that the dEIR must hold Lehigh to the performance standards in the governing regulation, SMARA. Most notably, the following SMARA provisions, in the Water Board’s opinion, are not met:

3704.1 Performance Standards for Backfilling Excavations and Recontouring Lands Disturbed by Open Pit Surface Mining Operations for Metallic Minerals.

...

(b) Backfilling shall be engineered, and backfilled materials shall be treated, if necessary, to meet all of the provisions of **Title 27, California Code of Regulations**, Division 2, Chapter 7, Subchapter 1, Mining Waste Management, commencing with Section 22740, and the applicable Regional Water Quality Control Board’s Water Quality Control Plan. (emphasis added)

...

(d) ... All fills and slopes shall be designed to protect groundwater quality, to prevent surface water ponding, to facilitate revegetation, to convey runoff in a non-erosive manner, and to account for long term settlement.

3706. Performance Standards for Drainage, Diversion Structures, Waterways, and Erosion Control.

(a) Surface mining and reclamation activities shall be conducted to protect on-site and downstream beneficial uses of water in accordance with the Porter-Cologne

Water Quality Control Act, Water Code section 13000, et seq., and the Federal Clean Water Act, 33 U.S.C. section 1251, et seq.

(b) The quality of water, recharge potential, and storage capacity of ground water aquifers which are the source of water for domestic, agricultural, or other uses dependent on water, shall not be diminished, except as allowed in the approved reclamation plan.

(c) Erosion and sedimentation shall be controlled during all phases of construction, operation, reclamation, and closure of a surface mining operation to minimize siltation of lakes and watercourses, as required by the Regional Water Quality Control Board or the State Water Resources Control Board.

3710. Performance Standards for Stream Protection, Including Surface and Groundwater.

(a) Surface and groundwater shall be protected from siltation and pollutants which may diminish water quality as required by the Federal Clean Water Act, sections 301 et seq. (33 U.S.C. section 1311), 404 et seq. (33 U.S.C. section 1344), the Porter-Cologne Act, section 13000 et seq., County anti-siltation ordinances, the Regional Water Quality Control Board or the State Water Resources Control Board.

3712. Performance Standards for Tailing and Mine Waste Management. State Water Resources Control Board mine waste disposal regulations in Article 1, Subchapter 1, Chapter 7 of Title 27, California Code of Regulations, shall govern mine waste and tailings, and mine waste disposal units shall be reclaimed in conformance with this article.

Comments throughout this letter relate to these performance standards.

Comment #2: The dEIR is Incomplete Due to No Data or Insufficient Data

Water Board staff have been informed that the County is in a severe time crunch, with little room for maneuvering. The Water Board does not find an onerous schedule a valid reason for minimizing impacts to the environment. Specifically, Terry Seward of the Water Board provided information to the County **on November 21, 2011**, along with a pdf of the Title 27 regulations and the statement that the “[Water Board] will need to evaluate your proposed plan to make sure it is consistent with the closure requirement for mine sites contained in Title 27 (section 22510).” The dEIR refers to Title 27 on 4.10-22 as part of the Regulatory Setting.¹ The dEIR concludes that the materials in the waste piles would likely be characterized as Group B mining waste as defined in Title 27, but can offer no support for such a conclusion, because adequate testing has never been completed. Nor has a Report of Waste Discharge for either the WMSA or the EMSA been submitted to the Water Board. The dEIR states, correctly, that under Title 27, Lehigh “would be required to implement certain siting and construction standards,

¹ The dEIR also refers to Title 27 on 2-50, noting that it requires that threats to water quality be addressed during mine closure and reclamation. The comment on page 2-50 addresses sediment transport, which is raised in Comments 27 and 28.

including peak stream flow protection, precipitation and drainage controls, and a leachate collection and removal system (LCRS).” Yet none of these items are included as required mitigation in the dEIR, even though the SMARA regulations require the Project to conform to Title 27 standards.

Comment #3: The dEIR Has Not Conclusively Determined that Hazardous Materials Are Not Present in the Waste Piles

The dEIR has presented no evidence to supports the conclusion that there are not hazardous materials in either waste pile, yet Water Board staff have observed the disposal of such materials to the waste piles.

Title 27 governs the disposal of non-hazardous, but potentially deleterious waste to land. This includes solid and liquid; municipal, construction, industrial, and mining waste. Section 20164 of CCR 27 defines “mining waste” as: all waste materials (solid, semi-solid, and liquid) from the mining and processing of ores and minerals including soil, waste rock, and other forms of overburden as well as tailings, slag, and other processed mining wastes. The known potential wastes generated by Lehigh that could be regulated pursuant to CCR 27 include mining waste (overburden mine material; waste rock mine material; liquids, solids, and sludges produced from the processing of mined ores, including contact groundwater and surface water from the Quarry Pit) and industrial waste (cement kiln bricks --which have been observed in the EMSA and photographed by Water Board staff--and dust used in the industrial processing of mined material; chemical waste materials; waste liquids, solids, and sludges produced in manufacturing industrial products such as aluminum, cement and sand and gravel).

Furthermore, while this EIR creates a distinction between the mining activities and the cement plant activities, the presence of kiln bricks in the EMSA and rock plant mud cake indicates that waste materials from all three operations are being deposited into one or both the EMSA and WMSA. So, not only must the EIR fully characterize the mining waste deposited in the storage areas, it must characterize ALL waste deposited in the storage areas. The Water Board has information that hazardous waste from the decommissioning of the Kaiser Aluminum facility has also been deposited in the vicinity of the EMSA.

Notwithstanding Title 27 and its predecessor regulations, Lehigh and/or the County should have characterized the WMSA and EMSA **for the purposes of the dEIR**. Instead, there has been a complete lack of characterization of the waste piles and the effect of the reclamation activities on the chemical constituents within the piles. While buried, rocks in the piles are in reducing conditions and are not labile (reactive), do not readily leach (dissolve) into surrounding water, and are relatively immobile in the ground. Once exposed to oxygen or oxygenated water, the surface of the rocks become oxidized. Selenium and metals also become oxidized into a labile form, such that they readily leach into surrounding water.

Characterization of waste is required to implement the appropriate level of protective measures to ensure adequate isolation of waste from groundwater and surface water.

Because the EMSA and WMSA have not been adequately characterized, and given historic records from the facility and knowledge of the geology of the area, mining waste (solid and liquid) from the site is likely to contain elevated levels of metals and metalloids such as mercury, chromium, and selenium, which can be harmful to humans and wildlife. Mercury and selenium are bioaccumulative (concentrations increase exponentially up the food chain). Water Board records indicate very limited sampling has been done of the mine related materials and wastes for these contaminants.

Comment #4: Insufficient Search To Draw Conclusions (Hazards and Hazardous Materials (4.9))

The dEIR designates impacts as less than significant based on existing use of hazardous chemicals, based on a search of regulatory databases. It is insufficient to use regulatory databases to identify known spills; historical site records must be used. Information in regulatory databases is primarily sourced from Reports of Waste Discharge, which Lehigh failed to submit with respect to mining waste. As noted above, the Water Board has personally observed hazardous materials in the waste piles.

Comment #5: Like Mining Waste, Industrial Waste Has not Been Properly Characterized

Industrial waste has not been characterized at the site. The following is a list of wastes likely present:

- a) Industrial process water from crushing rock, washing rock and washing equipment may contain metals and metalloids, acrolein and acrylonitrile, and petroleum products.
- b) Chemicals used to maintain equipment (fuel oils, lubricants, solvents, paints, etc.).
- c) Sludges, dust, and other solid waste materials produced during the processing or manufacturing of industrial products, including waste generated at the co-located cement factory.

The petroleum and solvent chemicals contain volatile and semi-volatile organic compounds (e.g., benzene, toluene, TCE), which can be carcinogenic, mutagenic, teratogenic, or otherwise harmful to humans and wildlife. The dEIR lacks the characterization of the waste piles and of these potential harms to human health. Furthermore, the waste piles represent a real and continued threat to groundwater that, even if the dEIR were approved and the Project were to proceed, the waste piles would remain on site for at least seven additional years. Furthermore, the ultimate goal of the proposed Project is to store the same waste in the current Quarry Pit into perpetuity. Without testing, no agency or entity, including the County of Santa Clara or Lehigh, can confidently state that there are not hazardous materials in the waste piles and that the WMSA and EMSA pose no threat to groundwater.

Comment #6: The Reclamation Activities Do Not Comply with Title 27's Siting, Design, and Construction Requirements (Chapter 3, Subchapter 2)

While the reclamation plan ultimately – over the next 20 years – sorts, reuses, and relocates the EMSA and WMSA (summarized at 2-14 and 2-16), because the dEIR did not fully address Title 27, the Project is subject to the water quality risks that Title 27 is aimed at preventing. For example, Title 27 Chapter 3, Subchapter 2 requires proper siting and design, which is intended to ensure adequate isolation of waste from groundwater and surface water. Such protections may include liners separating waste from the ground surface to prohibit migration of waste and leachate to soil, groundwater, or surface water or a cap to minimize percolation of liquids through the waste, and thus leachate production.

By the term “cap” (interchangeable with the term “cover”), what is understood in the context of Title 27 compliance is an impermeable layer such as clay - not the loose, unconsolidated waste material referred to in the dEIR as “cover.” Failure to comply with these requirements can result in a failure to isolate wastes from groundwater and surface water. Instead, the “cap” proposed in the dEIR is insufficient to function as intended (to minimize percolation of rain through the waste pile), and does not meet Title 27 regulations.

For example, the WMSA and EMSA have no such protections, and the dEIR proposes none **for at least the next 7 years.**² Staff have personally observed dry kiln bricks in the EMSA, which are hazardous. Neither of the waste piles is covered, exposing them to stormwater. The EMSA and WMSA are not small waste piles; they are vast waste impoundments: approximately 75 acres for the EMSA and approximately 175 acres for the WMSA. Neither of the waste piles is believed to be on a concrete liner. Lehigh has not submitted a Report of Waste Discharge pursuant to Water Code 13260 for either of the waste piles. The groundwater samples contained in the dEIR were collected from the wrong locations for determining if there is any contamination.

Because of Lehigh's failure to submit information under existing regulatory structures, the County may have little information about the characterization of the waste piles. However, it should have required it as part of completing the dEIR. Staff inspections indicate little to no containment structures are employed at the Project site. It is possible leachate has migrated to groundwater and surface water, and therefore possible contaminants from the waste have discharged to groundwater and Permanente Creek.

Comment #7: Inadequate Monitoring Plan Pursuant to Title 27, Subchapter 3, Article 1

² As is discussed *infra*, the Water Board feels the ultimate resolution – proposed mitigation – is insufficient, and the dEIR sets forth no schedule for establishing mitigation measures during Phase I, which lasts for seven years. Refer to Comment #25.

Because the dEIR is inconsistent with the requirements of Title 27, both retrospectively and prospectively, it also fails to describe or require a water quality monitoring plan during the removal and re-location of the waste piles. The purpose of this requirement is to detect, at the earliest possible time, any release from a Waste Management Unit (“WMU”), such as the EMSA or WMSA, as well as to monitor remediation of known releases. A release of leachate or waste from a WMU to groundwater, surface water, or soil where it might reach groundwater or surface water, constitutes an unauthorized discharge to waters of the state. CCR 27 requires a groundwater monitoring program for WMUs to ensure they are not leaking. Pursuant to CCR27, a hydrogeologic investigation is performed to develop a monitoring program, and typically groundwater upgradient and downgradient of the WMU are compared, or analysis of trends is used to identify a potential release. Monitoring of receiving waters, in this case at least Permanente Creek, is also required to identify impacts. The above described investigations need to be performed, fully and accurately described in this dEIR, and form the basis for project alternatives analyses and impact considerations.

It is unknown if any WMU at Lehigh is leaking, (i.e., if waste or leachate from waste piles, landfills, surface impoundments, etc., is in contact with groundwater at the site). Given historic records, Staff’s knowledge of the geology and hydrogeology of the area, and evidence that the WMUs are unconfined and unlined; it is likely that waste and leachate are in contact with or have impacted groundwater quality. The geology of the area consists of fractured bedrock (fault brecciated Franciscan) and alluvium and colluvium, both of which are permeable deposits that could allow migration of leachate to groundwater. Therefore, groundwater and surface water could be impacted by pollutants from WMUs.

Comment #8: Closure and Post-Closure Maintenance Plans, Title 27, Subchapter 5

The purpose of this requirement is to ensure plans are in place to properly close WMUs to ensure continued isolation from waters of the state. It includes criteria for cover, maintenance, drainage controls, erosion controls, and financial assurances. Failure to comply means the State cannot be assured Lehigh has the plans in place, and the financial ability, to adequately close and maintain the facility during the 20-year reclamation plan to protect human and environmental health.

The Project defined in the dEIR, and all proposed alternatives, fail to address requirements of CCR27 for mining waste, and industrial waste (if disposed of onsite). These requirements include:

1. Waste and leachate characterization in the WMSA, EMSA, backfilled quarry, and surface impoundments.
2. Structural standards. Specifically, the Project and alternatives proposes to leave in place the EMSA, or move it to CMSA; however there is no proposal to meet the structural standards required by CCR 27. In addition, the Project and alternatives propose to backfill the Quarry pit with mining waste (overburden and waste rock), which has not been characterized. This waste would be in contact with groundwater (approximately **18 million gallons of groundwater** was pumped out of the pit in 2010), and may leach

contaminants from the waste and **migrate offsite, potentially discharging to Permanente Creek or downgradient drinking water aquifers.**

3. Submittal of Report of Waste Discharge and subsequent coverage under a permit (Waste Discharge Requirements) for discharge of mining waste to land will be required, which was not included in the list of required permits.
4. Proposed final contours of the Quarry do not meet CCR 27 requirements. The proposal is to backfill the pit partially, to create a swale with a lowest elevation in the quarry pit. Surface water runoff would therefore be directed to the Quarry Pit. CCR 27 requires drainage away from waste to minimize percolation and production of leachate.

B. Selenium

Comment #9: Conclusions in dEIR regarding Selenium are Not Supported by Data Presented in dEIR; Overall, dEIR Lacks Pertinent and Correct Sampling and Evaluation

Monitoring conducted by the Water Board's Surface Water Ambient Monitoring Program (SWAMP) in 2002 and by Santa Clara Valley Urban Runoff Pollution Prevention or SCVURPPP during 2005-2007 indicated selenium WQOs were exceeded at the downstream reach of the Creek (at a location near the Rancho San Antonio Park). The applicable water quality objectives (WQOs) for selenium are from the National Toxics Rule (NTR), which are 5 µg/L for chronic aquatic life protection and 20 µg/L for acute protection, expressed in total recoverable metal.

The dEIR used additional water quality data collected in 2009, 2010, and 2011 at five new locations in the Creek (Table 4.10-2). Among which, two locations, SW-1 (upstream of quarry dewatering discharge point) and SW-2 (downstream of quarry dewatering discharge) are located within the Project area, the other three are next to the Project area. These locations are further upstream of the site used in the SWAMP/SCVURPPP monitoring programs; therefore, these data more closely reflect the impacts from the mining activities.

However, selenium concentrations cited in the dEIR appeared to be all in the dissolved form, and the dEIR compared these dissolved concentrations with the selenium total recoverable WQOs (Table 4.10-2). In fact, total selenium concentrations may be more relevant to evaluate the severity of the problem. Dissolved selenium determines the phase transformation (from dissolved to particulate), but particulate selenium is the bioavailable form of toxicology importance (*Metal Contamination in Aquatic Environments, Science and Lateral Management, Samuel N. Luoma and Philip S. Rainbow, Cambridge University Press, 2008*). The dEIR at Page 4.10-6 states that selenium in the discharges are mostly in dissolved form, however, this statement needs to be supported by the data. Therefore, the analysis needs to be based on total selenium concentrations.

Even with the dissolved concentrations, all five locations in the Creek had selenium concentrations well above the WQOs, with the maximum concentration observed immediately downstream of the Quarry Pit dewatering point (81 µg/L as dissolved selenium versus the chronic objective of 5 µg/L). The Creek at this location is dominated by the Quarry dewatering

discharged from Pond 4A during dry season. Pond 4A had a sample with a selenium concentration of 100 µg/L. Besides, monitoring of the storm water runoff of the two waste materials storage areas (EMSA and WMSA) also indicated elevated selenium concentrations (ranging from 7.1 – 36 µg/L). Monitoring data of the groundwater in the Project area (0.27 to 3.9 µg/L) and in an adjacent reference creek, Monte Bello Creek (from non-detect to 0.71 µg/L), on the other hand, showed very low selenium concentrations. It is important to note that the groundwater samples were taken from the exploratory borings on the other side of Permanente Creek in an area that has not been disturbed by mining. Also, the dEIR needs to confirm that the Monte Bello Creek sampling location is eligible to be a “background” sample location.³ Our comment here assumes that it is an appropriate background location.

Comment #10; Limestone as Potential Source of Selenium

The dEIR also identified limestone to be the rock that leaches the most selenium into the groundwater and surface runoff that has been in contact with the limestone. Groundwater that seeps into the Quarry Pit and storm water runoff that flows into the Quarry Pit, which is high in selenium, are constantly pumped to the Creek. Both WMSA and EMSA contain wasted limestone, portions of the WMSA contain dense quality limestone and aggregates; the Project proposes to separate these limestone during the reclamation (while excavating and backfilling the Quarry Pit using materials from WMSA) for subsequent processing. In the dEIR, it is noted that the EMSA also contains a fine-grade byproduct from limestone washing at the Rock Plant wash plant. Water Board staff have personally observed this same material, referred to by Lehigh staff as “mud cake”, deposited in large quantities in the WMSA as well. Lehigh further documented that Rock Plant “mud cake” is deposited in the WMSA in its application materials for coverage under the Sand and Gravel Permit.

This mud cake material may contain high-grade limestone and is considered potential sources of selenium if exposed to storm water and remobilized by runoff (pg. 4.10-32). Surface runoff in contact with these waste materials will bring high concentrations and mass loading of selenium into the discharge. It is unclear how Lehigh deals with the wash water that may be very high in selenium.

Therefore, the Water Board finds that the Quarry Pit dewatering and surface runoff from the waste material areas are significant sources of selenium. Furthermore, the crusher operation area and the surge pile contain significant quantities of fines as has been personally observed by Water Board staff.

The dEIR does not mention the full range of pollutants present in mud cake: as personally observed by Water Board staff, petroleum-based lubricants are used in large quantities in the rock crushing operations, and that waste accumulates in the crusher basin area and must be removed to either the WMSA or the EMSA. The Rock Plant uses chemical agents for flocculation, and those chemicals are also present in the “mud cake” that is deposited in the WMSA and EMSA. When the Water Board required Lehigh (per June 2011 13267 order) to propose which chemicals to sample for that would indicate presence of the proprietary chemicals

³ Refer to Comment #33, *infra*.

used at the Rock Plant, they answered, “acrylonitrile and acrolein,” both of which are regulated priority pollutants in the California Toxics Rule. The dEIR needs to contain sampling data for all priority pollutants in all waste streams on site.

Comment #11: The Water Board Is Not Confident, Based on Current Analysis, that Selenium will not be Mobilized by Project Activities

The impact of selenium and metals contained in the WMSA, EMSA, and Quarry Pit has not been evaluated sufficiently to assume a less than significant impact with mitigation. The Quarry, and materials stored/disposed of in the waste piles (WMSA and EMSA) contain limestone, known to contain selenium. The overburden and waste rock is known to contain metals such as mercury, nickel, cobalt, manganese, and chromium. In elevated concentrations, these elements pose a risk to human and environmental health. While buried, these rocks are in reducing conditions and are not labile (reactive), such that metals on the surface do not readily leach (dissolve) into surrounding water, and are relatively immobile in the ground. Once exposed to oxygen or oxygenated water, as during the mining process, the surface of the rocks become oxidized. Selenium and metals also become oxidized into a labile form, such that they readily leach into surrounding water.

In the WMSA and EMSA, this Project’s process of moving waste materials to the final storage location increases the concentration of selenium and metals in surface water and likely groundwater. The materials in these waste piles contain rocks, including fines (small particle size), with selenium and metals whose surfaces are oxidized, and therefore labile. Rain water will percolate through the proposed “cap” (which consists of a foot of permeable, coarse grained, non-limestone rock; under a six-inch layer of top soil) and into the material, dissolving selenium and metals. This water can seep from the waste piles contaminating stormwater, or percolate to the water table, contaminating groundwater. We note that the use of the word “cap” is misleading in the dEIR because the proposed layer of waste rock will not act as a cap as that term is used by geologists and others in the field.

Furthermore, the dEIR does not have sufficient information to demonstrate that mercury concentrations are similar to background. Furthermore, staff disagree with the assumption that the mercury concentrations above water quality objectives are necessarily attributable to atmospheric deposition. The contribution of atmospheric mercury to soil is likely negligible as it is primarily present in the atmosphere in the non-reactive elemental form.

An oxidation process similar to that described for the WMSA and EMSA has occurred in the rocks from the WMSA that will be used to backfill the Quarry Pit during reclamation, thereby further contaminating groundwater with selenium and metals if it is backfilled with mining waste. The dEIR does not adequately demonstrate that the mitigation efforts Lehigh proposes (amending the top 25 to 50 feet with organic matter) will adequately immobilize contaminants for the following reasons:

The Water Board staff disagree with the water quality projections for subsurface flow out of the Quarry (Table 4.10-7). The leachable concentrations of selenium and metals used for this projection were taken from the quarried samples rather than samples from the backfill source, the

WMSA. The rocks in the WMSA are presumably smaller sized, and therefore have greater leachable surface area than the quarried rocks. Furthermore, they have been exposed to oxygen longer and are further oxidized.

Staff concurs that the backfilled Quarry Pit will equilibrate to reducing conditions, and that amending the backfill with organic matter will enhance this process. However, the dEIR County has not sufficiently demonstrated that selenium and metals will be immobilized. Furthermore, the dEIR does not propose verification monitoring of groundwater to ensure groundwater is or remains uncontaminated. Specifically:

We cannot accept the assertion on page 4.10-39 that “case histories at other mines in the United States and Canada indicate that backfilling a mine pit and saturating the material causes chemically reducing (i.e., anoxic or anaerobic) conditions that result in very low mobility of selenium.”

The references to support this statement are not appropriate. The single case history provided (BLM 2007) was a study creating reducing conditions to precipitate selenium in a quarry pit lake, not a backfilled pit. The water was treated directly, which is not analogous to the dEIR’s proposal. The remainder of the “case histories” listed in the citation are proposals or plans, without a demonstration of results.

While we agree that reducing conditions reduce the lability of selenium and mercury, we cannot concur that this will necessarily result in sufficient sequestration of selenium and mercury (immobility) in the backfilled pit. Abiotic removal of selenate [Se (VI)] from solution is slow, and biotic anaerobic reduction typically results in selenite or elemental selenium, but further reduction to selenide is necessary to strongly bind selenium. Selenite reduction can result in colloids (very small particles) that remain mobile in groundwater. Mercury can be reduced to its elemental form, which though not reactive can be dissolved in groundwater, and is therefore also mobile. The potential therefore exists that selenium and mercury may continue to contaminate groundwater within and downgradient of the Quarry Pit.

The dEIR must demonstrate that mobility of selenium and metals is sufficiently retarded in order to demonstrate that the proposed Project can go forward. Furthermore, pursuant to Title 27, we will require Lehigh to monitor groundwater to ensure it is not impacted by mining or reclamation activities.

Finally, staff disagree with the analysis performed and conclusion that groundwater has not been impacted. Insufficient samples were taken (five) to make this determination. Moreover, the few samples that were taken were collected across Permanente Creek, which acts as a groundwater divide, and therefore are not representative of site groundwater (Figure 4.10-2). In sum, samples were taken in an inappropriate location and, even if they had been taken in an appropriate location, the number of samples taken is too low to provide statistical assurance of data quality.

Comment #12: Selenium Discharge to the Creek Causing Further Degradation is Likely to be Prohibited and Concerns with Effectiveness of Mitigation Measures

During the 20-year reclamation period, there would be lots of disturbances of the waste materials in the Project area, including excavating, hauling, grading, backfilling that may expose new limestone materials in the waste material storage areas to air and rain; this would exacerbate selenium discharge to the Creek during the interim reclamation period and cause a significant adverse impact to water quality and aquatic habitat. Although the dEIR proposed mitigation measures 4.10-2a: Interim Storm water Control and Sediment Management, and 4.10-2b: EMSA Interim Storm water Monitoring Plan; the dEIR states that “these measures would reduce the potential for storm water runoff to deliver sediment and selenium to Permanente Creek during the Project activities, but would not be sufficient to fully eliminate the possibility”; therefore, the dEIR categorizes the water quality impact from selenium discharge as “significant and unavoidable” after mitigation.

Federal and state Antidegradation Policies prohibit further degradation of impaired water bodies and groundwater. The discharge of elevated selenium or even worse, with potentially higher selenium concentrations associated with reclamation activities, will likely be prohibited. 40 CFR 131.12 states:

Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.

Therefore, in order to continue to discharge selenium-laden water into the Creek, either associated with future mining activities or reclamation activities, the dEIR must address the Antidegradation Policy requirements.

The dEIR also must include additional data, including, but not limited to, pollutants in sediment, aquatic plant, fish tissue, bird eggs, toxicity and cause of toxicity, to evaluate whether beneficial uses are being achieved or whether the discharge is the cause of the impairment.

For Impact 4.10-1, “Post-reclamation conditions in the EMSA, WMSA, and Quarry Pit would increase selenium concentrations in Permanente Creek to levels exceeding baseline conditions and Water Board Basin Plan objectives”, the dEIR’s proposed mitigation strategies to reduce selenium concentrations in the surface runoff from WMSA, EMSA, and Quarry Pit, after the reclamation is complete. These include the use of 1-foot non-limestone cover, 6-inch topsoil, and water monitoring to verify selenium concentrations in the runoff being below WQOs. Additional measures to lower selenium discharge in the groundwater that will recharge back to the Creek from the Quarry Pit include backfilling with organic material (to a 25-50 feet depth). The dEIR claims that this conditioning may produce an anaerobic condition in the backfilled

materials that will help transform dissolved selenium to solid forms of selenium. We are concerned about: (1) whether the 1-foot non-limestone cover will be enough to prevent storm water infiltrating into the materials underneath it; (2) how well the 1-foot non-limestone cover is implemented; (3) what else will be done if water quality monitoring indicates exceedance of water quality objectives in the surface runoff besides improving best management practices (BMPs).

Comment #13: No Mention of Federal or State Antidegradation Policies in Regulatory Setting (4.10-17-4.10-26)

Permanente Creek is listed as impaired for selenium on the federal Clean Water Act Section 303(d) List for Impaired Waters. The dEIR identifies that mining activities contribute significant loads of selenium to Permanente Creek via surface runoff and Quarry Pit dewatering. The proposed reclamation activities (the Project) could exacerbate selenium discharge during the 20-year reclamation period. The dEIR does not provide effective mitigation measures to reduce selenium discharges to Permanente Creek during the reclamation period. The federal Antidegradation Policy at 40 CFR 131.12 and the California policy embodied in State Water Resources Control Board Resolution 68-16, prohibit further degradation of the water quality in impaired water bodies and groundwater; therefore the discharge of potentially higher selenium concentrations associated with reclamation activities **may be prohibited**.

Comment #14: Wastewater Discharge NPDES Permit Requirements

Some of the constituents in the discharge from the Quarry are currently covered under the Water Board's General permit for Aggregate Mining and Sand Washing Facilities (Order No. R2-2008-0011). The Water Board staff is in the process of drafting an individual permit for this discharge due to the complexity of the operations at the site. Future discharges associated with mining and reclamation activities will be covered under the new NPDES permit. The future individual permit may include water quality-based effluent limits for selenium, and effluent limits for other pollutants with reasonable potential to cause WQO exceedance. Since the discharge is into an impaired water body, relaxed effluent limits might not be available for the discharge, as prohibited by the Clean Water Act and the Porter Cologne Water Quality Control Act. There is high risk that the discharge will require significant treatment to prevent WQO exceedances. The EIR does not address how the discharge will comply with expected NPDES permit requirements, especially since, as discussed *infra*, the dEIR concludes without much analysis that no selenium treatment is feasible while the reclamation activities cause significant yet unavoidable environmental impacts.

C. Other Issues

Comment #15: Consistency/Comparability between WQOs and dEIR

The applicable Water Quality Objectives (WQOs) for selenium in the National Toxics Rule (NTR) and mercury in the Water Quality Control Plan for San Francisco Bay (Basin Plan) are reported in the total recoverable form. The dEIR analysis mistakenly compares dissolved concentrations with the total objectives.

Comment #16: Beneficial Uses Include Groundwater Recharge

The beneficial uses of groundwater in the area (Santa Clara Valley Groundwater Basin, Santa Clara Sub-basin) include: (a) Municipal and domestic water supply; (b) Industrial process supply; (c) Industrial service supply; and (d) Agricultural supply. Groundwater in this area is used for recharge of aquifers used for drinking water, by the Santa Clara Valley Water District. See the Basin Plan Amendment at http://www.waterboards.ca.gov/sanfranciscobay/board_info/agendas/2010/July/6/Appx_A.pdf

Given the geology outlined in the dEIR, it is expected that groundwater flow would follow topography (flow from high to low points, the lowest being the creeks). Therefore, it is likely that potentially contaminated groundwater at the site discharges to Permanente and other creeks. The beneficial uses of Permanente Creek are (a) Cold freshwater habitat; (b) Fish spawning; (c) Wildlife habitat; (d) Water contact recreation; and (e) Noncontact water recreation. It should be noted that Permanente Creek is listed as impaired by selenium and toxicity on Clean Water Act Section 303(d) List (in addition to trash and diazinon).

The hydrology section of the dEIR states that there is insufficient data to understand the hydraulic connection between groundwater and surface water, or to compare background to site groundwater (for TDS and sulfate). There is almost no data provided on site hydrogeochemistry, which is imperative to understanding whether groundwater is contaminated, and can in turn contaminate surface water and drinking water aquifers.

The dEIR suggests that groundwater quality will not be impacted by reclamation; however there is inadequate analysis to make such a conclusion. Furthermore, given the Water Board staff's experience and knowledge of the geology of the area, we are concerned that groundwater is currently contaminated with selenium, and possibly metals.

Comment #17: Contradictory Analysis Related to Mercury and Nickel

The data used in the dEIR suggest that mercury and nickel WQOs are exceeded in Permanente Creek. However, the dEIR asserts that concentrations of these pollutants are either below the WQOs or at natural background levels. This statement appears to contradict the data and needs to be modified.

Comment #18; Other Water Quality Concerns – Nickel

Table 4.10-2 summarizes monitoring results for other metals, including mercury and nickel. These monitoring data are either for total or dissolved metals, while the objectives used to compare with are total for mercury and dissolved for nickel. The dEIR needs to be consistent and clear in using either the total or dissolved, when comparing with the same form of WQOs. This comment also applies to other metals like iron, manganese, and molybdenum.

The dEIR claims that nickel concentrations in the Creek and in surface runoff were mostly below the WQO calculated using a hardness value of 100 mg/L as CaCO₃. However, concentrations in EMSA surface runoff, Pond 4A water, and in the Creek below the Quarry Pit discharge point mostly exceeded this WQO value. Observed concentrations were also much higher than those of the background (groundwater and reference creek). If the dEIR wishes to use a different WQO value based on actual observed hardness (the higher the hardness, the higher the objective), it needs to provide all hardness data, and uses the minimum observed hardness value for WQO calculation. It is also important to have hardness data collected during rainy season when the Creek is not dominated by Quarry Pit dewatering discharge and when hardness is lower. Such data collection may not be possible this winter as we have had an abnormally dry year.

Since the dEIR does not identify nickel as a problematic pollutant, there is no impact analysis to address the high levels of nickel in surface runoff (maximum average of 115 µg/L in one of the runoffs) and in the Quarry Pit water (100 µg/L). The projected nickel in runoff from reclaimed Quarry area, as provided in Table 4.10-8, is 2-3 µg/L. It is not clear how this low concentration is achieved without any measures to address nickel release from rocks. From the leachability test (Table 4.10-4), greenstone seems to leach the highest nickel. This is a different source than selenium (from limestone). It is also one of the rock types proposed to be used as “cover”, which would create a higher risk for leaching of nickel into storm water runoff. Therefore, mitigation measures regarding selenium will not work for nickel.

Comment #19: Other Water Quality Concerns – Mercury

Mercury concentrations in four of the five creek monitoring locations were above the applicable WQO, surface water runoff concentrations were also higher than WQOs. The reference site at Monte Bello Creek has lower mercury concentrations than WQOs. Therefore, it appears that mercury might be a concern in the discharge as well in the Creek within and near the Project area. The dEIR asserts that mercury measured in runoff and in the Creek cannot be reliably distinguished from background. However, it is not clear how the conclusions were drawn. If available data are limited, more monitoring data is necessary to provide data for a robust statistical analysis.

Comment #20: Stabilization – Affected by Choice of Baseline

Geology, Soils, and Seismicity: Staff disagrees with the choice the baseline of June 2007 . 4.7.1 and 2 Seismic impacts to structures and ground - It is true that the Reclamation Plan will stabilize slopes in the Quarry Pit and waste storage areas, but they are sliding and slumping due to disturbance resulting in a factor of safety around 1 according to the 2011 Terraphase Engineering Report cited in the dEIR (pg. 4.7-18), not due to inherent instability, as suggested in

the dEIR. This disturbance occurred prior to June 2007; therefore that data is an unacceptable baseline.

II. WATER BOARD STAFF COMMENTS RELATED TO SELENIUM TREATMENT, PROPOSED MITIGATION, AND BEST MANAGEMENT PRACTICES

Comment # 21: Selenium treatment – Inadequate Alternative Analysis (Flow)

While the Water Board expects the County of Santa Clara to have prepared the dEIR independently and reviewed the conclusions of its consultants, geologists and engineers with objectivity, the lack of discussion of alternative treatments makes it difficult for the Water Board to review and comment. By simply stating the largest possible flow and therefore assuming the highest possible cost for any treatment, the County has determined selenium treatment to be infeasible (4.10-47). Based on our cursory analysis, more work needs to be done before a conclusion on selenium treatment feasibility can be drawn. For example:

- The dEIR at footnote 14 (4.10-47) concludes that flow is approximately 8 cubic feet per second (cfs), which is based on a maximum pumping rate. There is no discussion, at least in the analysis of the cost of treatment, of Lehigh's reported flows at different outfalls.
- If Lehigh were to treat Quarry Pit water before combining it with other sources of water for discharge via 001, then the amount of water to treat for selenium would be about half of what the County used in the treatment cost estimate.
- No analysis of the economic benefit to Lehigh is conducted, despite regulatory mandates for such economic benefit to be assessed. The dEIR concludes that "approximately \$86 million," plus "approximately \$2.8 million per year to operate and maintain" is infeasible, and therefore the significant and unavoidable impacts are acceptable, subject to the mitigation proposed in the dEIR. However, such impacts come with consequences. Those selenium discharges are byproducts of Lehigh's operations, and by not being required to pay for treatment, Lehigh is receiving a significant economic benefit.
- Furthermore, **the County contacted the Water Board almost a year ago**, and had a meeting about various selenium treatment options. None of the information exchanged or discussed at the meeting is reflected in the dEIR.

Comment #22: Selenium treatment – Inadequate Alternative Analysis (Cost)

The dEIR provided the Water Board with a single study supporting the estimate of \$86 million for selenium treatment, with little discussion of alternative current available technologies. While not directly applicable (analysis was in coal mining rather than mineral mining), a quick search revealed other data readily available, including the following study: *Evaluation of Treatment Options to Reduce Water-Borne Selenium at Coal Mines in West-Central Alberta*, located at <http://environment.gov.ab.ca/info/library/7766.pdf>. In that study, eleven technologies were reviewed

in detail. These include physically-based technologies (reverse osmosis, nanofiltration, and ion exchange), chemically-based technologies (iron precipitation and catalyzed cementation), and biologically-based technologies (algal volatilization, biological treatment plant, in-situ treatment, Biopass and other passive treatment systems, treatment wetlands, and evaporation ponds). Several of these technologies have been tested at a pilot-scale or implemented as treatment facilities.

The above technologies varied considerably with regards to their ability to remove selenate from solution cost-effectively. Several of them could not meet a treatment objective of 5 µg/L. Treatment costs ranged from less than USD \$1.00/1,000 gallons for in-situ treatment to over \$10.00/1,000 gallons for reverse osmosis and iron precipitation. Some technologies employ very straightforward processes, with simple process flowsheets (e.g., in-situ treatment or constructed wetlands), whereas others rely on more complex processes (e.g., iron precipitation). The County presented none of the benefits or drawbacks, or resulting increase in costs, when discussing selenium treatment.

See also Comment 14, supra.

Comment # 23: Selenium treatment – Inadequate Alternative Analysis (Regulatory Guidelines)

In water quality regulations, there are specific steps that must be taken in order for a cost of a particular treatment to merit a change in effluent limitations. The dEIR must at least include two alternatives on the opposite side of the spectrum: a costly treatment on the one hand and significant environmental harm on the other. Determining the treatment to be infeasible, the County essentially deemed the harm acceptable, despite the need for a more rigorous analysis whenever such decisions are made by a permitting authority. For example, the federal and state Antidegradation Policies require an analysis of whether the economic and social benefits for discharging selenium into an impaired water body outweigh environmental costs. If not, the discharge will be prohibited. This necessarily requires a calculation of the environmental cost. The dEIR provided no such analysis. EPA has defined the “best conventional pollutant control technology” and “best available economically achievable technology” (“BCT”; “BAT”), both of which take cost-effectiveness into account.

Comment #24: BMPs – General Understanding of Term (4.10-44-45)

For the Water Board’s purposes, a BMP (Best Management Practice) is an erosion control, a sediment control, a self-monitoring schedule and program, and an iterative repair and maintenance program for erosion and sediment controls, followed by permanent vegetative stabilization.

The appropriate level of BMP implementation is a formal "bar"--Best Available Technology (BAT)--driven by the Clean Water Act and the Water Board’s Basin Plan. The Water Board will spell out the requirements for BMP implementation in the individual NPDES permit in conjunction with numeric effluent limits (both technology and water quality based). The BAT

bar for Lehigh in the above categories (erosion, sediment, self-monitoring, and repair and maintenance, permanent vegetative stabilization) is set, at a minimum, by the permits issued to Lehigh.

A BMP is **not** an effective method of treating dissolved pollutants, such as selenium.

Comment #25: BMPs – No Schedule for Implementing (4.10-44-45)

The Water Board does not generally proscribe manner and method of BMPs; instead, the discharger or permittee submits a proposed BMP plan for the project at issue. In addition to the comments made throughout this letter, this comment address three major caveats regarding the BMPs suggested by the dEIR. One, the dEIR does not address bringing the Project site into compliance with the current permitting structure, both BMPs for stormwater and effluent limits for process wastewater. As noted throughout these comments, the Project site poses a number of regulatory challenges that the dEIR did not address: the EMSA and WMSA being unlined and uncovered; the placement of in-stream sediment ponds as alleged sediment-reduction BMPs; etc.

The Water Board did not object to the County's selection of the baseline date; however, the County must recognize what must occur for Lehigh to be brought into compliance. Second, there is no schedule for implementing the list of BMPs set forth in the dEIR. Although Phase I of the Project is scheduled to take place over **7 years**, the Water Board would propose such a time period by which to implement BMPs is not protective of water quality. Lastly, BMPs are preventative in nature, and dischargers/permittees can be held responsible for not selecting, installing, replacing, or maintaining proper BMPs. However, dischargers/permittees can also be held responsible for discharges that occur **notwithstanding** the installation of BMPs.

Comment #26: BMPs – No Discussion of Interaction with Lehigh and Discussion of Current Conditions and Plan for Correction

While the Water Board, through consultation on Storm Water Pollution Prevention Plans and other related documents and enforcement of Water Code violations, may be involved more directly on a going forward basis with the development of BMPs on the Lehigh site, **for the purposes of the dEIR**, more analysis and stronger mitigation should have been done with regard to the status of the BMPs currently in place and their inadequacy and potential for environmental harm. For example, there is a lack of large scale erosion control BMPs; inadequately sized and inadequately maintained sediment control BMPs; there have been discharges of industrial process water, which is prohibited under the Industrial Storm Water Permit (publicly noticed and subject of current enforcement) as a result of current business practices.

Comment #27: Erosion vs. Sediment

Best Available Technology BMPs for keeping sediment out of the Creek must be predominantly erosion control and secondarily sediment control. Sediment BMPs are likely to increase the level of dissolved pollutants; erosion control BMPs keep sediment in place and are the most effective and important in keeping sediment out of the Creek. Erosion control BMPs include

covering disturbed areas with cover such as erosion blankets, bonded fiber matrix, spread and tackified straw, and vegetative cover. Erosion control BMPs are not "one size fits all"--they must be selected based on parameters such as slope, length of time they will be left in place, the particle size distribution of the material being covered, weather, and other factors. A Best Available Technology approach to keeping sediment out of the Creek relies predominantly on erosion control and uses sediment control as a redundant protection.

At Lehigh currently, there are no erosion control BMPs being used, and the only BMPs being used to keep sediment out of the creek are sediment controls: check dams on Quarry roads and detention basins. In the dEIR, the majority of BMPs mentioned are sediment controls, such as - silt fences, straw wattles and silt removal from the toe of slopes.

Comment #28: More Specificity Related to Sediment Control Needed

The dEIR needs more specificity in the suite of erosion control practices, techniques, materials, schedules, and operation and maintenance procedures. As currently described, the Project will not be in compliance with the BAT standard for BMPs that keep sediment from the Creek.

Sediment controls remove solids but they increase concentration of dissolved pollutants in discharges to the Creek. The basic concept in sediment control is to create barriers to flowing water so it loses its energy and therefore drops the sediments suspended in it. The sediments remain behind (or in) the BMP feature and the water continues on its way to the Creek. The finer the suspended sediment (along the continuum of gravel, sand, silt, clay), the longer the time required for the water to be slowed down in order to drop the suspended sediments. In the case of silts and clays, the water must be completely ponded still for hours up to days in order to remove the sediments. The "residence time" of a sediment treatment pond is maximized in order to maximize sediment removal.

The problem with maximization of residence time is that it increases the time in which solid pollutants are able to dissolve into the water. So, while the solid load going to the Creek decreases, the dissolved pollutant load to the creek increases. At Lehigh, where (with the limited characterization available) we know that dissolved pollutants are an issue, sediment controls are insufficient and actually increasing the pollutant load unless combined in sequence with other pollutant removal technologies.

Comment #29: Mitigation Measure of Professional Geologist; Undefined amounts of limestone still acceptable under the dEIR

The mitigation measure of a professional geologist to verify the use of non-limestone material being used in the cover is insufficient (refer to mitigation measure 4.10-1a). First, the geologist mainly relies on visual observations for large-scale operations and random spot sampling. Keep in mind that the areas to be reclaimed are vast – tens if not hundreds of acres each. A halt to operations is called for only when “significant” amounts of limestone are “intermixed with the supposed non-limestone cover material.” Because “significant” is not a defined term, it is

unclear how much limestone material is acceptable to the professional geologist or the County. As described herein, limestone will be exposed to rain and oxidation, and the runoff that comes in contact with these materials will continuously risk discharging to the Creek. These discharges are violations of existing permits, federal and state antidegradation policies, and no in-depth analysis has been performed to justify the economic issues that outweigh the known environmental and potential health impacts.

Comment #30: The “cap” does not provide sufficient erosion control

The end goal of the reclamation activities is to reclaim the EMSA and WMSA and end up with a covered area that has a covered area that can be re-vegetated. When the Water Board uses the word "cover," it typically refers to an area that provides adequate erosion control. What the dEIR proposes as "cover," using run of the mine non-limestone materials, does not rise to the level of being a management practice for the following reasons: (1) it does not provide erosion control; it is, itself, loose, unconsolidated material that is subject to erosion; (2) it does not prevent surface water from picking up dissolved or suspended pollutants. The "run of mine" rock may itself be a source of such pollutants; the waste piles have not been adequately characterized to determine what the full range of potential pollutants are; (3) the current state of waste materials in the WMSA and EMSA (as personally observed on multiple inspection dates by Water Board staff) is not organized and segregated into different types of rock; the dEIR has not described a procedure for sorting and verifying material placement that the Water Board finds to be feasible or reasonable to expect to be carried out. Such protections may include liners separating waste from the ground surface to prohibit migration of waste and leachate to soil, groundwater, or surface water or a cap or cover to minimize percolation of liquids through the waste, and thus leachate production. By “cap” or “cover,” what is understood in the context of Title 27 compliance is an impermeable layer such as clay—not the loose, unconsolidated waste material referred to in the dEIR as “cover.” Failure to comply with these requirements can result in a failure to isolate wastes from groundwater and surface water.

Comment #31: Other “cap” issues

The proposed 6 inches of soil on top of rock is not likely to support revegetation. This is further exacerbated by fact that most of site is sloped (and will be, even after “reclamation”). Furthermore, the proposed mitigation revegetation period is much shorter than what is considered necessary and standard. Without revegetation, erosion is inevitable.

Comment #32: Sedimentation Basins In Pond Are Not Proper BMPs and Are in Fact Improper

Existing improperly created instream ponds cannot be used for sediment control now or for the proposed Project. It is improper to use a water of the state to treat discharges to waters of the state. However, this process is in effect at the Lehigh facility. It is not acceptable for the dEIR to propose the continued use of these instream ponds as sediment reduction BMPs.

III. WATER BOARD STAFF COMMENTS RELATED TO THE WATER BOARD'S JURISDICTION, FUTURE PERMITS REQUIRED AND SPECIFIC COMMENTS

Comment #33: Monte Bello Has not Been Established as a Proper Background Source

Lehigh has not established an approved "background" sample location for comparison to the impacts of the facility to Permanente Creek. Prior to review of the draft EIR, Water Board staff had not been informed of the "Monte Bello" creek sample as a surrogate background sample for Permanente Creek. In order for a background sample to be legitimate, it must be outside of the zone of influence of pollutant sources (in this case, quarrying activities), and it must flow over the same geologic formation as the Creek. Lehigh has proposed background sample locations to the Water Board that are on Permanente Creek but still downstream of the WMSA. Lehigh and Water Board staff hiked up to the confluence of a tributary entering Permanente Creek and Lehigh sampled there. That location has not been confirmed as acceptable because the Water Board has not reviewed the geology and the access is not safe. A background sample location needs to be proposed with full documentation of surrounding land uses and geologic formation through which it flows.

Comment #34: Key water quality concepts and requirements are misrepresented in the dEIR

The term "benchmarks" when referring to the Basin Plan is used in the dEIR. The correct term is Basin Plan Water Quality Objectives. A benchmark is a value that indicates a protective level and to which test results can be compared to get an idea of whether BMP changes need to be made. A water quality objective is a standard, which, if not attained, the designated beneficial uses are adversely affected. A benchmark implies a goal; the Basin Plan sets forth enforceable standards. From Chapter 3 of the Basin Plan:

Together, the narrative and numerical objectives define the level of water quality that shall be maintained within the region.

The Regional Board establishes and enforces waste discharge requirements for point and nonpoint source of pollutants at levels necessary to meet numerical and narrative water quality objectives. In setting waste discharge requirements, the Regional Board will consider, among other things, the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives.

Comment #35: Species Issues #1 Section 2.7.11.5, Utilities, Stormwater and Erosion Control.

Text in this section proposes to use the three existing in-channel ponds, Ponds 13, 14, and 22, to accommodate some Project-related stormwater flows. Ponds 14 and 22 provide breeding habitat for the endangered California red-legged frog (CRLF), and CRLF were identified in Pond 13 in 2006 (2006 *California Red-Legged Frog (Rana draytonii) Surveys at the Hanson Permanente*

Cement Facility, Cupertino California, Mark R. Jennings, Rana Resources, December 30, 2006). Because of the potential for impacts (i.e., take) to CRLF, these in-channel ponds should not be relied upon to provide sediment management for closure activities.

Comment #36, Species Issues #2 (4.4-44)

4.4-44 mentions that Pond 17 supports California Red Legged Frog (CRLF). This is significant information that Pond 17, an off-stream sediment BMP that receives flow from the Rock Plant area, supports Red Legged Frog habitat. While inspecting in May 2010, the Water Board staff observed tadpoles in Pond 17 and were verbally assured that they were "Pacific Tree Frog, absolutely not California Red Legged Frog" by Lehigh staff Scott Renfrew. Pond 17 is actively dredged, as it should be to perform as a sediment BMP. However, the presence of CRLF in Pond 17 suggests that ANY retention pond on site would be vulnerable to inhabitation by CRLF and therefore cannot be dredged and therefore cannot be functional as a sediment BMP. This further supports the concern that detention basins should not be considered as tools for water quality treatment.

Comment #37: Species Issues #3

Section 4.4.2.1, Biological Communities and Wildlife Habitat Types, Aquatic Habitat, Streams and Ponds.

Text in this section states that "CRLF had been found to inhabit four off-stream sediment ponds, including Pond 13, and portions of the Permanente Creek." Pond 13 is actually an in-channel pond, in which CRLF were identified in 2006 (2006 *California Red-Legged Frog (Rana draytonii) Surveys at the Hanson Permanente Cement Facility, Cupertino California*, Mark R. Jennings, Rana Resources, December 30, 2006).

The text in this section concludes that, "the creek does not support aquatic or upland dispersal habitat for CRLF in this region." Since CRLF have been found in four ponds in the Project area, including one in-channel pond, some level of habitat for CRLF appears to be present in the Project area.

Comment #38: Species Issues #4

Section 4.4.1.3, Regulatory Setting, Wetlands and Jurisdictional Waters, San Francisco Bay Regional Water Quality Control Board.

The discussion of RWQCB regulatory activity should be expanded to clarify the way in which permits are issued for projects that include impacts to both federal jurisdictional waters, which are always subject to state jurisdiction, and waters that are only subject to state jurisdiction. When a project will impact waters of the State that are outside of federal jurisdiction, it is the Water Boards' practice to cover all impacts to the waters of the state (including those impacts not subject to federal jurisdiction) in a single permit that includes both CWA Section 401 certification and WDRs issued pursuant to the State's Porter-Cologne Act authority. Water Board staff evaluate the extent of impacts to federal and non-federal State waters in the context of reviewing the application for certification and/or WDRs and set the appropriate level of mitigation on the basis of impacts to all waters of the State.

Comment #39: Species Issues #5**Chapter 4, Environmental Analysis.****Section 4.4.1.2, Local Setting, Special Status Species.**

The discussion of special status species does not include Water Board jurisdiction over activities that may affect special status species. The *Water Quality Control Plan for the San Francisco Bay Region (Basin Plan)* is the Water Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. The beneficial uses that have been identified for Permanente Creek in the *Basin Plan* include: preservation of rare and endangered species; fish spawning; and wildlife habitat. Any activities in Permanente Creek and its tributaries that could impact these beneficial uses are subject to Water Board jurisdiction.

Comment #40: Water Board Permits**Chapter 1, Introduction.****Table 1.1, Expected Permits, Approvals and Consultations.**

In the row with "San Francisco Bay Regional Water Quality Control Board (RWQCB)" in the 'agency column', there is no discussion of the need to obtain Waste Discharge Requirements (WDRs) in the "permit/approval required" column. The table should be revised to include the Water Board's Porter-Cologne Act Authority, including the need to obtain Water Board permits for actions that are not regulated under Clean Water Act (CWA) authority, such as dredging in waters subject to federal jurisdiction, or actions that occur in areas outside of federal jurisdiction, such as isolated wetlands or creek banks above the ordinary high water mark (OHW).

The State has jurisdiction over streams above the ordinary high water mark (OHW) and over isolated wetlands, as well as over seasonal, intermittent, and ephemeral streams that lack a hydrologic nexus to navigable waters. When a project that is applying for water quality certification will impact waters of the State that are outside of federal jurisdiction, it is the Water Board's practice to cover all impacts to the waters of the state (including those impacts not subject to federal jurisdiction) in a single permit that includes both CWA Section 401 certification and WDRs issued pursuant to the State's Porter-Cologne Act authority. Water Board staff evaluate the extent of impacts to federal and non-federal State waters in the context of reviewing the application for certification and set the appropriate level of mitigation on the basis of impacts to all waters of the State.

Comment #41: Workplan Information**Chapter 2, Project Description.****Section 2.3.1, Existing Land Use in the Project Area.**

The fourth paragraph of this section discusses a "test plot program" that was initiated at the facility in 2007. In Provision C.7 of Cleanup and Abatement Order No. 99-018, the Water Board required that the facility prepare a technical report containing a work plan for slope stabilization and re-vegetation of the former overburden stockpile area. In response to this provision the

Hanson Permanente Cement Former Overburden Stockpile Work Plan and Implementation Schedule (Response to RWQCB CAO No. 99-018, Item C.7) was submitted to the Water Board on December 15, 1999. Water Board staff would like to know if the implementation of this workplan provided any information that was used in the development of the *Revegetation Plan, Permanente Quarry, Santa Clara County, California (Revegetation Plan)* (WRA Environmental Consultants, December 2011).

Comment #42: Restoration Plan Cross-Referencing

Section 2.7.8, Permanente Creek Reclamation Area.

The facility is in the process of finalizing the *Permanente Creek Long-Term Restoration Plan* (URS Corporation, March 11, 2011), which divides Permanente Creek into 21 reaches in the assessment of restoration opportunities. The *Revegetation Plan* for the Quarry proposes restoration measures for the Permanente Creek Reclamation Area in terms of seven subareas. It would be useful to cross-reference the 7 subareas in the *Revegetation Plan* with the reaches in the *Permanente Creek Long-Term Restoration Plan*. Water Board staff can provide County staff with a copy of the most recent version of the *Permanente Creek Long-Term Restoration Plan*. Even if some details of the plan are revised, the reach numbering system is not anticipated to change.

Comment #43: Sloping/Runoff

Table 2-3, PCRA Subarea 1 Reclamation Treatments

For road treatment, the proposed reclamation treatment is to regrade the roads to inslope them and collect runoff on the inboard edge of the road. It is not clear from the description how water collected along the inboard side of the road would be conveyed to Permanente Creek. Concentrating flow along the inboard side of roads can create more focused, erosive flows at the eventual discharge point. In some cases, it is preferable to outslope roads to prevent concentrating runoff on the inboard edge. The closure plan should provide a more detailed discussion of optimum sloping for post-closure road surfaces.

Comment #44: Grouted Riprap Inappropriate

Table 2-4, PCRA Subarea 2 Reclamation Treatments

The description of basin outlets and flow controls includes new outfalls from sedimentation basins at the southern edge of the WMSA to tributaries to Permanente Creek. Water Board staff would like to clarify that these tributaries are regulated as waters of the State and permits will be required from the Water Board for the construction of these outfalls. Grouted riprap pads are proposed as energy dissipaters at the outlets to the tributary channels. Grouted riprap is incapable of adjusting to changes in channel morphology that occur naturally over time. Grout should be removed from the proposed design. UngROUTED riprap, which can adjust to changes in channel morphology, should be used to construct energy dissipaters.

Comment #45: Armoring/Possible Permit Needed**Section 2.7.8.6, PCRA Subarea 6 and Table 2-8.**

Proposed actions in PCRA 6 include, “one ravine would be armored during Phase 2 to accept flows from RPA Basin 40A.” More detail is needed for this proposed armoring, which may include the placement of armoring in a jurisdictional tributary to Permanente Creek. Any armoring placed in a tributary channel will require a permit from the Water Board and mitigation for the placement of fill in a jurisdictional water. Basin outlets should be designed to minimize the need for extensive armoring at outfalls to tributary channels.

Comment #46: Armoring/Possible Permit Needed**Section 2.7.8.7, PCRA Subarea 7.**

Proposed actions in PCRA 7 also include armoring a ravine to accept flows from the reclaimed Quarry Pit. More detail is needed for this proposed armoring, which may include the placement of armoring in a jurisdictional tributary to Permanente Creek. Any armoring placed in a tributary channel will require a permit from the Water Board and mitigation for the placement of fill in a jurisdictional water.

Comment #47: State Jurisdiction**Chapter 4, Environmental Analysis.****Section 4.4.1.2, Local Setting, Jurisdictional Waters and Wetlands.**

The discussion of jurisdictional waters and wetlands is limited to waters subject to federal jurisdiction. This section should be expanded to include state jurisdiction under the Porter-Cologne Act.

As was noted in the comment on Table 1.1, *Expected Permits, Approvals and Consultations*, the State has jurisdiction over streams above the ordinary high water mark (OHW) and over isolated wetlands, as well as over seasonal, intermittent, and ephemeral streams that lack a hydrologic nexus to navigable waters.

Comment #48: Wetlands**Section 4.4.3, Significance Criteria.**

Criteria (c) should be revised to replace “adverse effect on any federally protected wetlands” with “adverse effect on any state or federally protected wetlands.” The CEQA Guidelines were developed prior to the Supreme Court decisions that limited the extent of federal jurisdiction over wetlands.

Comment#49: Wetlands/Other Waters

Impact 4.4-8: Project activities could result in substantial adverse effects on wetlands and jurisdictional waters associated with Permanente Creek through direct removal, filing, hydrological interruption, or other means.

This discussion of potential impacts to jurisdictional waters at the Basin Outlets and Flow Controls in PCRA 2 and the discussions of Mitigation Measures 4.4-8a and 4.4-8b are somewhat confusing. In some paragraphs, impacts are described for impacts to both wetlands and other waters. In other paragraphs, only impacts to wetlands are addressed. For clarity, all impacts to state jurisdictional wetlands and other waters should be described and mitigation should be proposed for all impacts to jurisdictional wetlands and other waters.

Mitigation Measure 4.4-8a should be revised to include identification of all wetlands and other waters subject to state jurisdiction.

Mitigation Measure 4.4-8b should be revised to include mitigation plans for impacts to other waters (e.g., stream channels that are impacted by the placement of new armoring or energy dissipaters). Proposed mitigation plans should include performance criteria that would be used to evaluate the success of the proposed creation and/or enhancement of other waters. The discussion of potential mitigation measures for impacts to wetlands and other waters should also evaluate onsite locations at which the creation or enhancement of wetlands and other waters are hydrologically feasible.

Comment #50: Beneficial Uses

Section 4.10.1.4, Regulatory Setting, Table 4.10-5, Designated Beneficial Uses of Water Bodies in the Project Area.

The footnote to the table should note that on July 14, 2010, the Water Board adopted Resolution No. R2-2010-0100, which amended the designated beneficial uses in the Basin Plan. This resolution added the beneficial uses of groundwater recharge, the preservation of rare and endangered species, and warm freshwater habitat to Permanente Creek. The resolution has been submitted to the Office of Administrative Law and the U.S. EPA for review and approval. It is likely that the additional beneficial uses designated for Permanente Creek will be approved before the Project is implemented.

Comment#51: Incomplete Jurisdictional Description

Section 4.10.1.4, Regulatory Setting, Waste Discharge Requirements

In the first paragraph of this section, the text, “discharges to waters of the State (such as isolated wetlands),” should be replaced with “discharges to waters of the State (such as isolated wetlands, creek banks above OHW, or seasonal, intermittent, and ephemeral streams that lack a hydrologic nexus to navigable waters).”

Summary of Comments and Conclusion

Water Board staff met with both County of Santa Clara staff and Lehigh consultants prior to submitting these public comments. Additional documentation was submitted by Lehigh and the County immediately prior to the public comment deadline that was not included in the dEIR or the Appendices. However, none of that information changes the conclusions drawn by the Water Board staff about the overall lack of data regarding the waste piles which are the subject of the reclamation plan.

Instead, the Water Board recommends additional sampling, characterization and analysis prior to approval of a final EIR. At a minimum, the dEIR should be re-circulated. Preferably, adequate characterization should be done so as to satisfy the Water Board, the public, and the County as the approving agency that there are no hazardous materials in the waste piles and there have been no groundwater impacts by the waste piles.

Water Board staff would be willing to meet with Lehigh and Santa Clara further to discuss the improvement of the dEIR and permit applications described in the Water Board's comments. Lehigh is the subject of active enforcement actions and permit development with Water Board staff.

The dEIR has been reviewed by staff in several of the Water Board's program areas because the impacts are broad ranging. If you have any questions, please direct them to Project Manager Christine Boschen of my staff at (510) 622-2346, or via email at <cboschen@waterboards.ca.gov> , who will disseminate them to the appropriate staff.

Sincerely,

Shin-Roei Lee, Chief
Watershed Management Division