

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0096

WASTE DISCHARGE REQUIREMENTS  
FOR  
MINERAL RESOURCES LLC  
AND  
GOODALL ESTATE COMPANY  
MORRIS RAVINE QUARRY  
BUTTE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. Mineral Resources LLC operates a silica mine and processing facility at the headwaters of Morris Ravine, approximately 3.5 miles north of Oroville in Section 29, T20N, R4E, MDB&M, as shown on Attachment A, a part of this Order. The land on which the mining and processing occurs (Assessor's Parcel No. 041-300-003) is owned by Goodall Estate Company. Mineral Resources LLC and Goodall Estate Company are hereafter referred to as "Discharger."
2. The Discharger obtained a Use Permit from Butte County in 1994 and started mining operations in November 2002. The Discharger submitted a Report of Waste Discharge, dated 10 January 2002, for discharge of sediment laden process water to three settling ponds. On several occasions over the next 15 months, the Discharger provided additional information as requested by Regional Board staff. The Report of Waste Discharge was deemed complete on 24 April 2003.
3. Mined material consists of silica sand in combination with coarse and fine fractions. According to the Report of Waste Discharge, the silica sand deposit consists of interbedded sands and gravels with approximately 72 to 75 percent classified as sand. The silica sand deposit also contains approximately 10 percent silt and 10 percent clay. Before the silica sand is extracted, overburden materials are removed and stockpiled for later use in the land reclamation phase.
4. An onsite processing facility has been built to produce 95 percent pure silica sand and other products. The Discharger has described the process as follows (process components are subject to change):

**Pre-Processing**

An excavator extracts raw material and stockpiles it. A front-end loader transports the material to a vibrating "grizzly" screen (bars in only one direction) which rejects 4" or greater material. The material passing the grizzly screen is run through another screen which rejects ¾" or larger material. The rejected material includes rock and clay balls.

**Processing**

Material passing through the ¾" screen is loaded onto a conveyor belt and fed into a water-filled sump. Material in combination with the water is pumped from the sump into a cyclone

separator. Heavy material (sand and gravel with some fines) drops out the bottom of the cyclone for further processing, and lighter material (mostly silts and clays) leaves the top of the cyclone and enters a clarifier. Clarified process water is reused in the process. Solids laden process water settled by the clarifier is pumped to settling ponds. The heavy cyclone fraction is sent to another sump and from there to another cyclone. The light fraction from the second cyclone goes to the clarifier and the heavy fraction to a wet screen that rejects ¼" and larger material. The rejected material is sold as pea gravel. Material passing the ¼" screen is sent to a sand screw classifier for additional sizing and cleaning. Heavy reject from the sand screw is sold as pea gravel. Very fine reject is mixed with process water and pumped directly to the settling ponds. Material passing the sand screw (product) is 95 percent silica and has a moisture content of about 7 percent. In the future, the Discharger plans to produce 99 percent silica at an offsite processing facility.

5. The Discharger has provided a water balance demonstrating that the settling ponds are adequately sized to handle process water flows and 200-year precipitation. This Order requires a minimum of two feet of freeboard in each settling pond.
6. The Discharger may add food-grade flocculating chemicals (e.g., Tramfloc<sup>®</sup> 733 Cationic Coagulant and Tramfloc<sup>®</sup> 129 Anionic Flocculant) to the settling ponds as a means of settling fine particles remaining in suspension. Settled material will be periodically removed and stockpiled for later use in land reclamation.
7. Four samples of clarifier solids were tested for heavy metals. As would be expected for a naturally occurring mineral substance, some heavy metals were detected. However, all detected values were well below regulatory criteria for hazardous wastes.
8. The Morris Ravine Quarry is in a former gold mining region where sluice boxes and mercury were used to extract gold from mined material. Significant amounts of mercury were often lost during this process, suggesting that residual mercury may exist at the site. This Order requires that the settling ponds be tested for mercury on a regular basis. If mercury is detected at concentrations exceeding those stipulated in this Order, the Discharger will be required to collect liquid and sediment samples from the settling ponds, have them tested for mercury and provide a report of results. Based on the report findings, additional action may or may not be necessary.
9. There is no discharge of domestic wastes at the site. Workers are provided with portable toilets.
10. The discharge is within the Lower Feather River Hydrologic Area (No. 515.40) as depicted on interagency hydrologic maps prepared by the Department of Water Resources (DWR) in August 1986. Surface water drainage is to Morris Ravine which is tributary to the Feather River at Thermalito Diversion Pool.
11. Average annual rainfall at the site is approximately 29 inches, according to data from Station No 65221, Oroville Dam (approximately 4 miles southeast of the site at a similar elevation).

12. The Regional Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento River Basin and the San Joaquin River Basin* (hereafter Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for protecting waters of the basin, including plans and policies adopted by the SWRCB and incorporated by reference into the Basin Plan. These requirements implement the Basin Plan.
13. The Basin Plan does not specifically designate beneficial uses of the Morris Ravine or the approximate 4-mile reach of the Feather River between Oroville Dam and the Fish Barrier Dam, including the entire Thermalito Diversion Pool. Based on the “tributary rule,” the beneficial uses cited in this Order are for the Feather River below the Thermalito Diversion Pool from Fish Barrier Dam to the Sacramento River.
14. The beneficial uses of the Feather River from Fish Barrier Dam to the Sacramento River are municipal and domestic supply, agricultural supply; water contact recreation; non-contact water recreation; warm and cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development of fish; and wildlife habitat.
15. The beneficial uses of underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
16. State Water Resources Control Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, (hereafter Resolution 68-16) requires the Regional Board, in regulating the discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with the maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board’s policies (e.g., quality that exceeds water quality objectives).
17. Based on information provided in the Report of Waste Discharge, process water discharged to settling ponds should not contain pollutants which have a potential to cause groundwater degradation. Food-grade flocculants, which may be used in the settling ponds, will by their very nature hold to soils and will not migrate to groundwater. Because water quality degradation is not expected to occur, “best practicable treatment or control” will not be needed, and groundwater monitoring wells will not be required.
18. Section 13267(b) of the California Water Code (CWC) states, in part, that “In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters of the state within its region shall furnish under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written

explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.” The reports required by Monitoring and Reporting Program No. R5-2003-0096 is necessary to assure compliance with these waste discharge requirements. The Discharger operates facilities that discharge wastes subject to this Order.

19. Federal Regulations for storm water discharges were promulgated by USEPA on 16 November 1990 (40 CFR Parts 122, 123, and 124) which require specific categories of facilities discharging storm water associated with industrial activity to obtain NPDES permits and to implement Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology to reduce or eliminate industrial storm water pollution.
20. The State Water Resources Control Board (SWRCB) adopted Order No. 97-03-DWQ (General Permit No. CAS000001), on 17 April 1997, specifying waste discharge requirements for discharge of storm water associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent (NOI) by industries to be covered by the permit. The Discharger has obtained coverage under Order No. 97-03-DWQ for this facility.
21. Butte County is the lead agency for the project under the California Environmental Quality Act (CEQA, Public Resources Code Section 21000, et. seq.). The County adopted a Negative Declaration for this project in accordance with CEQA. As a responsible agency, the Board finds that the project as approved by Butte County will not have a significant effect on water quality. Since the time of project approval by the County there is not substantial evidence of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. The Board further finds that the project is now exempt from CEQA as an existing facility under 14 CCR 15301.
22. The discharge authorized herein is exempt from the requirements of Title 27 CCR. The exemption, pursuant to Section 20090(b), is based on the following:
  - a. The Regional Board is issuing these waste discharge requirements;
  - b. These waste discharge requirements implement the Basin Plan and allow discharge only in accordance with the Basin Plan; and
  - c. The wastewater does not need to be managed according to 22 CCR, Division 4.5, Chapter 11, as a hazardous waste.
23. The Regional Board has considered the information in the attached Information Sheet in developing the Findings of this Order. The attached Information Sheet is part of this Order.
24. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written comments and recommendations.
25. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Mineral Resources LLC and Goodall Estate Company, their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

**A. Discharge Prohibitions**

1. The discharge of wastes and process water to surface waters or surface water drainage courses is prohibited.
2. The discharge of wastes and process water in a manner different than specified in Finding Nos. 4, 5, and 6 is prohibited.
3. The use of chemical additives in the processing plant and settling ponds, except as described in Finding No. 6, is prohibited.
4. The discharge or deposit of waste other than process water, settled solids, and allowable chemical additives at this site is prohibited.
5. Discharge of water, except direct precipitation, to a settling pond having a freeboard of two feet or less is prohibited.
6. Discharge of waste classified as "hazardous" as defined in Sections 2521(a) of Title 23, CCR, Section 2510, et seq., or "designated," as defined in Section 13173 of the CWC, is prohibited.

**B. Discharge Specifications**

1. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the activity area.
2. All settling ponds shall be managed to prevent breeding of mosquitoes. In particular:
  - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
3. All stockpiled products, wastes, and overburden materials shall be managed to prevent erosion of sediment to surface water drainage courses.
4. Dams, levees, and other earthworks intended to hold or convey water shall be designed and constructed under the direct supervision of and certified by a California Registered

Civil Engineer or Engineering Geologist having expertise in the design of such earthworks.

5. All settling ponds shall be designed, constructed, operated and maintained to prevent inundation or washout due to floods with a return period of 100 years.
6. The settling pond system shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation, and ancillary inflow and infiltration to prevent inundation or washout during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
7. Freeboard shall never be less than two feet in any pond, as measured vertically from the water surface to the lowest point of overflow.
8. On or about 1 October of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specification B. 7 and 8.
9. Except for recycled process water and solids removed from the settling ponds, the discharge shall remain within the settling ponds at all times.

#### **C. Groundwater Limitations**

The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than background water quality.

#### **D. Provisions**

1. **By 1 December 2003**, the Discharger shall submit a copy of its most recent Site Reclamation/Restoration Plan. As the reclamation plans are updated or revised, the Discharger shall immediately forward such plans to this office.
2. If, as a result of the monitoring conducted by Monitoring and Reporting Program No. R5-2003-0096, mercury is detected at concentrations equal to or greater than 50 nanograms per liter (ng/L) in a liquid sample from any settling pond, then within **90 days** the Discharger shall submit a work plan to characterize mercury in the water and sediment within the settling pond. Within **120 days** of approval by the Executive Officer of the work plan the Discharger shall submit a report describing the results. If such report demonstrates the presence of mercury at concentrations that may adversely affect groundwater or may cause bioaccumulation as a result of the final reclamation of the site, then within 120 days, the Discharger shall submit a report evaluating alternatives to reduce mercury to acceptable levels. Upon request of the Executive Officer, the Discharger shall create a financial assurance account (as described in Title 27 of the CCR) to mitigate bioaccumulation effects of the available mercury. All work plans and reports shall be prepared under the immediate supervision of a California Registered

- Civil Engineer or Engineering Geologist and shall be certified by such individual in accordance with the Business and Profession Code.
3. The Discharger shall maintain continuous coverage under the Water Quality Order No. 97-03-DWQ (as amended), the *General Permit for Discharges of Storm Water Associated with Industrial Activities*, or, if a Order No. 97-03-DWQ is renewed, the most current version.
  4. The Discharger shall comply with Monitoring and Reporting Program No. R5-2003-0096, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
  5. The Discharger shall comply with the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*, dated 1 March 1991, which are incorporated herein and made part of this Order. This attachment and its individual paragraphs are commonly referenced as Standard Provision(s).
  6. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the proposed owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.
  7. The Discharger shall immediately notify the Board by telephone whenever a violation of these WDRs or an adverse condition that may impair water quality occurs as a result of the extraction operations or the discharge; written confirmation shall follow within two (2) weeks.
  8. The Discharger shall report promptly to the Board any material change or proposed change in the character, location, or volume of the discharge.
  9. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

10. Goodall Estate Company, as owner of the land where the mining activity and discharge will occur, is ultimately responsible for ensuring compliance with these requirements. Mineral Resource LLC retains primary responsibility for compliance with these requirements, including day-to-day operation and monitoring. Enforcement actions will be taken against Goodall Estate Company only in the event that enforcement actions against Mineral Resources LLC are ineffective or would be futile, or that enforcement is necessary to protect public health or the environment.
11. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
12. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 6 June 2003.

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THOMAS R. PINKOS, Executive Officer

RB: sae

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0096  
FOR  
MINERAL RESOURCES LLC  
AND  
GOODALL ESTATE COMPANY  
MORRIS RAVINE QUARRY  
BUTTE COUNTY

The Discharger shall not implement any changes to this Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program.

**SETTLING PONDS MONITORING**

Discharger's closed-loop process water treatment and recycling system includes three ponds. Freeboard shall be measured in each pond. Mercury samples shall be collected from a pond receiving process water directly from the discharge pipe (as opposed to receiving process water as the result of overflow from another pond). For the mercury samples, columnar (vertical) and areal (horizontal) liquid samples are required. The Discharger shall select two locations within the designated pond and shall collect a surface and a depth sample at each location. All mercury samples shall be collected when the Discharger is actively discharging to the designated pond.

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sampling Frequency</u>
Freeboard	Feet, 0.1 Feet	Weekly
Total Mercury	ng/L <sup>1</sup>	June and December

<sup>1</sup>ng/L, nanograms per liter, detection limit  $\leq 1.0$  ng/L, using *Ultra-Clean Aqueous Sample collection and Preservation Techniques (FGS-008 and EPA Method 1669)*.

**REPORTING**

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements.

Monitoring reports shall be submitted to the Regional Board by the **first day of the second month** following data collection.

The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Regional Board.

Upon written request of the Regional Board, the Discharger shall submit a report to the Regional Board by 30 January of each year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the Discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: \_\_\_\_\_  
THOMAS R. PINKOS, Executive Officer

6 June 2003

\_\_\_\_\_  
(Date)

RB: sae

## INFORMATION SHEET

ORDER NO. R5-2003-0096  
MINERAL RESOURCES LLC AND GOODALL ESTATE COMPANY  
MORRIS RAVINE QUARRY  
BUTTE COUNTY

Mineral Resources LLC proposes to mine and process silica sand and recycles process water through three settling ponds located in a saddle on the north side of the Morris Ravine Quarry site. The mine and processing facility are on land owned by Goodall Estate Company. Process water discharged to the ponds is high in suspended solids (e.g., silts and clays). Once the solids have settled, the clarified process water is conveyed from the settling ponds to the processing plant for reuse. Food-grade flocculants may be used to enhance the settling process. Settled material will periodically be removed from the ponds and stockpiled for use in land reclamation.

Mineral Resources began processing mined material in November 2002. On 18 March 2003 and again on 19 March, Mineral Resources was found to be discharging to the settling ponds even though the report of waste discharge was incomplete and waste discharge requirements had not been adopted. Regional Board staff issued a Notice of Violation for breach of Water Code Section 13264, discharging without waste discharge requirements. According to Mineral Resources, the discharge ceased on 19 March 2003. No water quality impacts or threatened impacts were identified as a result of the discharge.

Surface water drainage is to Morris Ravine, a tributary to the Feather River.

RB: sae