



STATE MINING AND GEOLOGY BOARD

Geohazards Committee

R. Tepel, Chair; Erin Garner, Seena Hoose; J. C. Isham

EXECUTIVE OFFICER'S REPORT



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For Meeting Date: July 10, 2008

Agenda Item No. 2: Review of Strategy to Stabilize Existing Cutslope and Implement Revegetation Measures to Richmond (Chevron) Quarry (California Mine ID # 91-07-0006), Dutra Materials (Operator), Mr. Harry Stewart (Agent), City of Richmond.

INTRODUCTION: The State Mining and Geology Board (SMGB) is the lead agency for all surface mine operations in the City of Richmond that are subject to the Surface Mining and Reclamation Act (SMARA, Public Resources Code Section 2710 et seq.). The Richmond (Chevron) Quarry is located in the City of Richmond, and encompasses approximately 126 acres and includes a processing and recycling plant, and significant volumes of imported stockpiles of landscape debris and construction debris, and asphalt and soil, which is used for reuse and recycling. In response to the need to evaluate the overall stability of an existing cutslope, geotechnical studies have been and continue to be performed by both Dutra Materials (Operator) and the Chevron Energy and Technology Company (subject property and adjacent property landowner).

BACKGROUND: Following conduct of the 2005 SMARA mine inspection of the Richmond (Chevron) Quarry, several violations and corrective measures were noted. The operator is currently under an Order to Comply to provide: 1) a proposed workplan to mitigate an unstable cutslope; 2) a proposed revegetation plan; 3) a re-evaluation of the financial assurance cost estimate to reflect mitigative and stabilization efforts, and current labor and equipment rates; and 4) an amended reclamation plan. At its meeting held on February 8, 2007, the SMGB deferred a previously issued administrative penalty of \$90,000, but did require that the operator adhere to a schedule for completion of required tasks to provide an adequate amended reclamation plan and financial assurance cost estimate. At its June 14, 2007, meeting, the SMGB heard from Dutra's and Chevron's consultants regarding the geotechnical work that has been performed to date, preliminary analysis, and possible mechanisms for slope failure. The SMGB moved to forward further geotechnical discussions of slope failure mechanisms, and proposed mitigation alternatives, to the Geohazards Committee, prior to the SMGB considering action on an amended reclamation plan and financial assurance amount. The current approved financial assurance amount is \$674,108, which was provided in July 2006. Following the SMGB's regular business meeting, held on November 6, 2006, a proposed schedule was provided by the operator dated January 4, 2007, and revised in correspondence dated January 31, 2007. Since January 2007, several phases of geotechnical study have been performed, and progress reports provided on a monthly basis.



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ENGEO provided a summary of mitigation alternatives in their recent report titled: “*Discussion of Conceptual Slope Mitigation Options*,” dated April 24, 2008. At the Committee’s May 8, 2008, meeting, a review of geotechnical studies performed to date, and summary of outstanding issues and concerns, was provided by OMR and SMGB staff. ENGEO described conceptual mitigation measures to address the stability of the failed cutslope with respect to an industrial end use. In their April 24, 2007, report, ENGEO presented in Table 5 a summary of the following options:

Alternative 1 – Imported Fill Buttress

Alternative 2 – Ridge Cut\Fill Buttress Balanced on Site

Alternative 3 – Cut\Fill Buttress Balanced on Site with Retained Slope

Alternative 4 – Structural Slope Stabilization; and

Alternative 5 – Slope Setback, Monitoring, and Maintenance.

Alternative 5 was the least costly by an order of magnitude, and ENGEO and Dutra reportedly favored this alternative, presumably because it would have the least impact on the environment and infrastructure of the mine site and surrounding area. In fact, ENGEO’s report indicated that Alternative 5 will have no impacts. However, the report did not carefully and adequately consider all advantages and impacts of each mitigation alternative.

The assessment of the preferred alternative as presented by ENGEO was considered a preliminary assessment of possible alternatives for consideration but is inadequate for conduct of a comprehensive analysis of mitigation alternatives. Essentially, the approach proposed was to conduct ongoing monitoring while leaving an unstable slope that would continue to fail and potentially degrade into an eyesore and hazard to the public and the environment. The approach also only focused on the next movement and did not consider the long-term effects on the slope and the safety of the tanks. The assessed feasibility of each alternative did not recognize the importance of the requirements of SMARA, which states that final mined slopes should be stable and properly revegetated. Stable slopes and successful revegetation are conceptual advantages for Alternatives 1 through 4, but these advantages were downplayed in the study by narrowly interpreting that the end use would be industrial for the entire site. The industrial end use and appropriate SMGB-defined factor of safety were used to inflate the stated impacts and estimated costs for Alternatives 1 through 4 rather than providing other, possibly more practical solutions, to the problem.

It was also noted that by way of comparison, that the Pt. Richmond (Canal) Quarry, located approximately 2.5 miles southwest of the subject quarry and situated in a nearly identical geologic setting, recently dealt with mitigation of complex slope failures, albeit at a relatively

smaller scale (total slope repair height of approximately 200 feet versus approximately 250 feet for the subject site). The solution in the Point Richmond (Canal) Quarry case, which was incorporated into the reclamation plan approved by the SMGB on November 8, 2007, involved a combination of engineered fill slope buttress construction, and rock bolt installation. Acceptable static and pseudo-static factors of safety were calculated based on the approved slope mitigation for a range of possible end uses at this site, including industrial, office building, and tank farm. The approved financial assurance mechanism for the Point Richmond (Canal) Quarry site reclamation, which includes the approved slope repair and other reclamation activities, stands at approximately \$3.1 million.

In conclusion, the operator was requested by the Committee to re-evaluate the alternatives and provide a mitigation strategy that would achieve compliance with SMARA and the SMGB's regulations. Such re-evaluation was to be completed and discussed at the July 2008 Committee meeting. In correspondence dated June 25, 2008, Mr. Christopher Locke, on behalf of the Chevron Corporation, requested that their re-evaluation and subsequent discussion by the Committee, be deferred until the Committee's September 2008, meeting.

EXECUTIVE OFFICER'S RECOMMENDATIONS: Since the operator has not completed their re-evaluation, it is recommended that this matter be deferred and rescheduled for the Committee's upcoming September 2008 meeting, and that such re-evaluation report be provided to the SMGB no later than August 16, 2008.

SUGGESTED MOTION LANGUAGE: The SMGB may consider the following motion language:

To defer the matter:

Mr. Chairman, I move that the Geohazards Committee, in light of the evidence presented before the Committee today, defer discussion of the re-evaluation of mitigation alternatives for the Richmond (Chevron) Quarry to its upcoming September 2008 meeting, and that such re-evaluation report be provided to the SMGB no later than August 16,

Respectfully submitted:

Stephen M. Testa
Executive Officer