

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF JULY 8, 2005

Revised on June 7, 2005

ITEM: 30

SUBJECT: Revised Waste Discharge Requirements, Order No. R3-2005-0063 for Granite Rock Company, Inc., Southside Sand and Gravel Plant No. 1540, Hollister, San Benito County

KEY INFORMATION

Discharger: Granite Rock Company, Inc.
Location: ½ mile west of Tres Pinos
Discharge Type: Aggregate processing washwater and storm water
Current Flow Rate: Approximately 648,000 gallons per day
Design Capacity: Adjusted as need based on settling pond configuration and apportionment of recycled water and make up water contributions to process water flows
Disposal Method: Incidental evaporation and percolation
Recycling: Process water and storm water is recycled
Existing Order: Waste Discharge Requirements Order No. 91-25

SUMMARY

Waste Discharge Requirements Order No. 91-25 regulates process wastewater and storm water discharges from Granite Rock Company, Inc.'s (Discharger), Southside Sand and Gravel Plant No. 1540 (Facility). The Discharger currently extracts aggregates year round from the hillside above Tres Pinos Creek and processes it for sale as construction materials. Processing consists of crushing, sorting and washing of the aggregates. Aggregate washing produces process wastewater containing approximately 6% to 10% solids consisting primarily of fine silt and clay particles (fines). The fines are removed from the process wastewater stream in settling ponds and the clarified water is recycled for additional processing operations. The settling ponds are located adjacent to the Tres Pinos Creek channel and are planted with native riparian terrace vegetation and reclaimed as habitat once they become full of fines.

Revision of the existing waste discharge requirements is based on the Discharger's need to stage additional settling ponds for the containment and disposal of fines generated during future Facility operations. The current Order No. 91-25 limited the discharge of process wastewater to areas identified in an out-of-date version of a County of San Benito approved reclamation plan.

The proposed Order allows the Discharger to stage additional settling ponds in accordance with the most current reclamation plan issued by San Benito County. The proposed order improves on the previous order by requiring the Discharger to better evaluate process wastewater quality and protect and evaluate groundwater quality.

DISCUSSION

This discussion is primarily limited to pertinent issues regarding water quality, proposed changes to the Order, and staff rationale for the proposed changes. Specific details regarding the Facility location, layout, operation, and available water quality data are addressed in detail within the findings of the proposed Order and will not be repeated here.

Water Quality Concerns

The primary water quality concern is the potential discharge of sediment-laden process wastewater and storm water to adjacent Tres Pinos Creek. Controls currently implemented by the Discharger and reinforced by prohibitions and specifications of the proposed Order will continue to address this primary concern.

The secondary water quality concern is the discharge of process wastewater potentially containing and concentrating various inorganic constituents such as salts and metals to the groundwater basin via incidental percolation from the settling ponds. Percolation is not the Discharger's intended mode of disposal, but a small amount of percolation is assumed to occur given the physical characteristics of the soil material (fines) used to build the settling ponds and deposited over time in the settling ponds. The discharge of organics is not a significant concern since the Discharger does not utilize or generate organic compounds at the Facility other than the use of fuels and lubricants for heavy equipment operation.

Estimated percolation rates vary significantly based on the assumptions used in applying Darcy's Law to the settling ponds and could vary as much as three to four orders of magnitude based on the range of assumed hydraulic conductivity alone. Without site specific testing, hydraulic conductivities are likely in the range of 10^{-4} to 10^{-8} centimeters per second (cm/s) for the recovered process wastewater fines used to line the settling ponds. These hydraulic conductivities correlate to fluxes of approximately 2.12 to 2.12×10^{-4} gallons per day per square foot of settling pond surface area (gal/day/ft²). Assuming a flux of 0.0212 gal/day/ft² (hydraulic conductivity of 10^{-6}

cm/s), a linear relationship between the hydraulic head and depth of fines ($dh/dl = 1$; this condition assumes free-draining conditions beneath the settling pond confining layer and a uniform head loss equal to the change in elevation across the confining layer and does not account for changes in liner thickness or pond depth over time), and an average pond surface area of 96,000 ft² (total area of proposed ponds of 481,879 ft² divided by the number of proposed ponds of five) results in an estimated percolation rate (groundwater recharge) of 2,035 gal/day (6.3×10^{-3} acre-ft/day or 2.3 acre-ft/year). This would equate to a seemingly insignificant approximation of 0.3% of the total estimated flow to the settling ponds on a gal/day basis. However, a localized recharge of 2.3 acre-ft/year could result in measurable effects to groundwater quality over time.

The limited data presented in the findings of the proposed Order indicate groundwater beneath the settling ponds may be under the influence of incidental percolation (see Tables 1 through 5 of the Order). Overall, the process wastewater is generally similar in quality and chemistry to that of groundwater in the basin, with the exception of sodium and aluminum. Whether the process wastewater is similar in quality to that of the basin with regard to various metals, including arsenic, boron, barium, chromium, copper, selenium, and zinc detected in the process wastewater and supply well, is uncertain without additional groundwater data from more distal monitoring wells. It should be noted that none of the above-listed metals were detected above applicable maximum contaminant levels.

Depth to groundwater beneath the settling ponds is estimated to be approximately 50 feet below ground surface with localized decreases expected to occur seasonally as a result of artificial recharge by the San Benito County Water District (SBCWD), increases in the base flow of Tres Pinos Creek, and decreased pumping of the Facility water supply well during the wet season. Although the fines built up in the settling ponds significantly hinder percolation of process wastewater as illustrated in the above estimation, the presence of sands

and gravels beneath the ponds would essentially result in free draining conditions beneath the ponds. In the absence of potential receptor wells near the Facility utilizing groundwater as domestic supply, the estimated amount of groundwater recharge and concentrations of inorganics observed in the process wastewater would normally not be considered to pose significant threats to water quality and the municipal and domestic supply beneficial use. However, the Facility is situated between artificial groundwater recharge areas managed by SBCWD and several private and municipal drinking water wells. Consequently, the proposed Order contains additional monitoring requirements to assess groundwater quality in the vicinity of the Facility and protect the municipal and domestic groundwater supply.

A third and potentially significant impact of concern that is not addressed by the proposed Order, but that should be noted, relates to fluvial geomorphic impacts upon the beneficial uses of the San Benito River and of its tributaries from in-channel and off-channel sand and gravel mining operations. Regional Board staff intends to address this issue as part of the Pajaro River and San Benito River sediment TMDL.

Significant Changes to Order

Prohibitions: The existing Order contained limited prohibitions and discharge specifications regarding allowable discharges to the Facility settling ponds and offsite discharges. The prohibitions of the proposed Order combine prohibitions and discharge specifications of the former Order and contain additional prohibitions regarding allowable discharges and offsite discharges to Tres Pinos Creek. Significant additions contained in the Prohibitions include:

- 1) An increase in the allowable process wastewater flow to 1 MGD (30-day average).
- 2) Allowing process wastewater discharges to settling ponds in areas permitted by the most current and active Reclamation Plan issued by San Benito County,

- 3) A prohibition against discharges within 100 feet of any existing water supply wells with the exception of the process supply wells owned and operated by the Discharger.
- 4) A prohibition against the use of heavy equipment within the Tres Pinos Creek channel except as allowed by the Executive Officer and other applicable agencies for emergency purposes.

Groundwater Limitations: The proposed Order retains groundwater limitations from the previous Order and adds standard basin plan narrative limits on taste and odor producing substances and radionuclides. Groundwater monitoring added to the proposed Order as discussed below is intended to verify compliance with the narrative mineral and inorganic limitations and numeric limitations (drinking water Maximum Contaminant Levels) for Title 22 inorganics.

Specifications: Specifications of the proposed Order pertain primarily to operational controls intended to protect against off-site discharge as a result of settling pond failure, flooding, and storm water runoff. Significant additions to the proposed Order contained in the Specifications include:

- 1) Restricting the depth of mining in the terrace to ten feet above the highest level of groundwater or floodplain of Tres Pinos Creek. The previous Order restricted mining to a depth of ten feet. The new language is consistent with the Reclamation Plan issued by San Benito County for the Facility.
- 2) Requiring all future active and reclaimed sedimentation ponds, mining and process areas, and roads employed after the date of the Order to be protected from flooding or washout occurring as a result of a 100-year frequency flood and 100-year 24-hour storm. The previous Order only required protecting ponds and material storage areas from flooding or washout as a result of floods with a predicted frequency of one in ten years. The proximity of the Facility, and especially the settling ponds, to Tres Pinos Creek

warrants additional siting and engineering controls to prevent the release of sediments to the Creek as a result of flooding and washout caused by significant rainfall events.

- 3) Requiring the Discharger to inspect, install, and have in proper operating conditions, all erosion and sediment control systems and measures necessary to ensure compliance with this Order by October 1st of each year.
- 4) Requiring the Facility be managed so as to minimize mosquito-breeding habitat. It is not the intent of Staff to advocate the use of insecticides in the process water ponds, but rather to manage water containment areas in a manner that prevents formation of stagnant areas in and around the ponds suitable for mosquito breeding and the development of larvae. The local mosquito abatement district administered by San Benito County Department of Environmental Health may require more specific abatement practices at the Facility to combat West Nile Virus.

General Provisions: Staff updated the General Provisions contained within the proposed Order to be consistent with the language contained in more current waste discharge requirements.

Monitoring and Reporting Program: The monitoring and reporting program associated with the former Order only required quarterly effluent and water supply monitoring for total dissolved solids (TDS) and pH and monthly estimates of average daily flow. It also required annual reporting. The proposed monitoring and reporting program requires water supply, effluent, and groundwater monitoring semiannually for pH, TDS, sodium, chloride, sulfate, boron, alkalinity, and hardness and biennial monitoring for Title 22 inorganics and additional metals including copper, lead, silver, and zinc. The proposed Order also requires annual reporting of collected data. The proposed monitoring and reporting program allows the Executive Officer to reduce the monitoring frequency or eliminate specific Title 22 inorganic and other metal constituents that the Discharger can demonstrate are not naturally present in the formation and are not added or

created as a byproduct of mining and processing activities at the Facility.

The additional monitoring requirements are intended to better assess process wastewater and groundwater quality in the vicinity of the Facility and protect the municipal and domestic uses of groundwater in the basin. Although review of available data presented in the findings of the proposed Order indicate limited potential groundwater impacts, the proximity of the Facility to recharge areas and drinking water supply wells warrants the collection of additional effluent and groundwater data. Subsequently, staff has chosen relatively infrequent semiannual and biennial sampling frequencies as compared to other orders and advocates future reductions in monitoring requirements as supported by additional data.

Discharger Compliance History

The Discharger has operated the Facility in accordance with the existing Order and has regularly submitted timely and complete annual reports with the exception of two minor violations since 1995. In September 2002, the Discharger exceeded its two-foot minimum freeboard requirement in one of the settling ponds and approximately 2,000 gallons of process wastewater overflowed onto an adjacent roadway and into a former settling pond. A second minor violation was noted for the Discharger's 1998 annual report that was missing some monthly effluent flow data. The Discharger subsequently submitted the data and no notice of violation was submitted. No other violations or notice of violation letters are on record in our files.

ENVIRONMENTAL SUMMARY

These waste discharge requirements are for an existing facility and are exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et. seq.) in accordance with Section 15301, Article 19, Chapter 3, Division 6, Title 14 of the California Code of Regulations.

COMMENTS AND RESPONSES

Staff solicited comments from the Discharger, San Benito County Environmental Health, San Benito County Department of Planning & Building, San Benito County Water District, Sunnyslope County Water District, and Tres Pinos County Water District. As of June 7, 2005 comments were only received by the Discharger. These comments are addressed below.

Written comments were received from the Discharger in a letter dated May 23, 2005. The Discharger's comment are paraphrased below with staff responses and actions. The May 23, 2005 comment letter is provided for the record as Attachment 3.

Comment 1 (Item 3): Finding number 3 erroneously lists an accessor's parcel number of 025200-009 as part of the facility property.

Staff Response: The APN has been removed from finding number 3.

Comment 2 (Item 23): A 1996 report by Weber, Hayes & Associates shows groundwater flows beneath the facility are towards the west in the downstream flow direction of Tres Pinos Creek. Whereas finding number 23 of the proposed Order states that "groundwater flow beneath the facility is generally in a north to northwesterly direction..." The Discharger is unaware of any data to the this effect and requests clarification.

Staff Response: Staff has edited finding number 23 to note the source of the north/northwesterly groundwater flow reference as the San Benito County Water District's Annual Groundwater Report for Water Year 2004. Staff also added a reference to the westerly groundwater flow reported in the 1996 Weber, Hayes & Associates report to finding number 23. Finding number was edited as follows:

The Facility is located within the Tres Pinos Creek Valley groundwater basin and is a sub-area of the Pajaro River sub-basin as designated in the Basin Plan. Groundwater flow ~~beneath~~ in the

vicinity of the Facility is generally in a north to northwesterly direction as reported in the San Benito County Water District's Annual Groundwater Report for Water Year 2004. A November 9, 1996 report by Weber, Hayes & Associates reported a groundwater flow direction beneath the facility to the west in the downstream flow direction of Tres Pinos Creek.

Comment 3 (Item 28): References to monitoring well MW-3 and well Br 154 do not refer to the same well. The well designated as Br 154 is the facility production well, whereas MW-3 is an upgradient monitoring well as noted in the 1996 Weber, Hayes & Associates report for the facility.

Staff Response: Staff has removed language from finding number 28 inferring Br 154 and MW-3 are the same well. However, the location of MW-3 is still unclear and it appears to be in proximity of the Tres Pinos WWTP monitoring well designated as MW-2A. Staff requests the Discharger clarify the location and identification of all existing wells on the facility property.

Comment 4 (Item 38): Granite Rock requests that limits for metals in the Order be expressed in the dissolved form, and that subsequent sampling analyses be conducted for dissolved metals and not total recoverable metals.

Staff Response: There are no numeric effluent limits for metals in the proposed Order, but the Title 22 MCLs for inorganics found in Groundwater Limitations number B.3.b are non-specific with regard to either total or dissolved metals. Although it is generally assumed that MCLs represent total contaminant levels in a source of drinking water, groundwater from an appropriately constructed and developed well typically contains little to no colloidal material that would be accounted for in samples analyzed for total recoverable metals. In addition, it is highly unlikely that any colloidal material present in the process wastewater will be transported to groundwater beneath the sedimentation ponds. Consequently, staff concurs that comparing concentrations of dissolved metals in the process wastewater and

groundwater to the applicable MCLs will be more representative of potential impacts to groundwater as a result of facility operations and not that of naturally occurring minerals present in the formation. Staff has added a notation to each of the "Title 22 inorganic chemicals and other metals" monitoring requirements found in Monitoring and Reporting Program No. R3-2005-0063 requiring that the constituents shall be reported as dissolved.

Comment 5 (Discharge Prohibition A.11): Clarification regarding the use of heavy equipment for the construction and maintenance of levees adjacent to the Tres Pinos Creek channel.

Staff Response: Comment noted.

RECOMMENDATION

Adoption of proposed Order No. R3-2005-0063

ATTACHMENTS

1. Draft Waste Discharge Requirements Order No. R3-2005-0063
2. Monitoring and Reporting Program No. R3-2005-0063
3. Granite Rock Company, Inc., May 23, 2005 letter

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