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VERIFICATION MONITORING AND MITIGATION PROGRAM OUTLINE LIBERTY QUARRY, RIVERSIDE COUNTY, CALIFORNIA September 23, 2008

- I. Prior to Initial Site Development
 - A. Review of all geologic data and engineering drawings
 - B. Review all permits, monitoring and mitigation conditions
 - C. Preparation of detailed site development phasing
 - i. Access Road
 - ii. Utilities
 - iii. Site visual berm and initial cut and fill
 - iv. Review volumes of cut and fill
 - D. Update of detailed blasting plan for initial site development
- II. Initial Site Development
 - A. Access Road
 - i. Clearing and grubbing of areas to be blasted
 - ii. Drilling of blast holes
 - iii. Implement blasting and monitoring plan
 - iv. Geologic mapping of areas after blasting
 - a) Compare to assumptions
 - b) Check stability of road cut areas
 - c) Adjust slopes as needed
 - v. Review blast monitoring data
 - a) Vibration
 - b) Flyrock
 - c) PPV
 - d) Air blast
 - vi. Adjust blasting plan layout as needed
 - B. Site development blasting
 - i. Clearing and grubbing of areas to be blasted
 - ii. Implement blast and monitoring plan
 - iii. Geologic mapping of areas after blasting
 - a) Compare to assumptions
 - b) Check stability calculations if needed
 - c) Adjust slopes as needed
 - iv. Review blast monitoring data
 - a) Vibration
 - b) Flyrock
 - c) PPV
 - d) Air blast
 - v. Adjust blasting plan layout as needed

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- C. Production blasting within initial mining area will begin in the south central portion of the site and move northward. This will allow for area between cut and proposed edge of quarry for reducing the slope angle if needed based upon verification monitoring.
 - i. Clearing and grubbing of areas to be blasted
 - ii. Implement blast and monitoring plan
 - iii. Geologic mapping of areas after blasting
 - a) Discontinuities
 - b) Seeps
 - c) Fracture zones
 - iv. Review blasting data
 - a) Vibration
 - b) Flyrock
 - c) PPV
 - d) Air blast
 - v. Review all geologic and blasting data after blasting 100,000 cubic yards
 - a) Select locations for core holes for verification drilling and coring if needed
 - b) Log and record RQD and RMR
 - c) Perform rock strength if needed
 - vi. Adjust blasting plan as needed
 - vii. Verify rock mass stability and strength assumptions
 - viii. Check slope stability recommendations and bench width and height if needed
 - a) Evaluate slope stability assumptions initially at:
 - a. Minimum of 500,000 cubic yards of blasting
 - b. Prior to moving to next lower bench
 - b) Check static and dynamic stability numbers to verify a minimum Factor of Safety of 1.5
 - c) Submit reports to County
 - d) Modify slope configurations and mining plan as necessary
 - ix. Review hydrogeologic monitoring data continually and submit reports to County
 - a) Confirming lack of aquifer
 - b) Periodic monitoring of adjacent wells
 - c) Consideration for crack sealing as needed
- III. Final Pit Wall Slope Face
- A. As production blast operations approach the final design pit wall, blasting will include consideration for cushion blast and/or presplit blasting techniques to protect the final face.
 - B. Final pit wall slope ratio will be configured based on rock quality and discontinuity data collected and compiled and slope stability analysis performed over the life of the mining operation.

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IV. Reporting

- A. A registered engineering geologist or geotechnical engineer will be assigned to the project with name and qualifications given to the County
- B. All records will be kept at the site and a duplicate set in the files of the engineering geologist or geotechnical engineer
- C. Quarterly reports will be prepared by the engineering geologist or geotechnical engineer during site development and through the first year of production. Thereafter, and with the approval of the County, the reports will be prepared annually. The reports will contain the following information
 - i. Records of all blasts
 - a) Drill hole pattern and location
 - b) Amount of ANFO loaded in the holes
 - c) Weather data at blast
 - d) Monitoring data
 - ii. All geologic mapping records of the site
 - iii. All additional core hole data and testing data
 - iv. All seepage data
 - v. Slope stability verification analysis
 - vi. Modifications to the mining plan and/or slope height, bench width and slope angle

(1)

(2)

(3)