Attachment F – Fact Sheet – Table of Contents

ATTACHMENT F – FACT SHEET

As described in Section II of this Order, this Fact Sheet includes the specific legal requirements and detailed technical rationale that serve as the basis for the requirements of this Order.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

WDID	2352000001
File #	
Discharger	Granite Rock Company, Inc.
Name of Facility	Arthur R. Wilson Quarry
Facility Address	End of Quarry Road Aromas, California 95004
Facility Contact, Title and Phone	Aaron Johnston-Karas, Mgr Environmental Services, 831-768-2094
Authorized Person to Sign and Submit Reports	Aaron Johnston-Karas, Mgr Environmental Services, 831-768-2094
Mailing Address	P.O. Box 50001, Watsonville, CA 95077
Billing Address	P.O. Box 50001, Watsonville, CA 95077
Type of Facility	Granite Quarry and Processing, NAICS Code 212313
Classification	**Mining – crushed and broken granite (sic code – 1423)**
Threat to Water Quality	**3 (Minor)**
Complexity	**C**
Fee Code	**51**
Construction Requirements	**N**
Industry Class	**Mining**
Ownership Type	Private
Funded	**N**
Pretreatment Program	NA
Reclamation Requirements	NA
Baseline Flow	**NA**
Design Flow	**9.0 MGD**
Waste Type 1	**Process wash water**
Waste Type 2	**Storm water (covered under Industrial Storm Water General Permit, Water Quality Order No. 97-03-DWQ)**
Watershed	**Northern**
Waterbody	**Pajaro River**
Receiving Water Type	**Inland Freshwater**
Hydrologic Unit	**305.10 (Pajaro River – Watsonville HA)**

The Granite Rock Company, Inc. (the Discharger) is the owner and operator of the Arthur R. Wilson Quarry, a granite quarry and processing facility. The facility discharges wastewater to the Pajaro River, a water of the United States, and is currently regulated by Order No. 00-007, which was adopted on May 19, 2000, and expires on May 19, 2005.

The Discharger filed a Report of Waste Discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on November 24, 2004. A site visit was conducted on September 14, 2004, to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger mines, processes, and stockpiles granite rock aggregates, which are used as basic construction materials and as feed materials in on-site and off-site asphalt and concrete manufacturing plants. The facility's water circuit uses well water as makeup and recycles water between the wet processing plant and the Quarry Storage Reservoir. Although most storm water from the quarry site is covered under General NPDES Permit No. CAS000001 (Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities), some site storm water enters the process water circuit (storm water runoff from the processing area and stockpiles and storm water which falls on Quarry Storage Reservoir and Soda Lake). When necessary, excess water is stored in Soda Lake and eventually returned to the recirculating system. Recycled water is treated by the Fines Treatment Plant, which provides solids removal from the process water circuit.

As a result of the facility's ability to treat and store process water, and water losses due to evaporation, retention in product, and dust control application, there are infrequent discharges of process water from the facility. From 2000 through 2004, discharges occurred on fifteen days between December 1, 2001 and January 3, 2002 and for approximately 25 days during the first quarter of 2000. No other discharges occurred in this five-year period.

A. Description of Wastewater Treatment or Controls

Within the process water circuit at the quarry site, the Fines Treatment Plant removes solids that originate in product washing operations. Coarser fines (sand) are recovered and sold as product; and fine materials are pumped as a slurry to Soda Lake or are mixed with overburden to be used in reclamation activities. Although the purpose of Soda Lake is to provide storage for fines, it also provides water storage and additional settling/treatment capacity. Soda Lake is viewed by the Regional Board as a wide spot in the facility's water circuit and not as a receiving water. Due to its isolation from groundwater, the Regional Board has also determined that there is no significant discharge to groundwater from Soda Lake. The Quarry Storage Reservoir is also considered a wide spot in the facility's process water circuit that provides additional settling/treatment as well as water storage. Solids are periodically dredged from this reservoir to maintain its capacity.

B. Discharge Points and Receiving Waters

Discharges from the process water circuit occur at Discharge Point 001 from Quarry Storage Reservoir, where water is pumped from the surface of the reservoir to a concrete reinforced bank that serves to dissipate energy and minimize erosion during discharge events. Discharges occur only after significant rain events, when water accumulation exceeds the storage capacity of the process water circuit. Based on experience of the past several years, the Discharger, in its report of Report of Waste Discharge, projects one discharge event per year lasting 3 – 4 days with a maximum daily discharge of 7 – 8 million gallons.

On June 5 and July 25, 2003, the U.S. EPA approved the list of impaired water bodies, prepared by the State Board pursuant to Section 303 (d) of the CWA, which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations for point sources. This 303 (d) list includes the Pajaro River as impaired for fecal coliform bacteria, nutrients, and sedimentation/siltation.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Receiving water monitoring data from samples of the Pajaro River collected between December 2000 and November 2004, upstream and downstream of Discharge Point 001, is summarized in Table F-1. Upstream and downstream data is combined in Table F-1; however, downstream data is not included, if it resulted from samples collected during a period of discharge.

Table F-1, Receiving Water Characterization

Constituent	Units	P1 (Upstream)			P2 (Downstream)		
		Min	Max	Mean	Min	Max	Mean
pH	pH units	6.9	8.6	7.7	7.0	8.3	7.7
Oil and Grease	mg/L	< 5	< 5	< 5	-	-	-
Suspended Solids	mg/L	13	13	13	195	195	195
Turbidity	NTU	4	620	136	3	620	167
Dissolved Solids	mg/L	305	5,800	1,678	796	1,250	1,039
Chloride	mg/L	17	190	108	51	620	220
Sulfate	mg/L	31	310	206	32	450	249
Boron	mg/L	0.0003	1.1	0.7	0.0005	1.1	1.0
Sodium	mg/L	20	205	115	20	200	121

Table F-1 (continued), Receiving Water Characterization, Metals *

Constituent (μg/L)*	Average Concentration
Arsenic	2.87
Cadmium	0.655
Chromium	5.12
Copper	18.35
Lead	3.54
Mercury	0.19
Nickel	10.9
Selenium	2.82
Silver	1.77
Zinc	30.9

* Metals data are combined results from upstream and downstream samples collected on 10/31/01, 11/01/01, 5/16/02, and 10/28/04. Downstream sample results are not included in this summary, if they were collected during periods of discharge.

Effluent limitations contained in Order No. 00-007 for discharges from Discharge Point 001 are presented in the following table.

Table F-2, Effluent Limitations of Order No. 00-007

Constituent, Units	Effluent Limitation		
	Avg Monthly	4-Day Average	Maximum Daily
pH	7.0 – 8.3		
Total Suspended Solids – TSS, mg/L	50		
Turbidity, NTUs			50
Aluminum, mg/L			1.0
Arsenic, mg/L			0.05
Barium, mg/L			1.0

Constituent, Units	Effluent Limitation		
	Avg Monthly	**4-Day Average**	**Maximum Daily**
Cadmium, mg/L		0.0011	
Chromium, mg/L			0.05
Copper, mg/L		0.012	
Lead, mg/L			0.03
Mercury, Inorganic, mg/L		0.000012	
Nickel, mg/L			0.1
Selenium, mg/L			0.005
Silver, mg/L		0.0041	
Zinc, mg/L		0.106	
Acute Toxicity	Survival of test organisms shall not be significantly reduced when compared, using a t-test, to the survival of control organisms.		
Chronic Toxicity, TUc			1.0

From 2000 through 2004, discharges occurred on fifteen days between December 1, 2001 and January 3, 2002 and for approximately 25 days during the first quarter of 2000. No other discharges occurred in this five-year period.

Analysis of an effluent sample collected on December 1, 2001 at Discharge Point 001 showed the following wastewater characteristics.

Table F-3, Effluent Characterization

Pollutant	Units	Concentration
pH	pH units	8.1
Total Dissolved Solids	mg/L	1400
Suspended Solids	mg/L	6.0
Turbidity	NTU	6.5
Acute Toxicity	% survival	100
Aluminum	mg/L	< 1
Arsenic	mg/L	< 0.050
Barium	mg/L	< 1
Cadmium	mg/L	< 0.001
Chromium	mg/L	< 0.011
Copper	mg/L	< 0.011
Lead	mg/L	< 0.0025
Mercury (Total)	mg/L	0.068
Nickel	mg/L	< 0.160
Selenium	mg/L	< 0.005
Silver	mg/L	< 0.0002
Zinc	mg/L	< 0.100

Review of available water sampling data for the Quarry Storage Reservoir and Soda Lake collected under dry season conditions not characteristic of normal discharge scenarios indicates nitrates may also be present in the process water stream as a result of runoff from grazing areas adjacent to Soda Lake and explosive residues from blasting activities in the quarry. Groundwater samples collected from the facility process water supply well (Orchard Well) indicate nitrates are also potentially present in the process make-up water at levels of approximately 3.4 mg/L as nitrogen.

D. Compliance Summary

As previously mentioned the facility has only discharged to the Pajaro River on two occasions during the term of the current permit. Aside from the noted mercury excursion of 0.068 mg/L during the December 1, 2001 discharge event no other effluent violations have occurred at the facility during permitted discharge events. On January 8, 2003 a process water spill due to a pressurized pipeline failure resulted in the release of approximately 14,650 gallons of sediment-laden process water. All of the sediment was contained within drainage areas and a storm water sediment trap and no sediments were observed to have entered the Pajaro River. The Discharger has consistently been in compliance with all other provisions and reporting requirements of the existing Order with the exception of minor facility maintenance issues noted during the most recent September 13, 2004 inspection.

E. Planned Changes

The Discharger is proposing to increase the long-term fines storage capacity of Soda Lake from approximately 150 acres to 240 acres. Due to an underdrain system, which is proposed for installation during the expansion project, the Regional Board will continue to view Soda Lake as being isolated from local groundwater, and therefore, this expansion project will not result in a significant change to the facility and will not adversely affect the nature of the discharges from the facility.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in the proposed Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to Section 402 of the Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (U.S. EPA), and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit for point source discharges from this facility to surface waters of the United States. This Order also serves as Waste Discharge Requirements pursuant to CWC Article 4, Chapter 4 for discharges to waters of the State.

B. California Environmental Quality Act (CEQA)

This action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et seq.) in accordance with CWC Section 13389.

C. State and Federal Regulations, Policies, and Plans

1. **Basin Plan**. The Regional Board adopted a *Water Quality Control Plan for the Central Coastal Basin* (the Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Plan. Beneficial uses applicable to the Pajaro River are as follows.

Table F-4, Pajaro River Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
001	Pajaro River	MUN - Municipal and domestic supply AG - Agricultural supply PROC - Industrial process supply GWR - Groundwater recharge REC-1 - Water contact recreation

		REC-2 - Non-contact water recreation WILD - Wildlife habitat COLD - Cold fresh water habitat WARM - Warm fresh water habitat MIGR - Migration of aquatic organisms SPWN - Spawning, reproduction, and/or early development FRSH - Freshwater replenishment COMM - Commercial and sport fishing

Groundwater throughout the Central Coastal Basin, except for groundwater in the Soda Lake sub-basin, is suitable for agricultural water supply, municipal and domestic supply, and industrial use. Table 3-8 of the Basin Plan describes groundwater of the Soda Lake sub-basin as currently exceeding usable mineral quality. It should be noted that the Soda Lake sub-basin is located in the Carrizo Plain near California Valley and has no relation to the Soda Lake area used as part of the subject facility.

2. **Thermal Plan.** The State Water Resources Control Board (State Board) adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. The Thermal Plan contains temperature objectives for inland surface waters, which are applicable to the Discharger. The general objective for temperature from Section II.A.2.a. of the Basin Plan is more limiting, however, and is included as a receiving water limitation in the Order along with temperature limits developed and proposed by the California Department of Fish and Game and others for a previously permitted Pajaro River discharge (Order No. R3-2004-0099) that are protective of all life stages of steelhead.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992 and amended it on May 4, 1995 and November 9, 1999. The CTR was adopted on May 18, 2000 and amended on February 13, 2001. These rules include water quality criteria for the priority, toxic pollutants and are applicable to this discharge.

4. **State Implementation Policy.** On March 2, 2000, the State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP*).* The SIP establishes procedures to implement water quality objectives of the NTR and CTR as well as water quality objectives contained in the Basin Plan. The SIP requires dischargers to submit sufficient data to determine the need for WQBELs, and it establishes procedures for determining the need for and calculating WQBELs, when necessary. With respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR, the SIP became effective on April 28, 2000; and with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the CTR, the SIP became effective on May 18, 2000.

5. **Anti-Degradation Policy.** 40 CFR 131.12 requires that State water quality standards include an anti-degradation policy consistent with the federal policy. The State Board established California's anti-degradation policy in State Board Resolution 68-16, which incorporates the requirements of the federal anti-degradation policy. Resolution 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The permitted discharge is consistent with the anti-degradation provision of 40 CFR 131.12 and State Board Resolution 68-16.

6. **Anti-Backsliding Requirements.** CWA Sections 402 (o) (2) and 303 (d) (4) and NPDES regulations at 40 CFR 122.44 (l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

7. **Monitoring and Reporting Requirements.** 40 CFR 122.48 requires all NPDES permits to specify requirements for recording and reporting monitoring results. CWC Sections 13267 and 13383 authorize the regional boards to require technical and monitoring reports. The Monitoring and Reporting Program (part of this Order) establishes monitoring and reporting requirements to implement federal and State requirements.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source discharges to control the amount of conventional, nonconventional, and toxic pollutants that are discharged into the waters of the United States. The control of the discharge of pollutants is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations. 40 CFR 122.44 (a) requires that permits include applicable technology-based limitations and standards. 40 CFR 122.44 (d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR 122.44 (d) specifies that WQBELs may be established using U.S. EPA criteria guidance under CWA Section 304 (a); proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information; or an indicator parameter.

A. Discharge Prohibitions

In accordance with CWC Section 13243, the Regional Board, in the Basin Plan or in Waste Discharge Requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted. Following is a summary of discharge prohibitions established by the Order and the rationale for each prohibition.

1. **Discharge Prohibition III A (no discharge of wastewaters, except as described in the Order).** The prohibition is retained from the previous Order. As described by State Board Order WQO 2002-0012, it is appropriate as a prohibition, as the CWA requires enforcement of all water quality standards, including those not expressed as effluent limitations.

2. **Discharge Prohibition III B (no discharge to locations except as described in the Order).** This prohibition is retained from the previous Order and is based on the CWA and implementing regulations, which require an NPDES permit for the discharge of pollutants form any discrete location.

3. **Discharge Prohibition III C (bypass of the settling processes and subsequent discharge is prohibited).** This prohibition is retained from the previous Order and is required by the Basin Plan and is consistent with Standard Provision 7 (Attachment D).

4. **Discharge Prohibition III D (no creation of pollution, contamination or nuisance).** This prohibition is retained from the previous Order and is based on CWC Section 13050.

5. **Discharge Prohibition III E (no adverse impacts to beneficial uses or threatened or endangered species).** This prohibition is retained from the previous Order and is based on the Basin Plan, which, in accordance with CWC Section 13241, must include water quality objectives to ensure the reasonable protection of beneficial uses and the prevention of nuisance.

6. **Discharge Prohibition III F (no discharge to groundwater from Soda Lake).** This prohibition is established due to the planned expansion of Soda Lake and the Discharger's design for an under drain system, which will prevent percolation and migration of wastewater to groundwater.

7. **Discharge Prohibition III G (no discharge of radioactive material).** This prohibition is retained from the previous Order.

8. **Discharge Prohibitions III H, I, and J (flooding and discharge flow and Pajaro River flow limitations).** These prohibitions were added to the Order to address potential concerns regarding downstream flooding.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) is based on the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and nonconventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and nonconventional pollutants.

- Best conventional pollutant control technology (BCT) is a standard for the control of conventional pollutants, including BOD, TSS, fecal coliform, pH, and oil and grease, from existing industrial point sources. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional treatment beyond BPT.

- New source performance standards (NSPS) reflect the best available demonstrated control technology; i.e., they require state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BCT, BAT, and NSPS. CWA Section 402 (a) (1) and NPDES regulations at 40 CFR 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined at 40 CFR 125.3.

2. Applicable Technology-Based Effluent Limitations

There are no applicable Effluent Limitations Guidelines for the granite quarry and processing industry, and therefore, technology-based effluent limitations of Order No. R3-2005-0044 and previous orders have been established using BPJ. The following technology-based limitations for turbidity and total suspended solids (TSS) are retained from Order No. 00-007.

Table F-5, Summary of Technology-Based Effluent Limitations

Pollutant	Units	Effluent Limitation	
		Daily Maximum	30-Day Average
Turbidity	NTUs	50	-
TSS	Mg/L	-	50

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified at 40 CFR 122.44 (d) (1) (i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs, when necessary, is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or water quality criteria contained in the CTR and NTR.

The Order retains the WQBELs from Order No. 00-007 for pH and acute toxicity. Less stringent effluent WQBELs for mercury have been established in accordance with the CTR/SIP and anti-degradation policy. The chronic toxicity limitation of the previous Order has not been retained.

Although available data not characteristic of discharge conditions indicates nitrates may be present in the facility process water discharge and the Pajaro River is known to contain varying levels of nitrate during various times of the year and at other locations, the absence of effluent and receiving water nitrate data specific to the discharge precludes the determination of the necessity of nitrate limits and the establishment of technically defensible nitrate effluent limits. Effluent and receiving water monitoring requirements for nitrate have been added to the proposed Order to address this issue.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

Beneficial uses of the Pajaro River, described by the Basin Plan are:

- Municipal and domestic supply
- Agricultural supply
- Industrial process supply
- Groundwater recharge
- Water contact recreation
- Non-contact water recreation
- Wildlife habitat
- Cold fresh water habitat
- Warm fresh water habitat
- Migration of aquatic organisms
- Spawning, reproduction, and/or early development
- Freshwater replenishment
- Commercial and sport fishing

Applicable water quality criteria for the protection of these beneficial uses include the following.

- Water quality criteria for the protection of aquatic life and human health for 126 priority, toxic pollutants established by the NTR and the CTR and described at 40 CFR 131.38.

- General objectives for all inland surface waters, established by Section II.A.2 of the Basin Plan.

- Specific objectives for inland surface waters established by Section II.A.2 of the Basin Plan for the protection of municipal and domestic water supplies. These criteria include the primary maximum contaminant levels for inorganic and organic chemicals presented in Tables 64431-A and 64444-A, respectively, of the California Code of Regulations Title 22, Division 4, Chapter 15.

- Specific objectives for inland surface waters established by Section II.A.2 of the Basin Plan for the protection of agricultural water supplies, including those presented in tables 3-3 and 3-4 of the Basin Plan.

- Specific objectives for inland surface waters established by Section II.A.2 of the Basin Plan for the protection of water contact and non-contact water recreation.

- Specific objectives for inland surface waters established by Section II.A.2 of the Basin Plan for the protection of cold and warm freshwater habitat and fish spawning, including those presented in Tables 3-5 and 3-6 of the Basin Plan.

- Specific water quality objectives for the Pajaro River established in Section II.A.3 of the Basin Plan, including objectives presented in Table 3-7 of the Basin Plan.

3. Determining the Need for WQBELs/Calculations (Reasonable Potential Analysis)

To determine whether a pollutant is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an in-stream excursion above a State water quality standard (i.e., to determine the need for effluent limitations) and then, if required, to develop specific effluent limitations, for CTR pollutants, the Regional Board has used methods from the SIP, and for non-CTR pollutants, the Regional Board has used methods from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (TSD, 1991). Because the toxicity of certain metals increases with decreasing hardness in the receiving water, the reasonable potential analysis has been performed using a receiving water hardness value of 400 mg/L $CaCO_3$, which is a default value when receiving water hardness is consistently greater than 400 mg/L. In six samples of the Pajaro River, collected between October 31, 2001 and October 28, 2004, receiving water hardness ranged from 450 to 740 mg/L $CaCO_3$ and averaged 590 mg/L.

CTR CONSTITUENTS, SIP METHODOLOGY

The SIP requires the Regional Board to identify applicable water quality criteria and objectives and to use all available and representative data to perform a reasonable potential analysis (RPA). Here, the RPA was conducted using receiving water data generated from samples collected on 10/28/04, 05/16/02, 11/01/01, and 10/31/01 and effluent data from samples collected on 12/01/2001. The RPA showed that only mercury, in discharges from the Arthur R. Wilson Quarry, has the reasonable potential to cause, or contribute to an in-stream excursion above a State water quality standard. The lowest (most stringent) applicable criterion for mercury is 0.05 µg/L (total)- the CTR criterion for the protection of human health.

All available receiving water and effluent data for mercury were examined to determine the observed maximum pollutant concentration in background samples from the Pajaro River and in effluent samples. These values (presented in Table F-6) were compared to the most stringent applicable water quality criterion to determine reasonable potential. In accordance with Section 1.3 of the SIP, when either the maximum observed background concentration or the maximum observed effluent concentration is greater than or equal to the most stringent applicable water quality criterion or objective, an effluent limitation for the pollutant is required. Here, both the maximum observed background and effluent concentrations exceed the most stringent applicable water quality criterion, and therefore, effluent limitations for mercury are required.

Table F-6, Reasonable Potential Analysis for Mercury

Pollutant	CTR Aquatic Life Criteria (µg/L)		CTR Human Health Criteria (µg/L)		Maximum Observed Concentrations (µg/L)	
	Acute	Chronic	Water and Organisms	Organisms Only	Background (date sampled)	Effluent (date sampled)
Mercury (Total)	-	-	0.050	0.051	0.5 µg/L (10/31/01)	0.068 µg/L (12/1/01)

Once the need for effluent limitations has been established, the SIP requires the following steps to determine specific limitations.

- For each water quality criterion/objective, an effluent concentration allowance (ECA) is calculated from the following equation to account for dilution and background levels of each pollutant.

  ECA = C + D (C – B) … where C is the water quality criterion, D is the dilution credit, and B is the ambient background concentration.

  Because no credit for dilution of the discharge by the receiving water is being allowed, D equals 0, and the ECA equals C.

- When the most stringent water quality criterion/objective is a human health criterion/objective, the average monthly effluent limitation (AMEL) is set equal to the ECA, and the maximum daily effluent limitation (MDEL) is calculated by multiplying the ECA times the ratio of the MDEL multiplier to the AMEL multiplier from Table 2 of the SIP.

- From Table 2 of the SIP, when CV = 0.6 (the default value when there are less than 10 data points in the data set) and n = 4 (the default value when the sampling frequency is monthly or less), the MDEL multiplier at the 99th percentile occurrence probability equals 3.11, and the AMEL multiplier at the 95th percentile occurrence probability equals 1.55. Final WQBELs for mercury are determined as follows.

Table F-7, SIP Calculation of Effluent Limitations for Mercury

Pollutant	ECA	MDEL/AMEL Multiplier	AMEL (µg/L)	MDEL (µg/L)
Mercury (Total)	0.050	2.01 (3.11/1.55)	0.050	0.10

Order No. 00-007 included a four-day average effluent limitation for mercury of 0.012 µg/L based on a 1984 EPA guidance document, Ambient Water Quality Criteria for Mercury (EPA 440-5-84-026). This criterion was not promulgated in the CTR, and although it was promulgated in the NTR, does not apply to inland surface waters. Application of the most stringent criterion promulgated in the CTR for mercury results in effluent limits that are less stringent than the existing effluent limit of 0.012 µg/L, but does not result in effluent limits above the observed average receiving water concentration for mercury of 0.19 µg/L (see Table F-1). Therefore, replacing the existing effluent limit for mercury with the RPA derived effluent limits in Table F-7 satisfies the anti-degradation policy and thus does not specifically violate anti-backsliding requirements (i.e., anti-degradation requirements govern).

As presented in Table F-2, above, Order No. 00-007 also included either 4-day average or maximum daily, water quality-based effluent limitations for the CTR pollutants arsenic, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc. Evaluation of available effluent and receiving water data in accordance with the SIP and the most stringent applicable water quality criteria indicated that none of these constituents have a reasonable potential to cause, or contribute to an in-stream excursion above a State water quality standard. In addition, in all cases the effluent concentration for each of the constituents was either below applicable detection limits or less than the observed receiving water concentration and existing effluent limits contained in Order No. 00-007. Therefore, as with the case noted above for mercury, removal of the existing limits is in accordance with the anti-degradation policy and does not specifically violate the anti-backsliding requirements. It should be noted that receiving water limitations A.18, A.20 and A.23 applicable to these constituents were added to the proposed Order in accordance with the Basin Plan that are protective of human consumption, agricultural uses, aquatic life habitats, respectively.

- For reference, the most stringent applicable water quality criteria for arsenic, cadmium, chromium, copper, lead, nickel, selenium, silver, and zinc are as follows.

Constituent	Most Stringent Water	Source of Water Quality Criteria

	Quality Criteria	
Arsenic	50 µg/L	Title 22 MCL, a chronic human health criterion
Cadmium	3.0 µg/L	Basin Plan, a chronic criterion for protection of fish spawning
Chromium	16 / 11.4 µg/L	CTR acute / chronic criteria for protection of aquatic life
Copper	30 µg/L	Basin Plan, Table 3.5, a chronic criterion for protection of aquatic life
Lead	477 / 18.6 µg/L	CTR acute / chronic criteria for protection of aquatic life
Nickel	100 µg/L	Title 22 MCL, a chronic human health criterion
Selenium	5.0 µg/L	CTR chronic criterion for protection of aquatic life
Silver	44.1 µg/L	CTR acute criterion for protection of aquatic life
Zinc	200 µg/L	Basin Plan, Table 3.5, a chronic criterion for protection of aquatic life

NON–CTR CONSTITUENTS, TSD METHODOLGY

The RPA for non-CTR pollutants was conducted in accordance with methods established by the TSD and using receiving water data generated from samples collected on 10/28/04, 05/16/02, 11/01/01, and 10/31/01 and effluent data from samples collected on 12/01/01. Based on available receiving water and effluent data, the RPA showed that none of these pollutants are present in the discharge from the Arthur R. Wilson Quarry at concentrations that have the reasonable potential to cause, or contribute to an in-stream excursion above a State water quality standard; and therefore, no effluent limitations for the non-CTR pollutants are justified. As for the CTR pollutant case the existing effluent limits for aluminum and barium were not retained in the proposed Order since doing so does not violate the anti-degradation policy. Receiving water limitations A.18, A.20 and A.23 also apply to aluminum and barium as noted above for the CTR pollutants.

Due to the intermittent and infrequent nature of the discharge from the facility to the Pajaro River, for preparation of the proposed Order, the Regional Board had limited data available for characterization of toxic pollutants in the discharge. The Monitoring and Reporting Plan, which is Attachment E of the permit package, therefore, includes requirements to collect effluent samples and generate additional data for characterization of toxic pollutants in the discharge. If additional monitoring shows other pollutants present in the discharge at levels that will cause, have the reasonable potential to cause, or contribute to an in-stream excursion above a State water quality standard, the permit will be reopened and effluent limitations will be established.

4. Whole Effluent Toxicity (WET)

Whole effluent toxicity (WET) limitations protect receiving water quality from the aggregate toxic effect of a mixture of pollutants in the effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach allows for protection of the narrative “no toxics in toxic amounts” criterion while implementing numeric criteria for toxicity. There are two types of WET tests - acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth.

The Basin Plan specifies a narrative objective for toxicity, requiring that all waters be maintained free of toxic substances in concentrations that are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life. Survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality conditions shall not be less than that for the same water body in areas unaffected by the waste discharge or for another control water.

Section 4.0 of the Basin Plan requires a chronic toxicity limitation for all discharges that will cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters; and Order No. 00-007 included effluent limitations for both acute and chronic toxicity. Because discharges from the facility occur infrequently and for short duration, Order No. R3-2005-0044 is retaining only the acute limitation of the previous Order, as a chronic limitation is not meaningful (i.e., the discharge will not cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters) and is not practical in such circumstances. Section 8.3.2 of the chronic WET methods manual (*Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, October 2002, EPA-821-R-02-013) states that when "tests are conducted off-site, a minimum of three samples are collected. If these samples are collected on Test Days 1, 3, and 5, the first sample would be used for test initiation, and for test solution renewal on Day 2. The second sample would be used for test solution renewal on Days 3 and 4. The third sample would be used for test solution renewal on Days 5, 6, and 7." Here, because the Discharger is expected to discharge for periods of only 2 – 4 days, the chronic WET test methods are generally inappropriate, and potential chronic effects are diminished due to the short expected duration of any discharges. The Discharger's continuing efforts to close the process water circuit at the Arthur R. Wilson Quarry have resulted in discharges that occur less and less frequently and for shorter durations – discharges too infrequent and too short to cause, have the reasonable potential to cause, or contribute to chronic toxicity in the receiving water. The Regional Board also views such efforts as resulting in a material alteration at the permitted facility that has occurred since a chronic toxicity limitation was first included in the facility's discharge permit; and therefore, the removal of the chronic toxicity effluent limitation does not conflict with the CWA's anti-backsliding provisions.

Proposed Order No. R3-2005-0044 includes an acute toxicity limitation that requires survival of test organisms exposed to 100 percent effluent to not be significantly reduced, as determined by a t-test, when compared to the survival of control organisms. The Discharger must maintain a Toxicity Reduction Evaluation (TRE) Workplan, which describes steps that the Discharger intends to follow in the event that acute toxicity is detected in the discharge to the Pajaro River. When monitoring measures acute toxicity in the effluent above the limitation established by the Order, the Discharger must resample, if the discharge is continuing, and retest for acute toxicity. The Executive Officer will then determine whether to initiate enforcement action, whether to require the Discharger to implement a Toxicity Reduction Evaluation, or to implement other measures.

D. Final Effluent Limitations

On June 5 and July 25, 2003, the U.S. EPA approved major portions of the list of impaired water bodies, prepared by the State Board pursuant to Section 303 (d) of the CWA, which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations for point sources. This 303 (d) list includes the Pajaro River as impaired for fecal coliform, nutrients, and sedimentation/siltation. The Pajaro River's status on the 303 (d) list has been considered in establishing effluent limitations and conditions of the proposed Order.

NPDES regulations at 40 CFR 122.45 (g) allow the adjustment of technology-based effluent limitations in a discharge permit to account for concentrations of pollutants present in intake water. Such intake credits are permissible only in specific circumstances, which include a requirement that intake water be taken from the same body of water as the receiving stream. The SIP, at Section 1.4.4, allows intake credits when establishing water quality or technology based effluent limitations. Circumstances established by the SIP as necessary before intake credits can be allowed include requirements that intake water be from the same water body as the receiving water and that the facility does not alter the

intake water chemically or physically in a manner that adversely affects water quality and beneficial uses. In the circumstances of the Arthur R. Wilson Quarry, the Regional Board cannot consider granting intake credits as the hydrologic connection between the facility's well water makeup source and the receiving water (the Pajaro River) is unclear, and intake water characteristics are significantly altered through recycling, reuse, treatment, and commingling with storm water before discharge.

The U.S. EPA at 40 CFR 131.13 allows State discretion to establish mixing zones in NPDES permits – areas within the receiving water around the point of discharge where water quality criteria may be exceeded so long as the criteria are met at and beyond the boundaries of the mixing zone. The SIP, at Section 1.4.2, includes guidance for the regional boards review and approval/disapproval of mixing zone applications on a discharge-by-discharge or pollutant-by-pollutant basis.

In its Report of Waste Discharge the Discharger has requested dilution credits and a mixing zone to be effective for all pollutants during the California rainy season (October 1 through April 30). The Regional Board is denying this request for a mixing zone at this time based on the following considerations.

- A mixing zone provides relief to a discharger in that compliance with certain water quality criteria is not required within the zone. Because such relief is not automatic, the Regional Board takes the position that conditions must exist which warrant the special circumstance of a mixing zone. During the term of Order No. 00-007 (May 19, 2000 to the present) there was a single period of discharge from the facility. Due to the treatment and storage capability within the facility's process water circuit, actual discharges will remain infrequent and will become even more infrequent over the term of Order No. R3-2005-0044, as the storage capacity of Soda Lake is increased. Effluent data from samples collected during that discharge event on December 1, 2001 showed that all parameters were in compliance with effluent limitations, except for mercury. As the Regional Board chooses to consider the relief provided by a mixing zone for demonstrable, not theoretical or potential need, there is insufficient present justification for consideration of a mixing zone for discharges from this facility.

- The reasonable potential analysis conducted in reissuing waste discharge requirements and an NPDES permit for the Arthur R. Wilson Quarry found that only mercury shows the reasonable potential to cause or contribute to exceedances of applicable water quality criteria. This result is based on a mercury concentration of 0.068 µg/L in an effluent sample collected on December 1, 2001; however, mercury in receiving water has been measured as high as 0.5 µg/L in a receiving water sample collected on October 31, 2001. The most stringent applicable water quality criterion for mercury is 0.05 µg/L, which is the CTR criterion for the protection of human health. Because a mixing zone assumes that applicable water quality criteria will be met at the edge of the mixing zone, it necessarily follows that a mixing zone should be available only if the receiving water itself is achieving water quality standards. The Regional Board, therefore, considers mixing zones inappropriate in such circumstances where background concentrations of a pollutant may already exceed applicable water quality criteria.

- Because mercury is a bioaccumulative pollutant, the mass emission rate of this pollutant is particularly important, as its rate of bioaccumulation will increase with increasing availability or mass in the receiving water. The allowance of a mixing zone with corresponding dilution credit of, say, 2 to 1 or 10 to 1 would mean that the mixing zone provides dilution of the pollutant by a factor of 2 or 10; i.e., the concentration of the pollutant "out of the pipe" will be decreased by a factor of 2 or 10 across the mixing zone, while the mass emission rate is unchanged. A hypothetical effluent limitation of 1 mg/L, to be met at the edge of a mixing zone that provides 10:1 dilution, could be met with a discharge concentration, "out of the pipe," of 10 mg/L, and, therefore result in greater mass emissions of a pollutant while still meeting concentration-based effluent limitations. So, although the allowance of a mixing zone for bioaccumulative pollutants may provide relief for a discharger in terms of meeting concentration-based effluent limitations, at the same time, it may allow an increase in mass emission rates. In the circumstances of the Arthur R. Wilson Quarry, which discharges intermittently and is therefore best regulated by concentration-based effluent limitations instead of mass-based effluent limitations (as discharge flow rates may be widely variable), the

Regional Board has determined that the bioaccumulative nature of mercury is an important factor against the allowance of a mixing zone for this discharge.

Table F-9 is a summary of the technology based and water quality based numeric effluent limitations established by proposed Order No. R3-2005-0044.

Table F-9, Final Effluent Limitations

		Effluent Limitation	
Constituent	**Units**	**Average Monthly**	**Daily Maximum**
pH	pH units	7.0 – 8.3 [1]	
TSS	mg/L	50 [1]	
Turbidity	NTUs		50 [1]
Mercury (Total)	µg/L	0.050[2]	0.10[2]
Acute Toxicity	% Survival		100 [1, 3]

[1] Technology Based Effluent Limitations Retained from Order No. 00-007.
[2] Established using methodology of the SIP.
[3] Survival of test organisms exposed to 100 percent effluent shall not be significantly reduced when compared to the survival of control organisms using a t-test.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

E. Surface Water

Receiving water quality is a result of many factors, some unrelated to the discharge. This Order considers these factors and is designed to minimize the influence of the discharge on the receiving water. Receiving water limitations within the proposed Order generally include the receiving water limitations of the previous Order; however these limitations have been supplemented and modified to reflect all applicable, general water quality objectives of the Basin Plan for inland surface waters; all applicable water quality objectives of the Basin Plan established specifically for the protection of municipal and domestic water supplies, agricultural water supplies, water contact and non-contact water recreation activities, and cold and warm freshwater and fish spawning habitats; and specific water quality objectives for the Pajaro River from the Basin Plan.

VI. MONITORING AND REPORTING REQUIREMENTS

40 CFR 122.48 requires all NPDES permits to specify recording and reporting of monitoring results. CWC Sections 13267 and 13383 authorize the regional boards to require technical and monitoring reports. The Monitoring and Reporting Program, Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and State requirements. The following text provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for this facility.

A. Effluent Monitoring

Section 308 of the Clean Water Act and U.S. EPA implementing regulations at 40 CFR 122.44 (i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data to develop effluent limitations or to monitor impacts of discharges on receiving water quality.

The Monitoring and Reporting Program, Attachment E of this Order, includes monitoring of the facility's effluent and receiving water. Effluent monitoring for the following parameters is required.

- Flow
- Total suspended solids
- Turbidity
- pH

- Temperature
- Oil and grease
- Total dissolved solids
- Chloride
- Sulfate
- Boron
- Sodium
- Mercury (Total)
- Nitrate (as N)
- Acute toxicity
- CTR metals and aluminum
- CTR priority pollutants
- Title 22 pollutants

Effluent monitoring is required only when a discharge is occurring. The proposed Order requires effluent monitoring for the CTR and Title 22 metals one time per year and monitoring for the full sets of the CTR priority, toxic pollutants and the Title 22 pollutants two times during the permit term. Monitoring for the larger set of pollutants is required to implement the CTR in accordance with the State Implementation Policy.

B. Whole Effluent Toxicity Testing Requirements

Acute toxicity testing of effluent, using the fathead minnow, is required one time per discharge event (but never more than two times per rainy season) as a means to determine compliance with the Basin Plan's narrative toxicity objective - all waters shall be maintained free of toxic substances in concentrations that are toxic to, or which produce detrimental physiological responses in human, plant, animal, or aquatic life.

Order No. 00-007 included effluent limitations for both acute and chronic toxicity. Because discharges from the facility occur infrequently and for short duration, Order No. R3-2005-0044 is proposing to retain only the acute limitation and monitoring requirements of the previous Order. Chronic toxicity monitoring would provide insight to the long term effects of prolonged exposures, and here, exposures will be intermittent and of short duration.

C. Process Water Supply Monitoring

Annual process water supply monitoring has also been added to the proposed Order for flow, TDS, chloride, sodium, sulfate, boron, nitrate and hardness.

D. Receiving Water Monitoring

Receiving water monitoring has been augmented to include upstream monitoring for the CTR priority pollutants, toxic pollutants and the Title 22 pollutants (required one time during the permit term in the 18 month period before expiration of the Order), increased flow and temperature monitoring to verify compliance with new flow and temperature restrictions, and monitoring for nitrate. Measurement of receiving water hardness is also required two times during the permit term, because hardness values are required to perform the reasonable potential analysis (the toxicity of certain metals varies with hardness in the receiving water).

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR 122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D to the Order.

B. Special Provisions

1. Re-Opener Provision

The Order may be modified in accordance with the requirements set forth at 40 CFR 122 and 124, to include appropriate conditions or limits based on newly available information, or to implement any, new State water quality objectives that are approved by the U.S. EPA. This provision is particularly important to this Order because of the intermittent and infrequent nature of the discharge and the limited amount of effluent data that has resulted. When effluent becomes better characterized through additional monitoring, and if a need for additional effluent limitations becomes apparent after better effluent characterization, the Order will be reopened to incorporate such limitations.

2. Toxicity Reduction Evaluation Work Plan

The requirement to maintain a Toxicity Reduction Work Plan is retained from Order No. 00-007. When toxicity monitoring measures acute toxicity in the effluent above the limitation established by the Order, the Discharger is required to resample and retest, if the discharge is continuing. When all monitoring results are available, the Executive Officer can determine whether to initiate enforcement action, whether to require the Discharger to implement toxicity reduction evaluation (TRE) requirements, or whether other measures are warranted.

3. Discharges of Storm Water

Order No. R3-2005-0044 applies to discharges of treated wastewater from Discharge Point 001. This wastewater consists of process water plus storm water runoff from the processing area and stock piles, as well as storm water that falls on the Quarry Storage Reservoir and Soda Lake. All other storm water runoff from the Arthur R. Wilson Quarry can be discharged only in accordance with the requirements of General Permit No. CAS000001 - Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities.

4. Erosion and Sediment Control

The requirement to inspect, install, and have in proper operational condition all erosion and sediment control systems necessary to assure compliance with this Order is retained from Order No. 00-007.

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Coast Region is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the Arthur R. Wilson Quarry. As a step in the WDR adoption process, the Regional Board staff has developed tentative WDRs. The Regional Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Board has notified the Permittee and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following **<Describe Notification Process (e.g., newspaper name and date)>**

B. Written Comments

As of March 5, 2005, comments were only received from the Discharger in the form of two letters dated February 16, 2005 and March 17, 2005. The letters are provided as Attachment G – Comments for the record and reference. The following discussion outlines staff responses to comments and action taken. The Discharger's comments are not repeated here for brevity and are referenced by number and

section of the Order they pertain to. Portions of the Discharger's comments may be paraphrased or quoted in staff responses for clarification as necessary.

Granite Rock February 16, 2005 letter: Comment regarding draft Discharge Prohibition III.F which states, "The discharge of wastewater to groundwater from the process water circuit via percolation or migration from Soda Lake is prohibited."

Staff Response: Staff concurs with the Discharger's comment. Design and operation of the proposed Soda Lake Facility under drain system is intended to facilitate the natural movement of groundwater under the proposed Soda Lake Facility settling basin expansion. The system design assumes a small portion of higher quality process water will percolate into the basin and be captured by the under drain system and be discharged down gradient of the settling basin. Prohibition III.F would therefore be contrary to the chosen mitigation measure as described in the February 2004 Soda Lake Facility Expansion Project Draft EIR and our July 27, 2004 letter (July 27, 2004 letter attached).

Staff Action: Draft Discharge Prohibition III.F has been removed from the Order.

Granite Rock March 17, 2005 letter:

Comment 1. Re Section II.A: Background

Staff Response: The September 2003 Report of Waste Discharge (ROWD) for the Soda Lake Expansion was not considered in preparation of this Order and therefore does not need to be referenced. The September 2003 ROWD was submitted in anticipation of the Soda Lake Facility Expansion project and did not indicate the expansion project would significantly change the character, location, or volume of the discharge as regulated by Order No. 00-007. As such, staff did not feel it was prudent to update the previous order until it expired on May 19, 2005. Staff subsequently requested the Discharger submit an updated ROWD by November 30, 2004. As outlined in our July 27, 2004 letter regarding the proposed Soda Lake Facility expansion under drain system, Regional Board oversight of the under drain system is not warranted given the anticipated water quality improvements and limited increases in basal flow to down gradient portions of the basin. As stated in our July 27, 2004 letter, approval of the under drain system or embankment engineering design relative to the hydrologic and structural stability of the proposed under drain and embankment systems is not implied by the Regional Board's lack of objection to such works. Regional Board staff maintain that the design, operation and maintenance of the under drain system falls under the purview of Santa Cruz County since the settling basin expansion project and associated engineering is primarily a local land use and geotechnical engineering issue.

Staff Action: No change.

Comment 2. Re Section II.B: Facility Description

Staff Response: Comment noted.

Staff Action: Changes made to Order as suggested.

Comment 3. Re Section II.G: Water Quality-Based Effluent Limitations.

Staff Response: Comment noted.

Staff Action: Changes made as suggested

Comment 4. Re Section III.A (Discharge Prohibition III.A):

Staff Response: The term 'waste' as defined in California Water Code Section 13050 "includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing

operation, including waste placed within containers of whatever nature prior to, and for the purposes of, disposal."

Staff Action: No change.

Comment 5. Re Section III.F: See previous comment and response to Discharger's February 16, 2005 letter above.

Comment 6. Re Section III.G: Discharge Prohibition stating, "The discharge of radioactive substances is prohibited."

Staff Response: This prohibition is redundant. Discharge Prohibition III.A and Receiving Water Limitation V.A.17 prohibit the discharge of radioactive substances.

Staff Action: Draft Discharge Prohibition III.G has been removed from the Order.

Comment 7. Re Section III.H.1: Discharge Prohibition stating, "The discharge shall not cause or contribute to downstream flooding within the Pajaro River."

Staff Response: Staff concurs with the Discharger's comment that a 9 MGD discharge to the Pajaro River during flood conditions would result in nearly negligible increases in downstream river flow and stage and would be difficult if not impossible to measure within the range of background noise of the existing river flow and stage monitoring capability. However, any discharge flow to the Pajaro River from the facility during downstream flood conditions may be considered a contributing factor to flooding by downstream stakeholders regardless of measurable effects. Flooding with the Pajaro Valley is a real concern and recent flooding events have resulted in significant property damage and ongoing litigation. Subsequently, any documented discharges from the facility during downstream flooding may subject the Discharger, and Regional Board if allowable by permit, to litigation over property damage and potential loss of life as a result of flooding. As such it is the Regional Board's intent to limit discharges to such times as to avoid and not contribute to downstream flooding. See the staff response to comment 8 below for additional discussion regarding discharge prohibitions to mitigate potential flooding concerns.

Staff Action: No change.

Comment 8. Re Section III.H.3: Discharge Prohibition H stating, "The discharge of facility process water from the Quarry Storage Reservoir to the Pajaro River shall only occur when Pajaro River flows are below 6,004 MGD (corresponding to a California Department of Water Resources flood monitor stage of 25 feet) as measured at the Chittenden gauging station."

Staff Response: Staff concurs with the Discharger's comment that this prohibition has no measurable benefit to water quality and is not directly related to any water quality objectives that can be measured and quantified. This prohibition and the two that precede it are consistent with Order No. R3-2004-0099 for the upstream discharge of domestic wastewater treatment facility effluent from the South County Regional Wastewater Authority (SCRWA) and are based on downstream stakeholder concerns regarding flooding and an evaluation conducted by Montgomery Watson Harza (Effluent Management Plan – South County Regional Wastewater Authority, May 2004 Final Report). Although the Granite Rock facility is notably different from the SCRWA facility, downstream stakeholder concerns of how Pajaro River discharges may cause or contribute to downstream flooding are common to both facilities. This prohibition is therefore intended to limit discharges to Pajaro River flows sufficiently below flood stage so as to avoid and not contribute to downstream flooding.

Staff understands that this prohibition will make it more difficult for the Discharger to manage the recycled water system and may necessitate regular discharges throughout the wet season in anticipation of unforeseen significant rainfall events. Historically the facility has been able to restrict discharges to severe storm events that may have coincided with high receiving water flows above that which the Order now prohibits. Staff also understands that altering the management of the facility's recycled water system and

more frequent discharges may subject the Discharger to an increased risk of effluent limit violations. Notwithstanding these issues staff maintains the added prohibitions are necessary to address downstream stakeholder concerns regarding increased flooding risks from permitted discharges and to remain consistent with other permitted discharges to the Pajaro River. Staff commends the Discharger on its historic management of the facility in an effort to limit discharges and protect water quality and is assured the Discharger will continue such efforts given the discharge prohibitions in question are retained in the Order. The inherent difficulties in predicting significant storm events and relying on frequently unavailable Chittenden gauging station data to manage the recycled water system and remain in compliance with Pajaro River flow discharge prohibitions will likely require creative management strategies by the Discharger.

It should be noted that Order No. R3-2004-0099 is currently under appeal by Santa Cruz County to limit the allowable discharge window to an even lower Pajaro River flow of 2,779 MGD corresponding to a river stage of 18 feet as measured at the Chittenden gauging station. It is uncertain what affect the outcome of this appeal may have on the subject Order.

Staff Action: No change.

Comment 9. Re Section IV.A.1.a: Effluent Limitations for TSS, Turbidity, mercury and acute toxicity.

Staff Response:

TSS: The document, "Benchmarks for Industrial Storm Water Discharge," lists an "acceptable range" of <100 mg/L and "need for concern" level of >100 mg/L for Total Suspended Solid (TSS). The best professional judgement (BPJ) standard of 50 mg/L – TSS was retained from the previous Order and falls within the acceptable range for Industrial Storm Water Discharges. Data provided in the ROWD indicate the long term average TSS concentration in the effluent is 20.19 mg/L (for 28 samples) with a high of 63 mg/L. An effluent sample collected on December 1, 2001 contained 6 mg/L –TSS (see Table F-3 of Attachment F – Fact Sheet). In addition, limited sampling data reported in the ROWD (see Table F-1 in Attachment F – Fact Sheet) also indicate receiving water TSS concentrations potentially range from 13 to 195 mg/L. Based on review of this data staff feels the average monthly effluent limit of 50 mg/L is appropriate, obtainable by the Discharger, and is more closely aligned with the lower range of observed background receiving water conditions. Based on the observed receiving water quality alone, retention of the existing limit is warranted and is in accordance with the anti-backsliding requirements of the Clean Water Act. It should be noted that the 30-day mean TSS effluent limitation for the SCRWA facility contained in Order No. R3-2004-0099 is 10 mg/L.

Staff Action: No change.

Turbidity: The Pajaro River is on the CWA 303(d) list of impaired water bodies for sedimentation/siltation. Although definitive methods for evaluating this impact have yet to be developed and existing standards are still somewhat subjective, turbidity measurement is one of the primary and currently acceptable methods employed in assessing suspended matter contributing to sedimentation/siltation in receiving water. Turbidity readings upstream and downstream of the discharge point reported in the ROWD indicate receiving water turbidity ranges from approximately 4 to 620 NTUs with upstream and downstream means of 136 NTUs and 167 NTUs, respectively (see Table F-1 in Attachment F – Fact Sheet). Data reported in the ROWD also indicate effluent turbidity readings are as low as 6.5 NTUs (see Table F-3). The BPJ turbidity standard of 50 NTUs was retained from the previous Order as is consistent with the anti-backsliding requirements of the Clean Water Act. Allowing for higher effluent limits for turbidity based on receiving water conditions which may exceed currently achievable effluent turbidity levels is inappropriate given the 303(d) listing of the Pajaro River for sedimentation/siltation.

Staff Action: No change.

Mercury: The mercury limit is based on the promulgated California Toxics Rule (CTR) criterion for human health (consumption of water and aquatic organisms) of 0.050 μg/L (30-day average) for total

mercury and not dissolved mercury as indicated by the Discharger's comment. Staff concurs that the use of total or even dissolved mercury analysis alone does not provide an accurate assessment of the mercury bioaccumulating in aquatic organisms and available for human uptake given the effects of the chemical and physical conditions of the aquatic ecosystem and complexity of the food web. However, in the absence of fish tissue testing to definitively assess the uptake and bioaccumulation of mercury, staff maintains that a total mercury analysis does indicate the total amount mercury available for methylation (methylmercury is the primary form of mercury available for absorbtion into fish tissue and human tissue) and uptake. The USEPA has developed a human health recommended criterion for the maximum advisable concentration of methylmercury in freshwater and estuarine fish and shellfish tissue of 0.3 mg methylmercury/kg tissue. Because consumption of contaminated fish and shellfish is the primary route of human exposure to methylmercury, EPA is expressing this water quality criterion as a fish and shellfish tissue value rather than a water column value. EPA is currently providing suggested approaches for relating this criterion to water column concentrations based on the development of site-specific or experimentally based bioaccumulation factors and also plans to develop more detailed guidance to help implement the methylmercury criterion. If the Discharger wishes to pursue this issue, staff suggests the Discharger develop scientifically defensible site-specific bioaccumulation and translation factors to correlate fish tissue and water column concentrations of methylmercury to water column concentrations of total mercury. Regardless of the development of the above suggested relationships, the currently promulgated CTR criterion for total mercury of 0.050 μg/L and the Reasonable Potential Analysis conducted with data provided in the ROWD results in the mercury effluent limitations contained within the subject Order as required by law. Please see Section B.3 of this Fact Sheet and Findings II.G, II.J and II.K of the Order for additional information regarding the establishment of effluent limits.

Staff Action: Staff has edited the Fact Sheet, Order, and Monitoring and Reporting Program to clarify that the effluent limitation and monitoring requirement for mercury reflect total mercury.

Acute Toxicity: Staff concurs with the Discharger's comment.

Staff Action: Staff has changed the acute toxicity effluent limitation of the Order to state that the acute toxicity of the effluent shall not exceed the greater of 1 TU or upstream toxicity of the receiving water, and has added requirements for upstream receiving water acute toxicity testing in conjunction with effluent toxicity testing.

Comment 10. Re SectionV.1A.2: Narrative surface water limitation for coloration.

Staff Response: This is a general objective within the Basin Plan that applies to discharges to all inland surface waters, enclosed bays, and estuaries.

Staff Action: No Change.

Comments 11 through 17. Re Section V.1.A.2 through V.1.A.8: Pertaining to surface water limitations A.1 through A.8.

Staff Response: Staff concurs with the Discharger's recommendation to clarify the narrative receiving water limitations as a result of the Discharge.

Staff Action: The language of the individual limitations (including ones not noted in the comments) has been changed to reflect this discrepancy.

Comment 18. Re Section V.1.A.12: Surface Water Limitation A.12 for temperature to protect cold freshwater habitat beneficial use.

Staff Response: The temperature limitation in question is consistent with Order R3-2004-0099 for the upstream SCRWA facility Pajaro River discharge and was developed based on comments from the California Department Fish and Game and South Valley Streams for Tomorrow for the protection of all basic steelhead life history stages. Staff maintains that this limit is appropriate for all Pajaro River

discharges regardless of facility type given the river is a known steelhead migration corridor and habitat. However, staff agrees that the hourly monitoring requirement may be excessive given the Granite Rock facility effluent is likely cooler than that of the SCRWA facility. Staff also agrees that the inherent limitations of temperature field measurements may make compliance with this requirement difficult to assess. Unfortunately, these limitations may preclude discharges during periods in which effluent temperatures would be likely to increase receiving water temperatures above the prescribed limits, even if such increases would not be measurable. However, the limitation language states that the "discharge shall not cause any observable increase in background temperature." Under certain receiving water temperature conditions this language could conceivably allow effluent discharges in compliance with the Order as long as the observable increase in temperature is less than the accuracy of the field measurement device even though a theoretical increase would be likely based on flow and temperature contribution mass balance calculations. Staff agrees that in stream sampling for all monitoring requirements should only be conducted as is feasible and safe. As such the discharger should develop sampling stations and protocols as practicable and safe to implement monitoring requirements of this Order.

Staff Action: The last sentence of the temperature limitation stating, "Compliance with these temperature limitations shall be evaluated based on peak diurnal hourly temperature readings," has been removed and the monitoring and reporting program has been modified to require hourly effluent and receiving water sampling during discharges and a monitoring frequency reduction to one time effluent and receiving water sampling during discharges as supported by applicable data showing that the effluent temperature is consistently at or below the receiving water temperature and will not be likely to cause excursions above the prescribed limits.

Comment 19. Re Section V.1.A.13: General toxicity objective for all inland surface waters, enclosed bays and estuaries.

Staff Response: That is correct.

Staff Action: No change.

Comment 20. Re Section V.1.A.14: Unionized ammonia surface water limitation.

Staff Response: This is a general objective within the Basin Plan that applies to discharges to all inland surface waters, enclosed bays, and estuaries.

Staff Action: No Change.

Comment 21. Re Section V.1.A.15: Narrative surface water limitation for pesticides.

Staff Response: This is a general objective within the Basin Plan that applies to discharges to all inland surface waters, enclosed bays, and estuaries.

Staff Action: No change.

Comment 22. Re Section V.1.A.16: General objectives for MBAS, phenols, PCBs, and phthalate esters.

Staff Response: This is a general objective within the Basin Plan that applies to discharges to all inland surface waters, enclosed bays, and estuaries.

Staff Action: No change.

Comment 23. Re Section V.1.A.16 (should read V.1.A.18): General objective for Title 22 constituent MCLs.

Staff Response: Staff concurs with the Discharger's recommendation to clarify the narrative receiving water limitations as a result of the discharge.

Staff Action: The language of this surface water limitation has been changed to reflect this discrepancy.

Comments 24 and 25. Re Sections V.1.A.19 and V.1.A.20: General surface water limitations for agricultural beneficial use.

Staff Response: These are general objectives within the Basin Plan that apply to discharges to all inland surface waters, enclosed bays, and estuaries. The Pajaro River has a beneficial use designation of agricultural supply. These limitations are intended to protect that potential beneficial use regardless of whether there is any documented use of the surface water for agricultural purpose.

Staff Action: No change.

Comment 26. Re Section V.1.A.21: Narrative surface water limitation for minerals.

Staff Response: Staff concurs with the Discharger's comment.

Staff Action: Surface water limitation deleted from the Order.

Comment 27. Re Section V.1.A.23: Staff concurs with the Dischargers recommendation to clarify the narrative receiving water limitations as a result of the discharge.

Staff Action: The language of this surface water limitation has been changed to reflect this discrepancy.

Comment 28. Re Section V.1.A.24: General surface water limitation for cadmium.

Staff Response: That is correct.

Staff Action: No change.

Comment 29. Re Section VI.C.1: Suggested addition of language stating, " Minor changes and amendments may be approved by the Executive Officer without reopening the permit."

Staff Response: Although this is allowable for non-NPDES waste discharge requirement orders, any changes to federal NPDES permits must undergo public hearing and board approval proceedings.

Staff Action: No change.

Comment 30. Re Section VI.C.3: Suggested clarification regarding required coverage under the Construction General Storm Water Permit.

Staff Response: Staff concurs.

Staff Action. The language of Special Provision VI.C.3 has been modified to read: "Discharges of Storm Water. The Discharger shall seek and maintain coverage under General Permit No. CAS000001 (Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities) and General Permit No. CAS000002 (Waste Discharge Requirements for Discharges of Storm Water Associated with Construction Activities) as appropriate and, except as otherwise authorized by this Order, shall meet the requirements of the general permits for the control of storm water discharges from the quarry site and Soda Lake facility."

Comment 31. Re Section VI.C.3 (should read VII.C): Regarding the use of single samples for the determination of compliance with average effluent limitations.

Staff Response: Staff agrees that the use of a single sample for the assessment of an extended average effluent limitation may not be representative of the compliance standard it is compared to under certain circumstances. However staff argues that the Compliance Determination language in question is consistent with the definition of "average monthly discharge limitation" per 40 CFR 122.2 as stated in Compliance Determination provision VII.G and Attachment A – Definitions. Per this definition, the average monthly effluent limitation applies regardless of the number of daily discharges during a calendar month, i.e. one sample analyzed for a single "daily discharge" (see 40 CFR 122.2 and Attachment A - Definitions) during any given calendar month would be used to calculate the average monthly effluent concentration. This language also allows Dischargers to sample at frequencies that are less than what would normally be construed necessary to compute averages, means etc comparable to the appropriate effluent limitation standard if the limited sampling results in calculated concentrations which are historically below the applicable standard. In addition, Compliance Determination provision VII.B allows the Discharger to collect and analyze additional samples for a given discharge to be used in the calculation of the arithmetic mean of the data if limited data results in an uncharacteristic excursion and additional data will likely adjust the compliance result downward. It should be noted that the Order only contains average monthly effluent limitations for pH, TSS and mercury. All other effluent and receiving water limitations are based on discrete sampling data. The maximum sampling frequency for applicable constituents is weekly based on an assumption of limited discharge events that last three to four days only. The Compliance Determination language contained in the Order is the standard algorithm developed for the state wide NPDES standard permit format and the evaluation of compliance with effluent limitations by the California Integrated Water Quality System (CIWQS).

Staff Action: No Change.

Comment 32. Re Attachment E, Monitoring and Reporting Program, CTR Priority Pollutants and Title 22 Pollutants testing for Effluent and Receiving Water:

Staff Response: The collection and submittal of this data is required for Staff to implement provisions of the National Toxics Rule (NTR), California Toxics Rule (CTR), and State Implementation Policy (SIP) for the issuance, reissuance, and modification of NPDES permits. This data is required for all permits to conduct a reasonable potential analysis for the evaluation and development of water quality based effluent limits for priority toxic pollutants. The collection and submittal of this data is warranted at least once during each permit cycle to re-evaluate and establish appropriate water quality based effluent limitations for priority toxic pollutants.

Staff Action: No change.

C. Public Hearing

The Regional Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **May 13, 2005**
Time: **Anytime after 8:30 AM**
Location: **Watsonville City Council Chambers**
250 Main Street
Watsonville, CA 95076

Interested persons are invited to attend. At the public hearing, the Regional Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. The Board will hear oral testimony; however, for accuracy of the record, interested persons should submit important testimony in writing no later than noon on Monday of the week prior to the public hearing. (Note that this item may be considered by the Regional Board at any time during the meeting).

Please be aware that dates and venues may change. Our web address is: http://www.swrcb.ca.gov/rwqcb3/, where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Board by calling (805) 549-3147.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information (contact person)

Requests for additional information or questions regarding this order should be directed to Matt Keeling at 805-549-3685 (phone) or mkeeling@waterboards.ca.gov (e-mail).