

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0116

WASTE DISCHARGE REQUIREMENTS
FOR
TEICHERT AGGREGATES
PERKINS PLANT
SACRAMENTO COUNTY

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

1. Teichert Aggregates (hereafter Discharger) submitted a Report of Waste Discharge (RWD), dated 6 August 2002, to treat and dispose of industrial wastewater generated at its Perkins Plant aggregate mining and processing facility. Additional information was submitted on 25 November 2002, 17 March 2003, and 9 June 2003.
2. The Perkins Plant is at 8760 Kiefer Boulevard, Sacramento, and the facility site is in portions of Sections 13 and 24 of T8N, R5E and Sections 17, 19, 20, 21, 22, 23, 27, 28, and 29 of T8N, R6E, MDB&B as shown on Attachment A, which is attached hereto and made part of the Order by reference.
3. The facility comprises numerous Assessor's Parcel Numbers, as tabulated below.

<u>Area Name</u>	<u>Assessor's Parcel Nos.</u>
Aspen 1	061-0150-003, -004, -015, and -016; 063-0014-022 and -006; 078-0202-007, -008, -009, -010, and -013
Aspen 1 Fruitridge	061-0150-027 and -028; 061-0180-003, -004, -007, -015, -016, -017, -024, and -025; 063-0053-001
Aspen 2	063-0012-003, -004, -005, -007, -011, -012, -013, -017, and -022; 063-0051-002, -006, -011, -013, -014, -018, and -021
Aspen 3	063-0013-012, -015, -016, -017, and -019; 063-0052-003, -008, -009, -018, -020, -021, and -024; 063-0060-005, -010, -026, -032, -034, -035, -037, -040, -048, and -050
Aspen 3 South	063-0080-016, -028, -029, -030, -031, -032; 063-0090-007 and -012
Aspen 4	063-0030-006, -008, -009, -010, -014, -016, and -017; 074-0020-058 and -060
Aspen 4 South	063-0100-011, -014, -015, -016, and -019; 063-0130-001, -002, -009, -010, and -011
Aspen 5 North	063-0040-016, -028, -030, -035, -036, -041, -045, and -069

<u>Area Name</u>	<u>Assessor's Parcel Nos.</u>
Aspen 5 South	063-0170-020 and -021; 063-0190-014, -015, -018, -021, -025, -027, -028, -029, -033, -034, and -040; 063-0200-006, -007, -008, -009, and -010
Aspen 6	063-0400-005, -009, -010, -018, -034, -067, and -070; 063-0170-001; 067-0050-001
Lake Park	078-0190-013, -028, -032, and -033
Perkins	078-0201-008, -009, -018, and -019
Watt/Jackson	063-0011-054 and 074-0010-069

4. The land and processing equipment are owned by Teichert Aggregates.
5. Order No. 5-01-223, which prescribed requirements for land discharge of aggregate processing wastewater, as well as wastewater generated by concrete ready mix and precast concrete operations, was adopted by the Regional Board on 7 September 2001. This Order is no longer adequate because the Discharger wishes to designate all former, existing, and future excavation areas as potential sediment and wash water disposal areas. Additionally, the precast concrete plant has been moved to another site.
6. The Discharger also owns a flood control pump station for the Aspen 6 gravel pit, which is part of the facility. The Aspen 6 pit has been identified as a potential future flood control detention basin. The flood control station discharge was formerly regulated under NPDES Permit No. CA0084191. However, there was no discharge for several years and the pump station is no longer operational. The Regional Board rescinded the NPDES permit on 6 June 2003 at the request of the Discharger.

Existing Facility and Discharge

7. The Discharger mines sand and gravel from the Victor Formation, processing an estimated four million tons of aggregate per year. The mining operation will lower the existing land surface an estimated 25 to 35 feet, but excavation is not expected to occur below the water table.
8. The facility includes thirteen former, current, and future gravel pits. The facility extends along Jackson Highway from west of South Watt Avenue to Excelsior Road.
9. Mining is performed using front-end loaders and self-loading scrapers. The mined ore is transported from the pit to the Prewash Station and then to the Perkins Plant processing area via a conveyor belt. The conveyor from the Aspen 6 pit passes under Bradshaw Road. After the ore is prewashed, it is returned to the conveyor belt and is conveyed under Jackson Road and across the Aspen 2 and 3 sites. The conveyor is equipped with mist nozzles for dust control. Minor overspray from the conveyor infiltrates into the soil.

10. The sand/gravel processing equipment consists of wash screens and bucket wheels, crushers, vibratory screens, and a gold recovery circuit. Gold recovery is performed using only gravimetric methods.
11. The Discharger operates two series of settling ponds to recycle aggregate wash water. The locations of the settling ponds may change with time. The current wastewater pond locations are shown on Attachments B and C, which are attached hereto and made part of the Order by reference.
12. The first series of settling ponds, known as the Prewash Ponds, is adjacent to Bradshaw Road and Jackson Road in the Aspen 4 gravel pit, as shown on Attachment B. The Prewash Facility washes sand/gravel to remove fines. The wastewater from the prewash operation is discharged to four unlined ponds operated in series for settling and clarification.
13. The Prewash Facility uses approximately 3.84 million gallons per day (mgd) of recycled water from the Prewash Ponds. A supply well at Aspen 4 supplies approximately 0.09 mgd of makeup water to the Prewash Facility to replace water lost to evaporation or retained in the gravel. No polymers or other flocculants are used at the Prewash Facility.
14. The current capacity of the Prewash Ponds is approximately 258 million gallons. At the current sedimentation rate of 50 to 150 tons per hour, the previous RWD estimated the remaining life of the Prewash Ponds to be approximately four years.
15. The second series of ponds, known as the Perkins Plant Ponds, is adjacent to Watt Avenue and Jackson Road in the Perkins gravel pit, as shown on Attachment C. These ponds receive aggregate wash water and previously received wash water from the former precast concrete plant.
16. The current capacity of the Perkins Plant Ponds is approximately 107 million gallons and approximately 3.16 mgd is recycled from that system. Although the pond berms are constructed of silt and clay sediment removed from the ponds, they were not constructed as engineered fill. The ponds are currently above the elevation of the surrounding area and seepage or overflow from the ponds could be discharged to Watt Avenue or Jackson Road.
17. The Discharger recycles water from the Perkins Plant Ponds using a clarifier. Approximately 3.16 mgd of clarifier effluent is returned to the Perkins Plant water supply tank for reuse. The clarifier also discharges up to 1.92 mgd of fines slurry at 10 to 25 percent solids to four unlined ponds for settling and clarification.
18. The Discharger uses polymers and flocculants to enhance solids separation in the clarifier and the Perkins Plant Ponds. The average daily dosage of the anionic polymer, AGGMAX 83950, is approximately 167 pounds per day. A small amount of cationic polymer is also added to increase

the effectiveness of the anionic polymer. The average daily dosage of the cationic polymer, CAT-FLOC 9851 Plus, is approximately 1.3 pounds per day.

19. Order No. 5-01-223 required that the Discharger determine whether the aggregate wash water is a designated waste. The Discharger submitted analytical data to characterize discharges to both the Prewash Ponds and Perkins Plant Ponds in April 2002 and March 2003. The analytical results for samples filtered prior to preservation are presented below, and are contrasted with limits used to implement the applicable water quality objectives for protection of the beneficial uses of the underlying groundwater.

Constituent	Analytical Result (µg/L except as noted)		Water Quality Limit (µg/L) ⁵
	Prewash Ponds ¹	Perkins Ponds ²	
Aluminum	6,000	<50	200
Arsenic	<10	<10	0.02
Barium	32	26	490
Cadmium	<2	<2	0.07
Chromium, hexavalent	2.6	--	21
Chromium, total	10	<1	50
Copper	<20	<20	170
Iron	5,400	<100	300
Lead	<2	<2	2
Manganese	30	<15	50
Mercury	--	<0.2	1.2
Nickel	<8	<8	12
Silver	<10	<10	35
Vanadium	<20	<50	50
Zinc	21	<20	2,000
Total dissolved solids (mg/L)	1,500 ³	2,200	450
pH (std. units)	7.7 to 8.1 ⁴	7.3	6.5 to 8.4

-- Not analyzed.

¹ Average of results for discharge to Prewash Pond 1 and Prewash Pond 4.

² Sample was obtained at discharge from the gravel plant.

³ Average of two disparate results.

⁴ Data not averaged.

⁵ Or the natural background concentration in groundwater, whichever is higher.

With the exception of aluminum and iron in the Prewash Ponds, these data indicate that the gravel processing wastewater does not contain metals at concentrations exceeding water quality objectives. The Chemical Constituents objective prohibits concentrations of chemicals in excess of drinking water Maximum Contaminant Levels (MCLs) adopted by the California Department of Health

Services (DHS) for waters designated as municipal and domestic supply (MUN). Groundwater beneath the facility is designated MUN. The secondary MCLs for aluminum and iron are 200 ug/L (ppb) and 300 ug/L, respectively. The Chemical Constituents objective also prohibits concentrations of chemicals that could impair beneficial uses. Groundwater beneath the facility is also designated a agricultural supply. Additionally, total dissolved solids greatly exceed the recommended water quality limit of 450 ug/L for sprinkler irrigation of sensitive crops (Ayers and Westcot, *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations, 1985). Because the metals data are based on filtered samples, they represent dissolved concentrations. However, determination of whether the waste will degrade groundwater depends not only on dissolved concentrations, but also on background groundwater quality for those constituents and their mobility in the vadose zone. Although it was required by Order No. 5-01-223, the Discharger did not complete the determination of whether either of these waste streams is a designated waste. Therefore, it is appropriate to require that the Discharger complete both a background groundwater quality study and a designated waste determination study.

Other Waste Streams

20. The Discharger also manufactures ready-mix concrete, precast concrete, and asphaltic concrete at the Perkins Plant. Other waste streams include domestic wastewater and wastewater generated at a minerals laboratory.
21. The Ready-Mix Plant receives aggregates from the aggregate plant. The aggregates are placed into elevated bins, mixed with Portland cement in a wet permanent mixer, and discharged into transit mixer trucks. The Ready-Mix Plant and truck parking area drains to an unlined pond (the "Ready-Mix Pond"), as shown on Attachment C. The Ready-Mix Pond also receives wastewater from cleaning activities performed at the Ready-Mix Plant. The Discharger uses hydrochloric acid cleaning solution at the Ready-Mix plant.
22. The Discharger submitted analytical data to characterize discharge to the Ready-Mix Pond in April 2002 and March 2003 pursuant to the Provisions of Order No. 5-01-223. Additionally Regional Board staff obtained samples of the wastewater in October 2002 as part of an effort to assess the character of concrete plant wash water within the Central Valley Region. Analytical results for filtered and unfiltered samples are presented below, as are numerical limits to implement the applicable water quality objectives for protection of the beneficial uses of the underlying groundwater.

Constituent	Unfiltered Result (Total) (µg/L except as noted)		Filtered Result (Dissolved) (µg/L except as noted)		Water Quality Limit ¹
	Discharger	Regional Board	Discharger	Regional Board	
Aluminum		3,000	<50	<50	200
Arsenic	<50	--	<10	--	0.02
Barium	110	300	41	53	490
Cadmium	<5	<5	<2	<5	0.07

Constituent	Unfiltered Result (Total) (µg/L except as noted)		Filtered Result (Dissolved) (µg/L except as noted)		Water Quality Limit ¹
	Discharger	Regional Board	Discharger	Regional Board	
Chloride	28,000	--	--	--	106,000
Chromium, hexavalent	--	--	12	31	21
Chromium, total	27	45	18	33	50
Copper	12	20	<20	<20	170
Iron	--	3,800	<100	<50	300
Lead	<50	--	<2	--	2
Manganese	--	140	<15	<10	50
Mercury	<0.2	--	<0.2	--	1.2
Molybdenum	<20	<10	<10	<10	10
Nickel	<20	20,000	<8	<20	12
Silver	<5	<10	<10	<10	35
Thallium	<50	<200	<10	<200	0.1
Vanadium	37	38	<50	27	50
Zinc	38	82	<20	<20	2,000
Nitrate as NO ₃	34,000	--	--	--	45,000
Sulfate	47,000	--	--	--	250,000
pH (std. units)	9.84	--	10.7	10.7	6.5 – 8.4
TDS (mg/L)	280	--	350	330	450

¹ Or the natural background concentration in groundwater, whichever is higher.

23. With the exception of hexavalent chromium, these data indicate that metals in the Ready-Mix Plant wash water are present primarily in relatively insoluble forms. Additionally, with the possible exception of hexavalent chromium, the wash water does not appear to contain metals at concentrations exceeding the limiting water quality objectives. However, the pH greatly exceeds the upper limit recommended for protection of agricultural uses of water (Ayers and Westcot, *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations, 1985) and violates the effluent limitation of the previous Order. Determination of whether the waste will degrade groundwater depends not only on dissolved concentrations, but also on background groundwater quality for those constituents and their mobility in the vadose zone. Although required to do so by Order No. 5-01-223, the Discharger did not complete the determination of whether this waste stream is a designated waste. Therefore, it is appropriate to require that the Discharger complete both a background groundwater quality study and a designated waste determination study.

24. The Discharger submitted a water balance for the ready-mix concrete ponds on 11 April 2002. The water balance indicates that the typical recycling rate exceeds the influent flow rate even during periods of low production and highest precipitation (based on the 100-year total annual precipitation). Additionally, excess storm water would be diverted to the Perkins Ponds in the event of an impending overflow from the Ready-Mix Pond. Therefore, imposing a minimum

freeboard requirement on this pond system should be sufficient to protect water quality, and no flow limitation is necessary.

25. The asphalt plant receives aggregates from the aggregate plant, which are placed in elevated bins. Heated asphalt oil is blended with the aggregates to produce asphaltic concrete (AC) products. Petroleum products for AC production are stored in seven underground tanks, and there are two above-ground asphaltic oil tanks and an 8,000-gallon above-ground storage tank for diesel fuel at asphalt plant. There is generally no wastewater discharged from the asphalt plant; however, when the bag house screw auger fails, slurry from the bag house operation is temporarily discharged to the Perkins Plant ponds.
26. Domestic wastewater is discharged to eight septic systems, which were permitted by the Sacramento County Environmental Health Division, as summarized below.

<u>Location</u>	<u>Septic Tank Volume</u>	<u>Effluent Disposal System</u>
Office Trailer	1,000 gallons	Two 35-foot seepage pits
Precast Plant Office (former house)	Unknown	Two 35-foot seepage pits
Ready-Mix Plant	1,500 gallons	Five 25-foot seepage pits
Minerals Laboratory	Unknown	Two 35-foot seepage pits
Quality Assurance Laboratory	Unknown	Unknown
Scale House	Unknown	Unknown
Precast Yard	Unknown	Unknown
Rock Plant	Unknown	Unknown

Chemical toilets are provided for site visitors and employees in remote areas of the facility.

27. The Discharger operates a minerals laboratory at the Perkins Plant to assay gold from drill cuttings. The assay extraction methods formerly included leaching and chemical amalgamation using mercury, aluminum nitrate, and nitric acid. Beginning in about 2001, the Discharger's employees were notified not to discharge wastes from assay testing to the septic system, and assay extraction was discontinued prior to 2003. Currently, no chemical testing or separation techniques are used on-site, and no chemical lab waste is generated.
28. Order No 5-01-223 required that the Discharger characterize the waste sludge and effluent from the minerals laboratory septic system. The Discharger reported that there was no sludge present at the time of sampling, but did obtain a sample of scum from the septic tank. The analytical results for samples from the septic tank effluent and scum are tabulated below.

Septic Tank Effluent Analytical Results

Constituent	Reported Concentration (µg/L)	Water Quality Limit ¹ (µg/L)
Arsenic	<50	0.02
Barium	220	490
Cadmium	<5	0.07
Calcium	71,000	NA
Chromium (total)	15	50
Copper	45	170
Lead	<50	2
Magnesium	15,000	NA
Mercury	2,700	1.2
Nickel	<20	12
Potassium	16,000	NA
Silver	<5	35
Sodium	31,000	20,000
Thallium	<50	0.1
Vanadium	<20	50
Zinc	120	2,000
Nitrate	11,000	45,000
TDS	400,000	450,000
pH (std. units)	7.4	6.5 to 8.4
Alkalinity	380,000	NA

NA No limit available.

¹ Or the natural background concentration in groundwater, whichever is higher.

Septic Tank Scum Analytical Results

Constituent	Leachable Concentration (WET Citrate Buffer), (mg/L)	STLC ¹	Total Concentration (mg/Kg)	TTLC
Arsenic	0.59	5.0	<10	500
Barium	6.4	100	39	10,000
Cadmium	<0.05	1.0	<1	100
Chromium	0.12	5 ³	3.8	2,500
Copper	<0.05	25	35	2,500
Lead	<0.5	5.0	<10	1,000
Mercury	0.0046	0.2	140	20

Septic Tank Scum Analytical Results

Constituent	Leachable Concentration (WET Citrate Buffer), (mg/L)	STLC ¹	Total Concentration (mg/Kg)	TTLC
Nickel	<0.2	20	<4	2,000
Silver	<0.05	5	<1	500
Thallium	<0.50	7.0	<10	700
Vanadium	0.20	24	<4	2,400
Zinc	18	250	230	5,000

¹ Soluble threshold limit concentration for hazardous waste (Title 22, CCR, Section 66261.24).

² Total threshold limit concentration for hazardous waste (Title 22, CCR, Section 66261.24).

³ Without being differentiated, presumed to be present as hexavalent chromium.

29. Based on the mercury results, it appears that the septic tank effluent may be properly classified as a designated waste. The Chemical Constituents objective of the Basin Plan prohibits concentrations of chemicals in excess of drinking water Maximum Contaminant Levels (MCLs) adopted by the California Department of Health Services (DHS) for waters designated as municipal and domestic supply (MUN). The primary MCL for mercury is 2 ug/L. The Toxicity objective also prohibits concentrations of chemicals harmful humans, plants, or animals. In the case of mercury in groundwater, the Toxicity objective is expressed as the California Public Health Goal (PHG), which is 1.2 µg/L. Determination of whether the waste will degrade groundwater depends not only on dissolved concentrations, but also on background groundwater quality for those constituents and their mobility in the vadose zone. Although required to do so by Order No. 5-01-223, the Discharger did not complete the determination of whether this waste stream is a designated waste. Therefore, it is appropriate to require that the Discharger complete both a background groundwater quality study and a designated waste determination study.
30. Based on analytical result for mercury, the septic tank scum that was sampled and tested in 2002 is properly classified as hazardous waste. The Discharger states that lab wastes are no longer generated at the Minerals Laboratory and that the septic tank was pumped out after the samples were collected in 2002. However, because the source of mercury in the septic tank effluent has never been identified, it may still be present in the building plumbing or septic tank. Therefore, it is appropriate to require that the Discharger verify that the laboratory sinks are no longer connected to the septic system (or investigate and eliminate potential mercury sources within the building plumbing), monitor septic tank effluent for mercury for a determinate period, and investigate the seepage pit for residual contaminants that might degrade groundwater quality.
31. Order No. 5-01-233 also required that the Discharger characterize the waste ore or “black sand” (illeminite and magnetite) resulting from the gold classification system. The analytical results for samples of these wastes are tabulated below.

Constituent	Total Concentration (mg/Kg)			Soluble Concentration (mg/L) (WET, citrate buffer)		
	Illeminite	Magnetite	TTLC ¹	Illeminite	Magnetite	STLC ²
Arsenic	<10	<25	500	0.59	0.61	5.0
Barium	13	<25	10,000	1.3	1.1	100
Cadmium	<1	<2.5	100	<0.05	<0.05	1.0
Chromium	16	58	500 ³	0.32	0.24	5 ³
Copper	4.4	6.2	2,500	<0.05	0.2	25
Lead	<10	<25	1,000	<0.5	<0.5	5.0
Magnesium	300	950	NA	--	--	NA
Mercury	0.57	0.038	20	0.013	0.013	0.2
Nickel	4.5	16	2,000	<0.2	<0.2	20
Silver	<1	<2.5	500	<0.05	<0.05	5
Thallium	<10	<25	700	<0.5	<0.5	7.0
Vanadium	42	120	2,400	<0.2	0.21	24
Zinc	7.5	29	5,000	0.52	0.02	250

-- Not analyzed.

NA Not applicable.

¹ Total threshold limit concentration for hazardous waste (Title 22, CCR, Section 66261.24).

² Soluble threshold limit concentration for hazardous waste (Title 22, CCR, Section 66261.24).

³ Without being differentiated, presumed to be present as hexavalent chromium.

32. These data indicate that the waste is not hazardous; however, the Discharger did not perform analyses on samples extracted using the WET method with deionized water as the extractant. Use of the citrate buffer in the WET test could significantly overstate the soluble metals concentrations under ambient conditions. Therefore, it is not possible to assess whether these wastes pose a threat to groundwater quality and it is appropriate to require that the Discharger complete that determination.
33. The Discharger stockpiles concrete waste and asphaltic concrete waste on the western side of the Perkins Plant pit floor. Rejected concrete batches are also placed in the waste stockpiles. These materials are crushed and recycled to make road base.
34. Order No. 5-01-233 required that the Discharger characterize the concrete and AC waste used to make road base. The analytical results for samples of these wastes are tabulated below.

Analytical Result, WET with Citrate Buffer
 (µg/L)

Constituent	Recycle Dust	Return AC	Recycled AC and Base	Cement Paste ¹	Water Quality Limit ²
Arsenic	620	640	530	840	0.02
Barium	4,500	1,100	3,100	4,500	490
Beryllium	<50	<50	<50	<50	4
Cadmium	<50	<50	<50	<50	0.07
Chromium, total	62	<50	<50	280	50
Chromium, hexavalent	--	--	--	<250	21
Copper	150	<50	86	340	170
Lead	<500	<500	<500	<500	2
Molybdenum	<200	<200	<200	<200	10
Mercury	<1	<1	<1	<1	1.2
Nickel	<200	--	<200	<200	12
Silver	<50	<50	<50	<50	35
Thallium	<500	<500	<500	<500	0.1
Vanadium	<200	<200	<200	<200	50
Zinc	450	93	180	2,300	2,000

-- Not analyzed.

¹ Sediment collected from the bottom of the Ready-Mix Pond.

² Or the natural background concentration in groundwater, whichever is higher.

35. Based on these results, it is not possible to determine whether the wastes should be classified as designated waste. Use of the citrate buffer in the WET test could significantly overstate the soluble metals concentrations under ambient conditions. Determination of whether the waste will degrade groundwater depends on soluble concentrations as measured by the WET test using deionized water as the extractant, background groundwater quality, and constituent mobility in the vadose zone. Although required to do so by Order No. 5-01-223, the Discharger did not complete the determination of whether this waste stream is a designated waste. Therefore, it is appropriate to require that the Discharger reanalyze the waste streams, and complete both a background groundwater quality study and designated waste determination study.
36. The Discharger also receives inert wastes from several outside sources, which are crushed and incorporated with other materials to make recycled road base. Such wastes include, but may not be limited to, water treatment plant filter sand, road sand sweepings, architectural stone products, porcelain products, ceramic tile, masonry block, and glass. Each prospective source is reviewed and/or analytical testing is performed. Waste is not accepted if it might potentially be hazardous or if there is potential contamination with constituents that could degrade water quality.

Proposed Changes in the Discharge

37. The Discharger proposes to systematically remove sediments from the Prewash and Perkins Plant ponds and place them as engineered fill to reclaim previously excavated areas. A process schematic for the proposed aggregate wash water system is presented as Attachment D, which is attached hereto and is made part of the Order by reference. The sediment removal program will extend the life of the ponds indefinitely.
38. The area currently available for reclamation using these sediments is 750 acres. An additional 650 acres will become available as the mining operation progresses.
39. Silt and clay will be pumped from the ponds into below-grade previously mined areas and reclaimed agricultural lands at the facility site.
40. A clarifier may be used to thicken the slurry from the Prewash Ponds. The thickened slurry will be deposited in settling ponds and/or drying beds.
41. Methods of sediment placement in the reclamation areas may include:
 - a. Compacted drying beds;
 - b. Agricultural drying beds;
 - c. Sedimentation basins; and
 - d. Riparian restoration enhancement.
42. For compacted drying beds, up to two feet of slurry will be pumped into the reclamation area at one time. Drying may be enhanced by plowing and discing. Once the slurry has dried sufficiently, the material will be compacted prior to placement of the next layer of slurry.
43. For agricultural drying beds, up to one foot of silt and clay would be spread over previously reclaimed agricultural land. Once sufficiently dry, the sediment will be tilled in. One season of crops will be grown, with fertilizers added as needed. After harvest, the crop residuals will be tilled in before the filling process is repeated.
44. Some areas with Aspen 6 may receive some of the sediment to enhance ongoing riparian restoration efforts.
45. Some of the reclamation areas may be operated as sedimentation ponds with greater deposition depths and longer drying times. These areas will allow for year-round reclamation because pond sediments could still be removed during the winter when filling activities are impractical.
46. No lime or other chemical soil stabilization materials will be incorporated into the engineered fill.
47. The slurry will be conveyed via an at-grade pressure pipeline. The pipeline will go through existing conveyor line tunnels to cross under roadways.

48. The flow rate from the Prewash Ponds slurry removal system will average approximately 1,000 gallons per minute and the solids content is estimated to be 39 percent. The flow rate from the Perkins Plant Ponds will be approximately 600 gallons per minute, and the solids content of the slurry will be about 24 percent.
49. Any storm water that accumulates within the drying beds may be diverted to the facility's existing retention basins.
50. The RWD Addendum presented a water balance for the Perkins and Prewash Pond systems. Because of the large area of land that will be reclaimed by discharging fines slurry from the ponds and the fact that the Discharger will be able to use several of these areas at any one time, the facility's true wash water storage and disposal capacity is far greater than that provided by the ponds. Therefore, imposing a minimum freeboard requirement on this pond system should be sufficient to protect water quality, and no flow limitation is necessary for aggregate washing operations.

Site-Specific Conditions

51. The topography of the facility site is disturbed and regular due to ongoing grading and excavation with base elevations ranging from 15 to 35 feet above mean seas level (MSL) within the pit areas to 30 to 55 feet MSL around the pits. The entire facility site lies below the surrounding grade, which is approximately 55 to 65 feet MSL.
52. Soils beneath the facility site are of the Victor Formation and consist primarily of sands and gravels interbedded with clays, silts, and sandy clays.
53. Bottled water is used as drinking water at the facility. Groundwater supply wells provide process and domestic water.
54. Storm water runoff at the Perkins Plant gravel pit is collected at the site and discharged to either the storm water pond or the wastewater pond system. The storm water storage pond is located on the northern property boundary and collects runoff from the sand/gravel stockpile area. Runoff collected in the storm water pond is used for dust control during the dry season. Storm water for the remaining site areas is collected in the settling ponds for use in aggregate washing. A Sacramento County storm drainage ditch transects the Perkins Plant site. However, the ditch is elevated above the surrounding grade, which prevents runoff from entering the ditch at the site. Storm water runoff for the remaining gravel pits is collected in the pits and allowed to percolate.
55. The surrounding land is zoned for residential and commercial uses. Residences along the southern perimeter of the site use septic systems for domestic waste disposal, and some have seepage pits. Mining activities will create cut and fill banks along property boundaries that can disrupt the wastewater disposal for these systems. Therefore, it is appropriate to establish setbacks for mining activities sufficient to protect these residential septic systems.

Groundwater Conditions

56. Groundwater reportedly occurs approximately 90 to 110 feet below the native ground surface (or approximately 50 to 70 feet below the floor of completed gravel pits). Regional groundwater gradients are generally to the southwest.
57. Order No. 5-01-223 required that the Discharger construct groundwater monitoring wells to monitor each septic system or connect those systems to the community sewer. The Discharger elected to install the groundwater monitoring wells, and constructed five wells (as shown on Attachment C) pursuant to an approved workplan in 2002. There are currently five monitoring wells to monitor the eight septic systems. Based on four quarters of groundwater elevation data, on-site groundwater gradients fluctuate, but appear to be strongly influenced by a cone of depression originating at the supply well west of the Perkins Pond area. Analytical results for the first complete groundwater monitoring event in December 2002 are summarized below.

Analytical Result by Monitoring Well Location (mg/L
 unless otherwise noted)

<u>Constituent</u>	<u>Main Office</u>	<u>Minerals Lab</u>	<u>Rock Plant</u>	<u>Pre-Cast Plant</u>	<u>QA Lab</u>	<u>Water Quality Limit</u> ³
Calcium	81	32	110	50	72	NA ¹
Magnesium	44	18	62	21	25	NA
Sodium	26	26	30	23	27	20
Chloride	20	20	41	21	25	106
Sulfate	12	24	82	81	83	250
Iron	<0.1	<0.1	<0.1	<0.1	<0.1	0.3
Manganese	<20	<20	<20	<20	<20	0.05
Boron	<100	<100	<100	<100	<100	0.7
Total dissolved solids	450	260	720	310	440	450
Nitrate nitrogen	<0.5	<0.5	44	0.79	1.8	10
Ammonia	<0.1	<0.1	<0.1	<0.1	<0.1	1.5
Total Kjeldahl nitrogen	<0.2	0.28	<0.2	<0.2	0.3	NA
Total coliform organisms ²	<2	<2	<2	<2	<2	<2.2

¹ No limits available.

² MPN/100 mL

³ Or the natural background concentration in groundwater, whichever is higher.

58. Concentrations of total dissolved solids and nitrate nitrogen indicate that groundwater quality may be degraded near the Rock Plant. However, based on these limited data, it is not possible to determine conclusively whether groundwater has been degraded, and the Discharger has not installed enough wells to make that determination. Therefore, it is appropriate to require that additional monitoring wells be constructed and that the Discharger complete an assessment of groundwater quality at the septic system sites.

Basin Plan, Beneficial Uses, and Regulatory Considerations

59. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board (State Board). Pursuant to Section 13263(a) of the California Water Code, waste discharge requirements must implement the Basin Plan.
60. Surface water drainage from the surrounding area is to the American River and Morrison Creek. The beneficial uses of the American River are municipal and domestic supply; agricultural irrigation; industrial service supply; hydropower generation; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; and wildlife habitat. Morrison Creek is tributary to the Sacramento-San Joaquin Delta. The beneficial uses of the Sacramento-San Joaquin Delta are municipal and domestic supply; agricultural irrigation and stock watering; industrial process supply and industrial service supply; water contact recreation; non-contact water recreation; warm freshwater habitat; cold freshwater habitat; migration of aquatic organisms; spawning, reproduction, and/or early development; wildlife habitat; and navigation.
61. As stated earlier, the beneficial uses of underlying groundwater are municipal and domestic, industrial, and agricultural supply.
62. State Board Resolution No. 68-16 does not allow degradation of groundwater quality unless it has been shown that:
- a. The degradation is consistent with the maximum benefit to the people of the State
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - c. The degradation does not cause exceedance of one or more water quality objectives; and
 - d. The discharger employs best practicable treatment and control of the discharge to minimize degradation.
63. The Regional Board has considered antidegradation pursuant to State Board Resolution No. 68-16, and finds that the Discharger has not provided the required demonstration to be allowed to cause groundwater degradation. Therefore, none is authorized.
64. Several of the wastes discharged at this facility may be designated wastes. However, the Discharger did not evaluate whether factors are present which might prevent groundwater degradation. The effluent limits and groundwater limits prescribed herein are intended to ensure

that groundwater will not be degraded. Additional groundwater monitoring wells and a formal assessment are necessary to determine compliance with the groundwater limitations.

65. Section 13267(b) of California Water Code states that: “In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

The monitoring and reporting program required by this Order and the attached Monitoring and Reporting Program No. R5-2003-0116 are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the waste subject to this Order.

66. On 23 July 1981, the Sacramento County Planning and Community Development Department issued a Final Environmental Impact Report (FEIR) for the aggregate mining operation in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.) and the State CEQA Guidelines.
67. The surface soil of the project site contains dense hardpans, some of which are removed during mining process. In addition, the depth to groundwater will decrease as material is harvested and the mining pits deepen. Soils at the mining sites are primarily sands, gravels, and silty sands. Permeability rates for these soils are typically moderate to high. The FEIR found that that the soil permeability of the site is expected to increase while the depth to groundwater in the mining area would decrease. Since the rate of pollutant mitigation is expected to increase with permeability while the depth to groundwater decreases, the FEIR concluded that the potential exists for groundwater impacts from the project.
68. The applicable FEIR Mitigation Measures for water quality are:
- a. No polluting substance or toxic compound, such as oil, should be applied to the harvesting or pit floor.
 - b. New wells constructed within the project site should be located and designed to minimize mutual interference with wells within and outside the site.
 - c. The specific location of wells should be approved by the Health Department. All data should be submitted to the Health Department.
69. Implementation of the specific mitigation measures set forth in the FEIR and compliance with waste discharge requirements will mitigate or avoid significant impacts to water quality.

70. The Sacramento County Department of Environmental Review and Assessment issued a Notice of Exemption for the Aspen Properties Reclamation Grading Permit on 31 October 2002. The categorical exemption is applicable to the discharge of pond sediments to previously mined areas and was made pursuant to CEQA Section 15304 (c), which exempts projects consisting of placing earthen fill into previously excavated land with material compatible with the natural features of the site. The Notice of Exemption is appropriate.
71. The Discharger has filed a Notice of Non-Applicability to terminate coverage under the State Board's Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System (NPDES), General Permit No. CAS 000001, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Associated with Industrial Activities (excluding construction activities).
72. The Discharger maintains several above-ground petroleum storage tanks at the facility site. The Discharger has complied with the Aboveground Petroleum Storage Tank Act by completing a Spill Prevention Control and Countermeasure Plan.
73. The Discharger will continue to implement the Reclamation Plan dated 23 October 1989 to comply with Section 272 of the Surface Mining and Reclamation Act. The Reclamation Plan specifies that topsoil removed from areas to be excavated is stockpiled. The topsoil is spread on the reclaimed areas and the land used for agriculture until a development plan that is consistent with the General Plan for Sacramento County is completed. The Discharger will also use fines removed from the wash water ponds as engineered fill to reclaim excavation areas.
74. This discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq., (hereafter Title 27). The exemption pursuant to Section 20090(b), is based on the following:
 - a. The Regional Board is issuing these waste discharge requirements, which implement the Basin Plan;
 - b. The Discharger will comply with these waste discharge requirements; and
 - c. The wastewater does not need to be managed according to Title 22 CCR, Division 4.5, and Chapter 11, as a hazardous waste.
75. Pursuant to California Water Code Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

76. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

77. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
78. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that Order No. 5-01-223 is rescinded and that, pursuant to Sections 13263 and 13267 of the California Water Code, Teichert Aggregates, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements" dated 1 March 1991.]

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of wastewater from asphalt plant operations is prohibited, except during periods of equipment failure. Wastewater discharge during equipment failure is restricted to slurry from the bag house screw auger.
3. Discharge of domestic waste to the wastewater ponds is prohibited.
4. Discharge of waste classified as hazardous, as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq., (hereafter Chapter 15), or 'designated', as defined in Section 13173 of the California Water Code, is prohibited.
5. Gold recovery techniques (excluding those used by the laboratory for assay purposes) shall not employ any chemical method of recovery. Chemical methods including amalgamation, cyanide leach, or any other chemical method are prohibited.
6. Discharge or deposit of waste materials at this site other than inert waste, as defined in Title 27, CCR, Section 20230, is prohibited. Inert waste shall only pose a siltation threat to water quality.
7. Surfacing of wastewater from the septic tank or seepage pits is prohibited.
8. The discharge of industrial waste, including wastewater from the mineral laboratory, to septic systems is prohibited.

B. Discharge Specifications:

1. Water or process wastewater shall be used for dust control or onsite irrigation in a manner that will not cause runoff to uncontrolled areas.

2. The discharge shall remain within the designated storage and disposal areas at all times. Additional ponds and slurry deposition areas may be constructed as needed within the confines of the facility site as defined on Attachment A.
3. No wastewater pond shall have a pH of less than 6.5 or greater than 8.4 at any time.
4. The Discharger shall operate all systems and equipment to optimize the quality of the discharge.
5. The ponds shall be managed to prevent breeding of mosquitoes. In particular,
 - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
6. The Discharger's wastewater system shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
7. All stockpiled wastes and products shall be managed to prevent erosion of sediment to surface water drainage courses.
8. Newly constructed or rehabilitated levees or berms that hold back water shall be designed and constructed under the direct supervision of a California Registered Civil Engineer or Engineering Geologist.
9. The freeboard in all ponds and slurry deposition areas shall never be less than two feet as measured vertically from the water surface to the lowest point of potential overflow.
10. The wastewater ponds and available slurry deposition areas shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with the historical rainfall patterns.
11. On or about **1 November** of each year, available ponds storage capacity shall at least equal the volume necessary to continuously comply with Discharge Specifications B.9 and B.10.
12. Neither the treatment nor the discharge shall cause a nuisance or condition of pollution as defined by the California Water Code, Section 13050.
13. The discharge shall not cause the degradation of any water supply.
14. The Discharger shall comply with all applicable sections of the Aboveground Petroleum Storage Tank Regulations (Section 25270, Health and Safety Code).
15. Septage generated in the septic tanks shall be discharged to a permitted municipal wastewater treatment or equivalent facility. All transportation of septage or other wastewater shall be performed by a duly authorized service.

16. The Discharger shall maintain setbacks between all embankments and nearby septic systems equal to four times the vertical height of the cut or fill. Distance shall be measured from the top edge of the bank.

C. Effluent Limitations

Discharge of effluent to the Prewash Ponds, Perkins Plant Ponds, Ready-Mix Pond, and slurry depositions areas in excess of the following limit is prohibited:

<u>Parameter</u>	<u>Daily Minimum and Maximum Limits</u>
pH	6.5-8.4 Standard Units

D. Solids Disposal Requirements:

1. Collected screenings, sludge, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.
2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer in the next monthly monitoring report.
3. Disposal of septage shall comply with existing Federal, State, and local laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

E. Groundwater Limitations:

The discharge shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than natural background water quality.

F. Provisions:

1. The following reports shall be submitted pursuant to Section 13267 of the California Water Code and shall be prepared as described in Provision F.2:
 - a. By **30 August 2003**, the Discharger shall submit a *Monitoring Well Installation Workplan* that satisfies the first section of Attachment E, "*Items to be Included in a Monitoring Well Installation Workplan and a Monitoring Well Installation Report of Results.*" The monitoring well network shall consist of one or more background monitoring wells designed and located to collect groundwater that has not been influenced by waste management activities at the site, at least one more well immediately downgradient of each septic system, and three wells designed to monitor the Ready-Mix Pond. Monitoring wells shall be constructed to yield representative samples from the uppermost layer of the uppermost aquifer.

- b. By **30 September 2003**, the Discharger shall submit a *Minerals Lab Septic Tank Sampling and Industrial Discharge Elimination Workplan* that provides a specific scope of work designed to resample scum and sludge from the Minerals Lab septic tank, test the samples for mercury and clean the tank to remove mercury residue (if any is present). The workplan shall also provide a specific scope of work designed to thoroughly investigate all plumbing lines and the associated effluent streams to determine whether there is a connection between any laboratory sink and the septic system. If such connections exist, the connection shall be eliminated, or the plumbing system shall be further investigated to determine whether there is any ongoing source of mercury within the plumbing. Investigation methods may include, but may not be limited to, television surveys, analyzing surface swab samples, and removing "P" traps.
- c. By **30 September 2003**, the Discharger shall submit a *Ready-Mix Pond pH Compliance Report* that describes in detail a pH control system that has been installed to ensure continuous compliance with the Effluent Limitation within the Ready-Mix Pond. The system shall be designed to monitor pH at prescribed intervals and correct pH to within the required range.
- d. By **30 August 2003**, the Discharger shall submit a *Minerals Lab Seepage Pit Investigation Workplan* that sets forth a specific scope of work to:
 - i. Investigate all seepage pits and leachfields (if any) associated with the Minerals Lab septic system; and
 - ii. Determine whether previous discharges to the system have caused contamination with mercury or other metals that is likely to cause groundwater quality degradation.

The investigative methods used shall be selected to allow analytical testing of soil samples from the base of the disposal system, and the workplan shall describe the analytical methods to be used, as well as the method used to determine whether cleanup is needed.

- e. By **30 October 2003**, the Discharger shall submit a *Minerals Lab Septic Tank Sampling and Industrial Discharge Elimination Report*. The report shall describe at least the following:
 - i. All activities and results associated with full implementation of the approved *Minerals Lab Septic Tank Sampling and Industrial Discharge Elimination Workplan*;
 - ii. Any deviation from the workplan with justification for such deviation;
 - iii. All cleanup actions taken to eliminate mercury sources within the plumbing and septic systems; and
 - iv. Any operational modifications or procedures implemented to prevent future industrial discharges to the septic system.

- f. By **30 November 2003**, the Discharger shall submit a *Monitoring Well Installation and Site Soil Properties Report*. The report shall completely describe implementation of the approved workplan, and shall include all items listed in the second section of Attachment E.
- g. By **30 March 2004**, the Discharger shall submit a *Minerals Lab Seepage Pit Investigation Report and Mitigation Workplan* that completely describes at least the following:
 - i. Implementation of the approved workplan;
 - ii. Any deviation from the workplan with justification for such deviation;
 - iii. A description of the soils encountered in the borings (with boring logs);
 - iv. Analytical results for soil samples;
 - v. Based on the nature of the soil, underlying materials, water table elevation, and analytical results, the estimated mass of each metal contaminant;
 - vi. Based on the above and reasonable chemical-specific attenuation factors, the potential for each constituent to be present in groundwater at concentrations above background levels; and
 - vii. If groundwater degradation has occurred or is likely to occur, a workplan describing a proposed plan to prevent further degradation by controlling or removing the source. The workplan shall include a specific scope and schedule of activities, and the schedule for full implementation shall not exceed eight months.
- h. If required pursuant to Provision F.1.g, by **30 August 2004**, the Discharger shall submit a *Seepage Pit Mitigation Report* that describes full implementation of the approved mitigation workplan. The report shall include as-built drawings and/or boring logs that document the work.
- i. By **30 August 2004**, the Discharger shall submit a *Designated Waste Determination Workplan* that describes in detail the rationale, approach, and specific methods to be used to develop the report required by Provision F.1.k of this Order. The workplan shall define all additional data needs and a detailed scope and schedule for data acquisition that ensures compliance with the schedule for that report.
- j. By **30 December 2004**, the Discharger shall submit a *Background Groundwater Quality Study*. For each groundwater monitoring parameter/constituent identified in the MRP, the report shall present a summary of monitoring data, calculation of the concentration in background monitoring wells, and comparison of background groundwater quality to that in wells used to monitor the facility. Determination of background quality shall be made using the methods described in Title 27, Section 20415(e)(10), and shall be based on data from at least six consecutive groundwater monitoring events. For each monitoring parameter/constituent, the report shall compare measured concentrations for compliance monitoring wells with: (1) the calculated background concentration, and (2) the limit which implements applicable water quality objectives, as detailed in the Findings of this Order.

- k. By **30 June 2005**, the Discharger shall submit a *Designated Waste Determination Report* that fully characterizes the following wastes and shows whether any are properly classified as designated waste, as defined in Section 13173 of the California Water Code:
- i. Wash water from the Prewash Ponds;
 - ii. Wash water from the Perkins Ponds;
 - iii. Wash water and/or cement paste from the Ready-Mix Pond;
 - iv. Illeminite;
 - v. Magnetite;
 - vi. All solid wastes and rejected materials recycled at the facility (e.g., AC and concrete wastes).

For each waste stream, the report shall thoroughly document all site-specific information used in any modeling, all analytical results, background groundwater quality, all assumptions (with justification), all model inputs, and calculations performed. The report shall present conclusions regarding the character of each waste stream.

2. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geological sciences, shall be prepared by, or under the direction of, persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. To demonstrate compliance with section 415 and 3065 of Title 16, CCR, all technical reports, must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
3. The Discharger shall comply with the Monitoring and Reporting Program No. R5-2003-0116, which is a part of this Order, and any revisions thereto as ordered by the Executive Officer.
4. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."
5. The Discharger shall submit to the Regional Board on or before each compliance report due date the specified document, or if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is reported, then the Discharger shall state the reasons for noncompliance and shall provide a schedule to come into compliance.
6. The Discharger shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.

7. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, then the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this office.
8. The Discharger shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.
9. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
10. The Regional Board will review this Order periodically and may revise requirements when necessary.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 11 July 2003.

THOMAS R. PINKOS, Executive Officer

AMENDED

ALO:7/24/03

WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2003-0116
TEICHERT AGGREGATES
PERKINS PLANT
SACRAMENTO COUNTY

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0116

FOR
TEICHERT AGGREGATES
PERKINS PLANT
SACRAMENTO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring septic systems, wash water storage ponds, aggregate wash water, concrete plant wash water, Minerals Lab septic tank effluent, and groundwater. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form. Field test instruments (such as those used to measure pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of the MRP.

SEPTIC SYSTEM MONITORING

The Discharger shall monitor each septic system as follows:

<u>Parameter</u>	<u>Type of Units</u>	<u>Measurement</u>	<u>Minimum Inspection and Reporting Frequency</u>
Surfacing wastewater	NA	Observation	Monthly
Sludge depth and scum thickness in each compartment	Feet	Staff Gauge	Annually
Distance between bottom of scum layer and bottom of outlet device	Inches	Staff Gauge	Annually
Distance between top of sludge layer and bottom of outlet device	Inches	Staff Gauge	Annually

Septic tanks shall be pumped when any one of the following conditions exist or may exist before the next inspection:

- a. The combined thickness of sludge and scum exceeds one-third of the tank depth in the first compartment; or

- b. The bottom of the scum layer is within three inches of the outlet device; or
- c. The top of the sludge layer is within eight inches of the outlet device.

Septic tank monitoring is not required for one calendar year following septic tank cleaning.

POND MONITORING

Each aggregate wash water pond (including the Prewash and Perkins Ponds) shall be inspected weekly and monitored as follows:

<u>Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Freeboard	0.1 Feet	Measurement	Weekly	Monthly
Berm condition	N/A	Observation	Weekly	Monthly

AGGREGATE WASH WATER MONITORING

Wash water samples shall be collected at the inlets of the Prewash and Perkins Pond systems. Grab samples are considered adequately composited to represent the effluent. At a minimum, the Discharger shall monitor the wastewater as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow	gpd	Meter Observation	Daily	Monthly
pH	Std.	Grab	Monthly	Monthly
Total dissolved solids	mg/L	Grab	Monthly	Monthly
Aluminum ¹	mg/l	Grab	Quarterly	Monthly
Total Petroleum Hydrocarbons ^{1,2}	mg/l	Grab	Quarterly ³	Monthly
Standard Minerals ^{1,4}	mg/l	Grab	Quarterly	Monthly

¹ For the Perkins Pond system only.

² TPH analysis shall be performed by EPA Method 8015-m for diesel range hydrocarbons.

³ The sample frequency shall be daily when slurry from the asphalt plant bag house is discharged to the ponds.

⁴ Standard Minerals shall include, at a minimum, the following constituents: Barium, Calcium, Magnesium, Sodium, Potassium, Chloride, Nitrate, Sulfate, Total Alkalinity (including alkalinity series), and Hardness.

READY-MIX PLANT WASH WATER MONITORING

Wash water samples shall be collected at the inlet to the pond. Grab samples are considered adequately composited to represent the effluent. At a minimum, the Discharger shall monitor the wastewater as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Flow	gpd	Meter Observation	Daily	Monthly
pH	Std.	Grab	Monthly	Monthly
Total dissolved solids	mg/L	Grab	Monthly	Monthly
Total metals ¹	µg/L	Grab ²	Monthly ³	Monthly
Dissolved metals ¹	µg/L	Grab ⁴	Monthly ³	Monthly

¹ At a minimum, the following metals shall be included: antimony, arsenic, barium, total chromium, hexavalent chromium, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc. Analytical methods shall be selected to provide detection limits below the limiting Water Quality Goal for each constituent.

² Samples shall be preserved without filtration.

³ Sampling and analysis shall be performed for six consecutive months beginning the month after adoption of this Order and quarterly thereafter.

⁴ Samples shall be filtered through a 0.45 micron filter prior to preservation.

MINERALS LAB SEPTIC TANK EFFLUENT MONITORING

Effluent samples shall be collected from the discharge side of the septic tank. Grab samples are considered adequately composited to represent the effluent. At a minimum, the Discharger shall monitor the effluent as follows:

<u>Constituent/Parameter</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
pH	Std.	Grab	Monthly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Monthly
Total metals ¹	µg/L	Grab ²	Monthly/Quarterly ³	Monthly
Dissolved metals ¹	µg/L	Grab ⁴	Monthly/Quarterly ³	Monthly

¹ At a minimum, the following metals shall be included: total chromium, hexavalent chromium, copper, lead, mercury, and zinc. Analytical methods shall be selected to provide detection limits below the limiting Water Quality Goal for each constituent.

² Samples shall be preserved without filtration.

³ Sampling and analysis shall be performed for six consecutive months beginning the month after adoption of this Order (August 2003 through January 2004) and quarterly thereafter. At least one sample shall be obtained prior to any septic tank cleaning.

⁴ Samples shall be filtered through a 0.45-micron filter prior to preservation.

GROUNDWATER MONITORING

Prior to construction of any groundwater monitoring wells, the Discharger shall submit plans and specifications to the Board for review and approval. Once installed, all new wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below.

Prior to sampling, groundwater elevations shall be measured and each well shall be purged of at least three well volumes until pH and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated based on surveyed wellhead elevations and used to determine groundwater gradient and direction of flow. Samples shall be collected using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling and Reporting Frequency</u> ¹
Depth to groundwater	Feet	Measurement	Monthly/Quarterly
Groundwater elevation	Feet	Calculated	Monthly/Quarterly
Gradient	Feet/feet	Calculated	Monthly/Quarterly
Flow direction	degrees	Calculated	Monthly/Quarterly
pH	Std.	Grab	Monthly/Quarterly
Total Dissolved Solids	mg/l	Grab	Monthly/Quarterly
Total Kjeldahl Nitrogen ²	mg/l	Grab	Monthly/Quarterly
Nitrate as nitrogen ²	mg/l	Grab	Monthly/Quarterly
Total Coliform Organisms ^{2,3}	MPN/100 ml	Grab	Monthly/Quarterly
Total metals ^{4,5,6}	mg/l	Grab	Monthly/Quarterly
Dissolved metals ^{4,5,7}	mg/l	Grab	Monthly/Quarterly

¹ Groundwater sampling shall be performed monthly for eight consecutive months following adoption of this order (August 2003 through March 2004), then quarterly thereafter. However, the reporting frequency shall be quarterly regardless of the sampling frequency.

² Required for upgradient and septic system monitoring wells only.

³ Using a minimum of 15 tubes or three dilutions

⁴ Required for background, Ready-Mix Pond, and Minerals Lab septic system wells only.

⁵ At a minimum, the following metals shall be included: total chromium, hexavalent chromium, copper, lead, mercury, and zinc. Analytical methods shall be selected to provide detection limits below the limiting Water Quality Goal for each constituent.

⁶ Samples shall be preserved without filtration.

⁷ Samples shall be filtered through a 0.45 micron filter prior to preservation.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

A. Monthly Monitoring Reports

Monthly Monitoring Reports shall be submitted to the Regional Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). At a minimum, the Monthly Monitoring Report shall include:

1. Results of septic system, pond, aggregate wash water, Ready-Mix Plant wash water, and Mineral Lab Septic tank effluent monitoring.
2. A map depicting the locations of all active all wash water ponds, storm water ponds, slurry deposition areas, and the locations where freeboard is measured.
3. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format.
4. If requested by staff, copies of laboratory analytical report(s).
5. A discussion of all septage, mineral lab, and other off-site industrial waste disposal.
6. A calibration log verifying calibration of all monitoring instruments and devices used to comply with the prescribed monitoring program.
7. The dates and volume of wastewater discharged from the asphalt plant bag house to the ponds.

B. Quarterly Monitoring Reports

Except for the first eight months, when sampling shall be performed monthly, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring such that samples are obtained approximately every three months. Beginning immediately after adoption of this Order, Quarterly Monitoring Reports shall be submitted to the Board by the **1st day of the second month after the quarter** (i.e. the January-March quarter is due by May 1st) each year. The Quarterly Monitoring Report shall include the following:

1. Results of groundwater monitoring.
2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting

Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged;

3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends if any;
4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable);
5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements;
6. Summary data tables of historical and current water table elevations and analytical results;
7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum;
8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Monitoring Report

An Annual Monitoring Report shall be prepared as the fourth quarter monitoring report. The Annual Monitoring Report shall include all monitoring data required in the monthly/quarterly schedule and shall be submitted to the Regional Board by **1 February** each year. In addition to the data normally presented in the Quarterly Monitoring Reports, the Annual Monitoring Report shall include the following:

1. If requested by staff, tabular and graphical summaries of all monitoring data collected during the year;
2. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.
3. A Water Balance and Capacity Calculation Report that presents calculation of the current capacity of the wastewater pond system and evaluation of the wastewater storage system's ability to adequately contain all rainfall and industrial wastewater discharged to the pond. Rainfall amounts shall be based on the total annual precipitation based on a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
4. Septic system monitoring results.

A transmittal letter shall accompany each self-monitoring report. The letter shall discuss any violations during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the Discharger or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

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

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

11 July 2003
(Date)

ALO:7/24/03

MONITORING AND REPORTING PROGRAM NO. R5-2003-0116
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PERKINS PLANT
SACRAMENTO COUNTY

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INFORMATION SHEET

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The Discharger owns and operates an aggregate processing facility, Ready-Mix concrete plant, and precast concrete plant at 8760 Kiefer Boulevard in Sacramento. The Discharger mines sand and gravel from the Victor Formation, processing an estimated four million tons of aggregate per year.

Mining is performed using front-end loaders and self-loading scrapers. The mined ore is transported from the pit to the Prewash Station via a conveyor belt. After the ore is prewashed, it is returned to the conveyor belt and conveyed to the Perkins processing area. Processing equipment consists of wash screens and bucket wheels, crushers, vibratory screens, and a gold recovery circuit. Gold recovery is performed using gravimetric methods only.

The Discharger operates two series of settling ponds to recycle aggregate wash water. Wastewater from the Prewash operation is discharged to four unlined ponds operated in series for settling and clarification (the Prewash Ponds). The Prewash facility uses approximately 3.84 million gallons per day (mgd) of recycled water from the Prewash Ponds. A well supplies approximately 0.09 mgd of makeup water to the Prewash Facility.

The second series of ponds, known as the Perkins Plant Ponds, receives wash water from the gravel processing operation. The Discharger recycles water from the Perkins Plant Ponds using a clarifier. Approximately 3.16 mgd of clarifier effluent is returned to the Perkins Plant water supply tank for reuse. The clarifier also discharges up to 1.92 mgd of fines slurry at 10 to 25 percent solids to four unlined ponds for settling and clarification.

The Discharger also manufactures ready-mix concrete and asphaltic concrete at the Perkins Plant. The Ready-Mix Plant and truck parking area drains to an unlined pond (the "Ready-Mix Pond"). The Ready-Mix Pond also receives wastewater from cleaning activities performed at the Ready-Mix Plant, which sometimes involve hydrochloric acid cleaning solution. Prior to relocation of the pre-cast concrete plant, wastewater from saw cutting and mold cleaning was discharged to the Perkins Plant ponds. The asphaltic concrete plant does not generate wastewater.

The Discharger proposes to systematically remove sediments from the Prewash and Perkins Plant ponds and place them as engineered fill to reclaim previously excavated areas. The sediment removal program will extend the life of the ponds indefinitely. The area currently available for reclamation using these sediments is 750 acres, and an additional 650 acres will become available as the mining operation progresses.

Silt and clay will be pumped from the ponds into below-grade previously mined areas and reclaimed agricultural lands at the facility site. A clarifier may be used to thicken the slurry from the Prewash Ponds. The slurry will be deposited in settling ponds and/or drying beds. Methods of sediment placement in the reclamation areas may include compacted drying beds, agricultural drying beds, sedimentation basins, and riparian restoration enhancement. No lime or other chemical soil stabilization materials will be incorporated into the engineered fill. The slurry will be conveyed via an

at-grade pressure pipeline through existing conveyor line tunnels to cross under roadways. The flow rate from the Prewash Ponds slurry removal system will average approximately 1,000 gallons per minute and the solids content is estimated to be 39 percent. The flow rate from the Perkins Plant Ponds will be approximately 600 gallons per minute, and the solids content of the slurry will be about 24 percent.

Storm water runoff at the Perkins Plant gravel pit is collected at the site and discharged to either the storm water pond or the wastewater pond system. Runoff collected in the storm water pond is used for dust control during the dry season. Storm water for the remaining site areas is collected in the settling ponds for use in aggregate washing. Storm water runoff for the remaining gravel pits is collected in the pits and allowed to percolate.

Groundwater Conditions

Groundwater occurs approximately 80 to 90 feet below the natural ground surface (or approximately 40 to 50 feet below the floor of completed gravel pits). Regional groundwater gradients are generally to the southwest. Order No. 5-01-223 required that the Discharger construct groundwater monitoring wells to monitor each septic system or connect those systems to the community sewer. The Discharger elected to install the groundwater monitoring wells, and there are currently five monitoring wells. However, the Discharger has not constructed enough wells to determine whether these systems have degraded or have the potential to degrade, the underlying groundwater. Therefore, this Order requires that additional monitoring wells be constructed and that the Discharger complete a determination of background groundwater quality.

Flow Limitations

The Discharger has submitted water balances for both the wash water pond systems and the Ready-Mix Pond. Because of the large area of land that will be reclaimed by discharging fines slurry from the aggregate wash water ponds and the fact that the Discharger will be able to use several of these areas at any one time, the facility's true wash water storage and disposal capacity is far greater than that provided by the ponds. The water balance for the Ready-Mix Pond indicates that the typical recycling rate exceeds the influent flow rate even during periods of low production and highest precipitation (based on the 100-year total annual precipitation). Additionally, excess storm water would be diverted to the Perkins Ponds in the event of an impending overflow from the Ready-Mix Pond. Therefore, imposing minimum freeboard requirements on this pond systems should be sufficient to protect water quality, and no flow limitations is necessary.

Ready-Mix Pond pH Control

The pH of the Ready-Mix wash water pond is typically greater than 10, in violation of the previous WDRS and these proposed WDRs. The Discharger has taken no action to date to correct this ongoing violation. Therefore, this Order requires that the Discharger install a pH control system to ensure continuous compliance with the pH limitation.

Waste Classification

Order No. 5-01-223 required that the Discharger determine whether several liquid and solid wastes are designated waste. In general, the data submitted indicate that most of the waste streams at the facility may be designated waste. However, the Discharger did not complete all appropriate analyses or the determination of whether any of these waste streams is a designated waste. Therefore, the proposed Order requires that the Discharger complete additional waste characterization, a background groundwater quality study, and a determination of whether any of the following wastes is a designated waste:

- a. Aggregate wash water from the Prewash and Perkins Ponds;
- b. Concrete wash water and cement paste from the Ready-Mix Pond;
- c. Mineral Lab Septic Tank Effluent;
- d. Illeminite and magnetite waste ores from gold recovery; and
- e. Recycled concrete and asphaltic concrete waste.

Other Special Studies

The Discharger operates a mineral laboratory at the Perkins Plant to assay gold from drill cuttings. Prior to 2003, the assay extraction methods used mercury, aluminum nitrate, and nitric acid. Chemical extraction tests are no longer performed at the lab, and no chemical lab wastes are currently generated. However, the laboratory has a septic system that may have been used to dispose of laboratory wastes in the past. Therefore, Order No. 5-01-223 required that the Discharger characterize the waste sludge and effluent from the mineral laboratory septic system. The Discharger reported that there was no sludge present at the time of sampling, but did obtain samples of effluent and scum from the septic tank. Based on the mercury results, it appears that the septic tank effluent may be properly classified as a designated waste. However, the Discharger did not complete the determination of whether this waste stream is a designated waste. Based on analytical results for total mercury and soluble arsenic, the septic tank scum is properly classified as hazardous waste. Therefore, this Order requires that the Discharger resample the septic tank scum and sludge, verify that the laboratory sinks are no longer connected to the septic system (or investigate the plumbing system and eliminate any potential mercury sources therein), investigate the seepage pit for contamination that might degrade groundwater quality, and mitigate conditions in the seepage pit if appropriate.

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