

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2004-0713

FOR  
TEICHERT AGGREGATES  
PERKINS PLANT  
SACRAMENTO COUNTY

This Order is issued to Teichert Aggregates (hereafter known as “Discharger”) and is based on provisions of California Water Code Section 13304 which authorize the Regional Water Quality Control Board, Central Valley Region (hereafter known as Regional Board) to issue a Cleanup and Abatement (C&A) Order.

The Executive Officer of the Regional Board finds, with respect to the Discharger’s acts, or failure to act, the following:

1. Waste Discharge Requirements (WDRs) Order No. R5-2003-0116 was adopted on 11 July 2003 for Teichert Aggregates’ Perkins Plant (facility) at 8760 Kiefer Boulevard in Sacramento. The WDRs regulate the storage and disposal of aggregate washwater, concrete wastewater, and domestic wastewater associated with production of commercial aggregate products, ready-mix concrete, and asphaltic concrete.
2. The Discharger owns and operates the facility and is, therefore, responsible for complying with this Cleanup and Abatement Order (Order).
3. The Perkins Plant consists of several large aggregate mine pits, an aggregate pre-washing facility with associated washwater settling ponds, a main aggregate processing facility with associated washwater settling ponds, an asphaltic concrete plant, a ready-mix concrete plant with associated wastewater pond, and a minerals lab previously used for assaying the gold content of ore samples. The plant operates year-round and the Discharger processes approximately four million tons of aggregate per year.

**Aggregate Washwater**

4. The facility generates approximately 7 millions gallons of aggregate washwater per day, most of which has been recycled from the wash water settling ponds. Make-up process water is supplied by on-site wells.

**Concrete Washwater**

5. The ready-mix concrete plant receives aggregates from the aggregate processing plant. The aggregates are placed into elevated bins, mixed with Portland cement in a wet permanent mixer, and discharged into transit mixer trucks. Filled transit trucks proceed to a truck wash area near the ready-mix plant, where a water hose is used to rinse off the truck exterior.
6. The concrete truck wash area is a concrete-paved pad that drains to a three-acre unlined pond known as the Ready-Mix Pond. This pond also receives wastewater from cleaning activities performed at the ready-mix plant. Washing of the concrete trucks and cleaning the plant itself

produce up to 400,000 gallons of wastewater per day, most of which is recycled to make new concrete.

7. Upon return to the plant, the interior of each concrete truck is cleaned. To reduce the volume of concrete wastewater produced, the trucks are “rocked out” by adding dry aggregate to the mixer and discharging the aggregate/concrete mixture to land before the truck is rinsed. Before the “rock out” procedure was introduced, the Ready-Mix Pond received all of the concrete residue as well as the wastewater, and the pond covered over 20 acres. Since then, the area of the Ready-Mix Pond has been reduced to approximately three acres. The remaining area has been filled to grade with cured waste concrete and recycled waste concrete. Some of this area has since been paved with concrete.
8. Based on analytical data provided by the Discharger and additional testing performed by staff<sup>1</sup>, the wastewater contained in the Ready-Mix Pond exhibits concentrations of hexavalent chromium up to 31 ug/L, and is therefore a potential source of hexavalent chromium found in the underlying groundwater (as discussed in Finding No. 18). Additionally, the pH in the pond (typically greater than 10) violates the effluent limitation of the WDRs (a maximum of 8.4 pH units).

#### **Other Waste Streams**

9. Domestic wastewater is discharged to eight separate septic systems, which incorporate seepage pits for effluent disposal.
10. Gold is recovered from the processed ore using gravimetric methods and 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 reportedly notified not to discharge wastes from assay testing to the Minerals Laboratory septic system, and assaying was reportedly discontinued prior to 2003. The Discharger states that chemical testing and separation techniques are no longer used, and that no chemical lab waste is generated.

#### **Non-Compliance with WDRs**

11. The Provisions of the facility’s previous WDRs (Order No. 5-01-223) required that the Discharger submit several technical reports by specified due dates. Several of those reports were submitted after the due date and two were inadequate or incomplete.
12. The Discharger requested that staff prepare revised WDRs in 2002. On 8 May 2003, staff issued tentative WDRs, which were adopted by the Regional Board on 11 July 2003. The Provisions section of the revised WDRs (Order No. R5-2003-0116) includes a revised scope and schedule for the technical reports that had not been submitted under the previous WDRs, as well as a schedule for additional technical reports needed to address concerns arising from the waste characterization studies previously completed by the Discharger. The following findings briefly discuss the instances of non-compliance that lead to issuance of this Order. Attachment A contains a more detailed chronology of events.

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<sup>1</sup> Staff sampled concrete wash water from ten similar facilities in November and December 2002, including the Discharger’s facility. Reported concentrations of dissolved hexavalent chromium in concrete wastewater ranged from 1.4 ug/L to 260 ug/L with a mean of 85 ug/L for all ten sites.

### **Domestic Wastewater Septic Systems**

13. The previous WDRs required that the Discharger either connect the septic systems to the community sewer or monitor groundwater beneath the septic systems. The Discharger stated its intent to connect the septic systems to the community sewer, but was unable to obtain permission from the Sacramento County Regional Sanitation District to do so. Therefore, staff requested that the Discharger begin monitoring groundwater quality. Because of concerns about fluctuating groundwater gradients, staff approved a phased approach for well installation. The first phase of well installation for the septic systems was completed prior to adoption of the current WDRs.
14. Provision F.1.a of Order No. R5-2003-0116 requires that the Discharger install (a) a background monitoring well, (b) at least one additional downgradient monitoring well for each septic system, and (c) at least three monitoring wells to monitor the Ready-Mix Pond. The Discharger submitted a late and inadequate workplan and has failed to install all of the required septic system monitoring wells or to demonstrate that the existing network of septic system monitoring wells is adequate to detect groundwater degradation from each septic system.
15. In June 2004, the Discharger stated that permission to connect to the community sewer system is likely to be granted by September 2004, and proposed “benchmark” dates for the connection to the sewer system. This Order allows the installation of the outstanding monitoring wells to be deferred as long as the Discharger meets its proposed benchmark dates. If the Discharger connects all of its septic systems to the community sewer system by the proposed date of 15 June 2006, then installation of the outstanding monitoring wells is no longer necessary. However, if the Discharger fails to meet any of the benchmark dates, then it must install the wells.
16. Based on monitoring data from the existing septic system groundwater monitoring wells, groundwater beneath the Rock Plant septic system appears to be degraded by nitrate, which has been reported at concentrations ranging from 35 to 190 mg/L as nitrate (as nitrate) in the Rock Plant-1 well. Nitrate has typically not been detected in the other monitoring wells, including the background well. These data indicate a violation of the Groundwater Limitation of WDRs Order No. R5-2003-0116, which states “The discharge shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than natural background water quality.” If the Discharger does not meet the “benchmark dates” described above, then it is required to investigate and mitigate the apparent nitrate degradation.

### **pH Effluent Limitation for the Ready-Mix Pond**

17. Provision F.1.c of Order No. R5-2003-0116 requires that the Discharger certify implementation of a treatment system to ensure compliance with the pH limitations for wastewater discharged to the Ready-Mix Pond by 30 September 2003. Despite issuance of a Notice of Violation and verbal enforcement, the Discharger has not complied with this requirement. In lieu of treating the effluent to comply with the pH limitation, the Discharger now proposes to construct a containment system for the Ready-Mix pond.

**Groundwater Degradation Beneath the Ready-Mix Pond**

18. On 30 January 2004, the Discharger submitted the Monitoring Well Installation Report for the Ready-Mix Pond and site background monitoring wells. The report included the results of the first groundwater sampling event for the new wells. The analytical data for the Ready-Mix Pond wells demonstrated that concentrations of hexavalent chromium in groundwater exceed the apparent background concentrations, indicating groundwater degradation from hexavalent chromium. The Discharger voluntarily performed monthly sampling and analysis of groundwater samples from the Ready-Mix Pond monitoring wells and the site background well for three consecutive months (January through March 2004). The groundwater elevation data obtained during that period indicate that the monitoring well designated as Ready Mix-3 was consistently downgradient from Ready Mix-2 and Ready Mix-1, and that the gradient was induced or strongly influenced by operation of a supply well approximately 250 feet from Ready Mix-3. The following table summarizes groundwater monitoring data for select constituents since installation of the Ready Mix Pond monitoring wells.

Constituent/Sampling Date	Analytical Result (ug/L except as noted)			
	Background-1	Ready Mix-1	Ready Mix-2	Ready Mix-3
TDS, mg/L				
December 2003	690	480	390	270
January 2004	690	460	360	270
February 2004	690	520	420	290
March 2004	680	310	460	490
Total chromium (dissolved)				
December 2003	<20	<20	<20	22
January 2004	<20	22	<20	<20
February 2004	<1	1.3	3.6	23
March 2004	<1	<1	--	18
Hexavalent chromium (dissolved)				
December 2003	<1	1.4	3.3	21
January 2004	<1	<1	2.4	22
February 2004	<1	1.1	3.6	21
March 2004	<1	1	--	27

These data provide evidence of groundwater degradation by hexavalent chromium, and possibly by total chromium, both of which are known to be present in the concrete wastewater but which are not known to be present in background groundwater. Specifically, the hexavalent chromium concentration in the downgradient well is 21-27 ug/L compared to less than 1 ug/L in the site background well and <1 to 3.3 ug/L in the wells upgradient of the Ready-Mix Pond. These data indicate a violation of the Groundwater Limitation of WDRs Order No. R5-2003-0116, which

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

19. This Order requires that the Discharger implement the proposed improvements to contain concrete wastewater and further investigate soil and groundwater conditions beneath the Ready-Mix Pond. The Discharger has submitted an acceptable Design Basis Memorandum for a lined Ready-Mix Pond.

### **Mercury in the Minerals Lab Septic Tank**

20. Prior to adoption of the current WDRs, the Discharger tested the liquid and solid wastes in the Minerals Lab septic tank and found that mercury was present in high concentrations. Specifically, the septic tank effluent had a total mercury concentration of 2,700 ug/L (compared to the OEHHA Public Health Goal in drinking water of 1.2 ug/L). The septic tank scum had a mercury concentration of 140 mg/Kg. Based on the Total Threshold Limit Concentration of 20 mg/Kg set forth in Section 66261.24 of Title 22 of the California Code of Regulations, the septic tank scum is a hazardous waste, and the discharge is therefore a violation of the WDRs.
21. Provisions F.1.e and F.1.g of Order No. R5-2003-0116 require that the Discharger perform the following:
  - a. An investigation of the Minerals Lab plumbing system and septic system to identify and eliminate potential mercury contamination; and
  - b. A subsurface investigation to assess whether discharges of septic tank effluent to the Minerals Lab seepage pit caused soil contamination that poses a threat to groundwater quality.
22. On 18 December 2003, the Discharger notified staff that 22 pounds of mercury were discovered during inspection of the Minerals Lab plumbing system. The Minerals Lab Septic Tank Sampling and Industrial Discharge Elimination Interim Report was received on 16 January 2004. The report disclosed that, in addition to the free mercury found in the plumbing system, most of the p-traps within the Minerals Lab plumbing system contained sediment contaminated with mercury, and that the Minerals Lab septic tank solids were again contaminated with mercury despite having been cleaned out prior to adoption of the WDRs.
23. During the 17 March 2004 meeting with the Discharger, staff informed the Discharger that no further work on the Minerals Lab plumbing system should be performed pending discussion with Regional Board management.
24. On 30 March 2004, the Discharger submitted the Minerals Lab Seepage Pit Investigation and Mitigation Report. The investigation did not comply with the approved workplan in that the single investigative soil boring was located 20 feet from the seepage pit. However, analytical data for a soil sample obtained at approximately 28 feet below the ground surface (bgs) contained 0.24 ug/L of leachable mercury (as measured by the Waste Extraction Test using septic tank effluent as the extractant). Relatively high concentrations of leachable lead and nickel were also reported for that sample. Soil samples obtained from above and below that level reportedly contained significantly lower concentrations of these metals. The base of the seepage pit is reportedly 30 feet bgs,

indicating that the elevated metals concentrations at 28 feet bgs may have resulted from discharges of metals to the septic system.

25. This Order requires the Discharger to investigate soil and groundwater conditions beneath and around the Minerals Lab septic tank and seepage pit.

### **Regulatory Considerations**

26. The Regional Board's Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan) designates beneficial uses, includes water quality objectives to protect the beneficial uses, and includes implementation plans to implement the water quality objectives.
27. The Basin Plan contains narrative and numeric water quality objectives for groundwater. The Basin Plan includes the "Chemical Constituents" numeric water quality objective that incorporates state drinking water standards by reference. The Chemical Constituents objective prohibits concentrations of chemical constituents in excess of California Maximum Contaminant Levels (MCLs) in groundwater that is designated as municipal or domestic supply. The groundwater beneath the facility is designated for municipal or domestic supply. The California primary MCL for nitrate is 45 mg/L as nitrate. The California primary MCL for total chromium is 50 ug/L. There is no MCL for hexavalent chromium. However, the Basin Plan also includes the narrative "Toxicity" water quality objective that is implemented consistent with the Basin Plan's "Policy for Application of Water Quality Objectives" (Policy). Based on the Toxicity objective and the Policy, the water quality objective for hexavalent chromium in groundwater is 21 ug/L. The applicable objective is the most stringent objective necessary to protect all the beneficial uses. Therefore, the water quality objectives for nitrate, total chromium and hexavalent chromium in groundwater are 45 mg/L, 50 ug/L and 21 ug/L, respectively.
28. As a result of the events and activities described in this Order, the Discharger has caused or permitted waste to be discharged in such a manner that it has created, or threatens to create, a condition of pollution or nuisance and potential public health threat. As described in Findings 11 through 23, the discharge of concrete wastewater has caused the groundwater to exceed or threaten to exceed the applicable water quality objective for hexavalent chromium of 21 ug/L based on the Toxicity objective. Additionally, the discharge of domestic wastewater to the Rock Plant septic system has caused the groundwater to exceed or threaten to exceed the MCL for nitrogen of 45 mg/L as nitrate. Exceedance of the applicable water quality objectives for hexavalent chromium and for nitrogen set forth in the Basin Plan constitutes pollution as defined in California Water Code Section 13050.
29. The Discharger has caused waste to be discharged in violation of waste discharge requirements. Discharges of waste that have caused waste constituents concentrations in the groundwater to exceed natural background concentrations violate the Groundwater Limitation of WDRs Order No. R5-2003-0116, which states "The discharge shall not cause underlying groundwater to contain waste constituents in concentrations statistically greater than natural background water quality."
30. Surface water drainage from the area of the facility is to the American River and Morrison Creek. The beneficial uses of the American River as stated in the Basin Plan 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 as stated in the Basin Plan 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.

31. The beneficial uses of the underlying groundwater as stated in the Basin Plan are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
32. The State Water Resources Control Board (hereafter State Board) has adopted Resolution No. 92-49, the *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*. This Policy sets forth the policies and procedures to be used during an investigation or cleanup of a polluted site and requires that cleanup levels be consistent with State Board Resolution 68-16, the *Statement of Policy With Respect to Maintaining High Quality of Waters in California*. Resolution 92-49 and the Basin Plan establish the cleanup levels to be achieved. Resolution 92-49 requires the waste to be cleaned up to background, or if that is not reasonable, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with Title 23, California Code of Regulations (CCR) Section 2550.4. Any alternative cleanup level to background must (1) be consistent with the maximum benefit to the people of the state; (2) not unreasonably affect present and anticipated beneficial use of such water; and (3) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Board.
33. Chapter IV of the Basin Plan contains the *Policy for Investigation and Cleanup of Contaminated Sites*. This policy sets forth the implementation policy to achieve compliance with the Basin Plan water quality objectives and is based on Water Code Sections 13000 and 13304, the Title 27 California Code of Regulations, Division 2, Subdivision 1 regulations, and State Board Resolution Nos. 68-16 and 92-49. The policy includes site investigation, source removal or containment, information required to be submitted for consideration in establishing cleanup levels, and the bases for establishment of soil and groundwater cleanup levels.
34. The State Board adopted the *Water Quality Enforcement Policy*, which states in part: "At a minimum, cleanup levels must be sufficiently stringent to fully support beneficial uses, unless the RWQCB allows a containment zone. In the interim, and if restoration of background water quality cannot be achieved, the C&A Order should require the discharger(s) to abate the effects of the discharge. Abatement activities may include the provision of alternate water supplies."  
(Enforcement Policy, p. 19.)
35. Section 13304(a) of the California Water Code provides that: "Any person who has discharged or discharges waste into waters of this state in violation of any waste discharge requirements or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the water of the state, and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board clean up the waste or abate the effects of the waste, or, in case of threatened pollution or nuisance, take other necessary remedial action, including but not limited to, overseeing cleanup and abatement efforts. Upon failure of any person to comply with the cleanup or abatement order, the Attorney General, at the request of the board, shall petition the superior court for that county for the issuance of an injunction requiring the person to comply with the order. In the

suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant.”

36. Section 13267(b) of the California Water Code states: “ In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters 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 report 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.”
37. Technical reports required in this Order pursuant to California Water Code section 13267 are required to ensure compliance with this Order and WDRs Order No. R5-2003-0116, and to ensure protection of groundwater quality. The Discharger owns the property and operates the facility identified in this Order and is responsible for activities on this property that have resulted in the discharge of waste
38. The issuance of this Order is an enforcement action by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act (CEQA), pursuant to Section 15321(a)(2), Title 14, California Code of Regulations.
39. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board (State Board) to review the action in accordance with Section 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Board within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions are available at [http://www.swrcb.ca.gov/water\\_laws/cawtrcde/wqpetition\\_instr.html](http://www.swrcb.ca.gov/water_laws/cawtrcde/wqpetition_instr.html) and will also be provided upon request.

**IT IS HEREBY ORDERED** that, pursuant to Sections 13304 and 13267 of the California Water Code, Teichert Aggregates shall cleanup waste and abate the condition of pollution or nuisance caused by discharge of waste, and provide a network of groundwater monitoring wells sufficient to detect potential groundwater degradation from all past and current waste discharges at Perkins Plant facility in accordance with the scope and schedule set forth below. Compliance with this Order shall include, but may not be limited to, the following measures:

1. By **30 September 2004**, the Discharger shall submit a *Septic System Groundwater Monitoring Summary Report* and a *Revised Septic System Monitoring Well Installation Workplan*. The report shall include the following
  - a. A facility site map depicting current topography, all ponds and septic systems, paved roads, and the locations of all monitoring and supply wells. The site map shall be printed at a scale of no less than 1 inch equals 200 feet.
  - b. A description of the construction of each water supply well, typical pumping rates and typical pumping schedules.



- c. A tabular summary of all groundwater monitoring data for all existing septic system monitoring wells and the facility background well.
  - d. A groundwater elevation contour map for each monitoring event completed to date. The scale of these maps shall be no less than 1 inch equals 200 feet.
  - e. A detailed discussion of observed groundwater gradients, and the influence of well pumping and unlined ponds on those gradients.
  - f. Based on the above, for each existing septic system, a detailed discussion of whether the existing monitoring well network is adequate to detect potential release of wastewater constituents into the first groundwater encountered beneath the effluent disposal system.
  - g. A monitoring well installation workplan that is prepared in accordance with the requirements set forth in WDRs Order No. R5-2003-0116 and that completely addresses Regional Board staff's comments on the previous workplan, which were transmitted on 16 September 2003.
2. Installation of the septic system monitoring wells shall be deferred if the following progress dates for connection to the sanitary sewer system are met:
    - a. By **30 September 2004**, the Discharger shall submit a copy of the written evidence of agreement ("will serve" letter) by the Sacramento County Regional Sanitation District to allow connection to the sanitary sewer system.
    - b. By **30 May 2005**, the Discharger shall submit a copy of the final permit from the Sacramento County Regional Sanitation District showing acceptance of the Discharger's application and fees.
    - c. By **15 June 2006**, the Discharger shall have connected to the sanitary sewer system and shall have ceased discharge into each of the individual septic systems.
  3. In the event that the Discharger does not meet any of the progress dates in Item No. 2, above, and after Regional Board staff concurrence with the *Revised Septic System Monitoring Well Installation Workplan*, then the Discharger shall install the monitoring wells described in that work plan and shall submit a *Septic System Monitoring Well Installation Report of Results* no later than **90 days** after the first unsatisfied progress date. The *Report of Results* shall be prepared in accordance with the requirements set forth in WDRs Order No. R5-2003-0116 and in Attachment D.
  4. In the event that the Discharger does not meet any of the progress dates in Item No. 2, above, then within **90 days** after the first unsatisfied progress date, the Discharger shall submit a *Rock Plant Septic System Groundwater Investigation Workplan*. The workplan shall contain a detailed scope of work for an investigation of soil and groundwater designed to define the nature and extent of waste constituents in soil and groundwater, including nitrogen and other sewage constituents. The workplan shall comply with the requirements set forth in Attachment B.
  5. The Discharger shall reimburse the Regional Board for reasonable costs associated with oversight of the cleanup of this facility. By **15 September 2004**, the Discharger shall provide the name and address where the invoices shall be sent. Failure to provide a name and address for invoices and/or

failure to reimburse the Regional Board's reasonable oversight costs shall be considered a violation of this Order.

6. By **30 September 2004**, the Discharger shall submit a *Concrete Wastewater Containment System Design Report*. The report shall describe in detail the proposed engineered design for repairs and retrofits to the concrete wash pad area to ensure capture of all concrete wash water and, for the Ready-Mix pond, an engineered liner system to completely contain all concrete wastewater. The report shall include a detailed Construction Quality Assurance Plan. The following design criteria shall apply, and the report shall demonstrate that the improvements have been designed to comply with them:
  - a. The truck wash pad shall be designed to ensure that all wastewater is completely contained within the paved pad and discharged to the lined pond.
  - b. The truck wash pad shall be free of cracks, unsealed joints or other defects that allow percolation of wastewater to the underlying soil.
  - c. The pond liner system shall be impervious to water and shall provide an engineered leak detection system.
  - d. The lined pond shall provide sufficient capacity to ensure that at least one foot of freeboard is maintained at all times.
  - e. The lined pond shall be designed to provide sufficient storage to contain direct precipitation and runoff from the pad generated throughout the year during the 100-year, 365-day design storm event.
  - f. The lined pond shall be designed to provide sufficient storage to contain direct precipitation and runoff from the pad generated during the 100-year, 24-hour storm event.

The report shall include all of the information contained in Attachment C.

7. By **30 April 2005**, the Discharger shall submit a *Concrete Wastewater Containment System Completion Report*. The report shall thoroughly and completely describe the construction of the subject improvements. It shall include stamped record drawings prepared by the engineer of record and a detailed Construction Quality Assurance Report to document implementation of the approved Construction Quality Assurance Plan. The report shall also completely and thoroughly describe any modifications to the approved design and provide an explanation and justification for any such modifications.
8. By **30 October 2004**, the Discharger shall submit a *Ready-Mix Pond Site Soil and Groundwater Investigation Workplan*. At a minimum, the workplan shall set forth the following:
  - a. A complete description of all historical discharges of solid and liquid waste from the ready-mix plant;
  - b. A detailed description of all current and historical waste discharge areas associated with these wastes (including scaled maps depicting pond(s) and solid deposition areas);

- c. A detailed scope of work for investigation of soil and groundwater designed to define the nature and extent of waste constituents in soil and groundwater, including chromium and other constituents associated with ready-mix concrete; and
- d. A detailed scope of work for assessing the potential for residual waste constituents in the vadose zone to cause degradation of the underlying groundwater.

The Workplan shall comply with the requirements set forth in Attachment B.

9. Following concurrence of Regional Board staff with the *Ready-Mix Pond Site Soil and Groundwater Investigation Workplan* and by **30 April 2005**, the Discharger shall submit a *Ready-Mix Pond Site Soil and Groundwater Investigation Report* that provides details of the investigation performed pursuant to Task 5 of this Order. The report shall comply with the requirements set forth in Attachment D.
10. By **30 August 2005**, the Discharger shall submit a *Ready-Mix Pond Site Remediation Plan*. The report shall comply with the requirements set forth in Attachment E.
11. By **30 November 2004**, the Discharger shall submit a *Minerals Lab Soil and Groundwater Investigation Workplan*. At a minimum, the workplan shall set forth the following:
  - a. A complete description of all historical operations and historical discharges of solid and liquid waste from the minerals lab;
  - b. A detailed scope of work for investigation of soil and groundwater designed to define the nature and extent of waste constituents in soil and groundwater, including mercury and other constituents associated with the minerals lab; and
  - c. A detailed scope of work for assessing the potential for residual waste constituents in the vadose zone to cause degradation of the underlying groundwater.

The Workplan shall comply with the requirements set forth in Attachment B.

12. Following concurrence of Regional Board staff with the *Minerals Lab Soil and Groundwater Investigation Workplan*, by **30 May 2005**, the Discharger shall submit a *Minerals Lab Soil and Groundwater Investigation Report* that provides details of the investigation performed pursuant to Task 10 of this Order. The report shall comply with the requirements set forth in Attachment D.
13. By **30 September 2005**, the Discharger shall submit a *Minerals Lab Soil and Groundwater Remediation Plan*. The report shall comply with the requirements set forth in Attachment E.
14. Beginning with the **Third Quarter 2004**, the Discharger shall submit quarterly progress reports describing the work accomplished to date to comply with this Order. The progress reports are due the first day of the second month following the end of the quarter (i.e., by **1 February, 1 May, 1 August, and 1 November**). The Third Quarter 2004 report is due by 1 November 2004.

In addition to the above, the Discharger shall comply with all applicable provisions of the California Water Code that are not specifically referred to in this Order. As required by the California Business

and Professions Code Sections 6735, 7835, and 7835.1, all of the required technical reports shall be prepared by, or under the supervision of, a California Registered Engineer or Registered Geologist and signed by the registered professional.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability.

Failure to comply with this Order may result in the assessment of an Administrative Civil Liability up to \$1,000 or up to \$10,000 per day of violation, depending on the violation, pursuant to the California Water Code, including sections 13268, 13271, and 13350. The Regional Board reserves its right to take any enforcement actions authorized by law.

This Order is effective upon the date of signature.

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THOMAS R. PINKOS, Executive Officer

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(Date)

ALO: 8-Sep-04

## ATTACHMENT A

### NON-COMPLIANCE CHRONOLOGY CLEANUP AND ABATEMENT ORDER NO. R5-2004-0713 TEICHERT AGGREGATES PERKINS PLANT SACRAMENTO COUNTY

The Regional Board adopted revised WDRs (Order No. R5-2003-0116) on 11 July 2003. The following is a chronology of non-compliance with the WDRs that lead to issuance of this C&A Order.

#### **Failure to Comply with pH Effluent Limitation**

Provision F.1.c of Order No. R5-2003-0116 requires that the Discharger certify implementation of a treatment system to ensure compliance with the pH limitation for wastewater discharged to the Ready-Mix Pond by 30 September 2003.

- a. On 1 October 2003, staff received a letter from the Discharger stating that it would not be able to comply with the due date. The Discharger stated that it was researching alternative pH control systems.
- b. On 21 October 2003, staff issued a Notice of Violation, requiring the Discharger to submit the report within 90 days to avoid further enforcement.
- c. On 19 November 2003, staff met with the Discharger to discuss outstanding technical reports. Staff informed the Discharger that it must proceed with implementing pH control for the Ready-Mix Pond until the designated waste determination was completed.
- d. On 26 January 2004, the Discharger informed staff that it had made no progress toward completion of the pH control system for the Ready-Mix Pond.
- e. On 17 March 2004, the Discharger voluntarily submitted a Design Basis Memorandum for a system to completely contain all concrete wastewater. Staff requested that the Discharger take no further action pending issuance of a Cleanup and Abatement Order.

#### **Failure to Comply with Requirement to Monitor Groundwater at all Discharge Areas**

Provision F.1.a of Order No. R5-2003-0116 requires that the Discharger submit a Monitoring Well Installation Workplan by 30 August 2003. The workplan was to propose details for installation of a background monitoring well, at least one additional downgradient well for each septic system, and at least three wells to monitor the Ready-Mix Pond.

- a. On 5 September 2003, the Discharger submitted the Monitoring Well Installation Workplan. The workplan was not adequate.
- b. On 16 September 2003, staff transmitted its comments and required the Discharger to submit a revised workplan by 20 October 2003. The revised workplan was not received by the specified due date.

- c. During the 19 November 2003 meeting with the Discharger, staff informed the Discharger that it must proceed with installation of the background monitoring well and monitoring wells for the Ready-Mix Pond and commit to either monitoring groundwater at the septic systems or connecting them to the sanitary sewer by 30 November 2003.
- d. On 25 November 2003, the Discharger submitted an addendum to the Monitoring Well Installation Workplan. The addendum did not address the need for additional wells to monitor the septic systems.
- e. On 26 January 2004, the Discharger informed staff that no commitment had been made with regard to connecting the septic systems to the sanitary sewer.
- f. As of the date of this Order, the Discharger has not satisfactorily addressed staff's comments on the workplan, but has continued to pursue connection to the community sewer. It appears that permission to connect may be forthcoming and the Discharger reportedly prefers to connect to the community sewer.

### **Groundwater Degradation**

The Groundwater Limitations of the WDRs prohibit degradation of groundwater quality.

- a. On 30 January 2004, the Discharger submitted the Monitoring Well Installation Report for the Ready-Mix Pond and site background monitoring wells. The report included the results of the first groundwater sampling and analysis for the new wells. The analytical data for the Ready-Mix Pond wells showed clear evidence of groundwater degradation from hexavalent chromium.
- b. On 17 March 2004, staff met with the Discharger to discuss the Ready-Mix Pond groundwater monitoring results. In response to staff's stated concerns about the groundwater monitoring results, the Discharger submitted a draft Design Basis Memorandum for a lined Ready-Mix Pond, which would be operated as a recycling sump.
- c. On 30 April 2004, the Discharger submitted the first quarterly monitoring report for the year 2004. The report included analytical results for three consecutive monthly sampling events voluntarily performed in January, February, and March 2004. The analytical data for hexavalent chromium appear to support the evidence noted in the December 2003 monitoring data.
- d. Groundwater analytical data for the monitoring well downgradient of the Rock Plant septic system consistently show nitrate nitrogen concentrations significantly in excess of the apparent background concentration.

### **Discharge of Hazardous and/or Designated Waste**

Provisions F.1.e and F.1.g of Order No. R5-2003-0116 require that the Discharger investigate the Minerals Lab plumbing system and septic system to identify and eliminate potential mercury

contamination and investigate to assess whether discharges of septic tank effluent to the Minerals Lab seepage pit caused soil contamination that poses a threat to groundwater quality.

- a. On 18 December 2003, the Discharger notified staff that 22 pounds of free mercury were discovered in the drain inlet in the former retort room.
- b. The Minerals Lab Septic Tank Sampling and Industrial Discharge Elimination Interim Report was received on 16 January 2004. The report disclosed that, in addition to the free mercury found in the plumbing system:
  - i. Most of the p-traps within the Minerals Lab plumbing system contained sediment contaminated with mercury;
  - ii. The laboratory sinks and a former retort room discharged directly into one of the aggregate wash water settling ponds; and
  - iii. The Minerals Lab septic tank solids were again contaminated with mercury despite having been cleaned out prior to adoption of the WDRs.

The report stated that the sediments, mercury and amalgam were removed from the p-traps, and that the septic tank and sewer lines were pressure washed. The report proposed a cleanup plan.

- c. During the 17 March 2004 meeting with the Discharger, staff expressed concern about the findings of the Minerals Lab Septic Tank Sampling and Industrial Discharge Elimination Interim Report and informed the Discharger that no further work on the Minerals Lab plumbing system should be performed pending discussion with Regional Board management. Staff also informed the Discharger that monitoring wells must be installed to monitor groundwater beneath the Minerals Lab seepage pit.
- d. Based on the content of Minerals Lab Septic Tank Sampling and Industrial Discharge Elimination Interim Report, staff referred the matter to the Department of Toxic Substances Control for evaluation and possible investigation/remediation on 18 March 2003.
- e. On 30 March 2004, the Discharger submitted the Minerals Lab Seepage Pit Investigation Report. The report is inadequate because the Discharger did not follow the approved workplan. Therefore, the conclusions presented in the report are not supported and further investigation is needed.
- f. On 13 July 2004, DTSC staff informally informed Regional Board staff that it would not require further site investigation.

## ATTACHMENT B

### REQUIREMENTS FOR SOIL AND GROUNDWATER INVESTIGATION WORKPLANS CLEANUP AND ABATEMENT ORDER NO. R5-2004-0713 TEICHERT AGGREGATES PERKINS PLANT SACRAMENTO COUNTY

The outline below is a minimum requirement for items to be included and discussed in the text of all site assessment work plans submitted to the Regional Board. All work plans must be signed by a registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California. Other pertinent information specific to each individual investigation also should be included.

#### I. **BACKGROUND**

##### A. *Site History*

State all operations conducted at the site.

Identify present and historic chemical usage and handling procedures.

List all chemical spills and their disposition.

Identify all past and present above ground and under ground tank locations.

Identify tank capacities and other specifications as necessary.

Identify tank contents, past and present.

Submit all records of tests or repairs on fuel lines and tanks.

Identify locations of maintenance shops, chemicals used in the shops, method of chemical storage and disposal.

##### B. *Topographic map of site vicinity showing:*

All natural and man-made drainage features including ditches and surface impoundments, and the drainages destination;

Utilities, especially storm drain system;

Location of existing monitoring wells, including those installed by other parties;

Location of above ground and underground storage tanks, other waste-handling facilities, and/or spill site;

Location of a major body of water relative to the site;

Location of any nearby private, municipal, or irrigation wells; and

Other major physical and man-made features.

##### C. *Geology/Hydrogeology*

Include proposal for logging of boreholes and characterizing site geology, and identifying unconfined or confined aquifers and contaminant flow paths.

#### II. **PREVIOUS SITE ASSESSMENTS**

Provide a detailed description of any previous site assessment conducted to determine if there is any soil or ground water contamination. Include analytical results of all soil and water samples analyzed, and water level and floating product measurements.



**III. FIELD INVESTIGATION**

A. *General*

Monitoring well locations and rationale  
Survey details  
Equipment decontamination procedures  
Health and safety plan

B. *Drilling Details*

Describe drilling and logging methods

C. *Monitoring Well Design*

Casing diameter  
Borehole diameter  
Depth of surface seal  
Well construction materials  
Diagram of well construction  
Type of well cap  
Size of perforations and rationale  
Grain size of sand pack and rationale  
Thickness and position of bentonite seal and sand pack  
Depth of well, length and position of perforated interval

D. *Well Development*

Method of development to be used  
Method of determining when development is complete  
Method of development water disposal

E. *Soil Sampling*

Cuttings disposal method  
Analyses to be run and methods  
Sample collection and preservation method  
Intervals at which soil samples are to be collected  
Number of soil samples to be analyzed and rationale  
Location of soil samples and rationale  
QA/QC procedures

F. *Well Sampling*

Minimum time after development before sampling (48 hours)  
Well purging method and amount of purge water  
Sample collection and preservation method  
QA/QC procedures

G. *Water Level Measurement*

Elevation reference point at each monitoring well shall be within 0.01 foot. Ground surface elevation at each monitoring well shall be within 0.1 foot. Method and time of water level measurement shall be specified.

IV. **QA/QC PROCEDURES**

Specify number of field blanks and duplicates.

## ATTACHMENT C

### REQUIREMENTS FOR CONCRETE WASTEWATER CONTAINMENT SYSTEM DESIGN REPORT CLEANUP AND ABATEMENT ORDER NO. R5-2004-0713 TEICHERT AGGREGATES PERKINS PLANT SACRAMENTO COUNTY

The Design Report shall include, at a minimum, the following:

1. Copies of the engineer's drawings depicting the details of all proposed construction.
2. A copy of the construction specifications.
3. Description of engineered liner. This description must state the material and thickness selected, rationale for selection, and design rationale. Provide special construction specifications for liner subgrade preparation, liner installation, liner seams, and liner protection material placement. The design drawings must clearly depict appropriate liner anchorage systems; and locations of, and construction details for, pipe boots.
4. A Construction Quality Assurance (CQA) Plan that sets forth a detailed program of inspection and testing to ensure that the liner system is constructed as designed and is free from defects whether the result of manufacture or damage during installation. At a minimum, the CQA Plan shall include the following:
  - a. Procedures for review of the liner manufacturer's quality control data to determine acceptance of the material;
  - b. Procedures for verifying and documenting appropriate shipping, handling, and storage requirements to ensure protection of the liner material prior to installation;
  - c. Procedures for inspection and documentation of final subgrade preparation and acceptance prior to liner installation;
  - d. Procedures for installation of the electrical leak imaging and monitoring system;
  - e. Procedures for inspection and documentation of liner placement, anchorage, and seaming, including trial seams;
  - f. Procedures for testing and documentation of nondestructive testing of all liner seams and penetrations;
  - g. Procedures for identifying and repairing faulty seams and construction damage and documenting the repairs;
  - h. Procedures for testing and documentation of testing of all liner repairs;
  - i. Inspection forms to be used for documenting all of the above and the final inspection for acceptance of the liner system.
5. Design calculations and water balances demonstrating compliance with the specified design criteria. All calculations shall consider typical operating flows, typical operating depth, typical

solids accumulation rates, design direct precipitation, design runoff from the paved wash pad, and typical evaporation rates.

6. Operation and maintenance procedures, particularly with respect to monitoring liner integrity and protecting it from damage after construction is complete. Discuss the expected service life of the lining system.
7. Narrative description of proposed solids disposal practices:
  - a. Method of removal without damaging the liners;
  - b. Method of disposal;
  - c. Frequency of disposal; and
  - d. Disposal site/area name(s) and location(s).

**ATTACHMENT D  
REQUIREMENTS FOR SOIL AND  
GROUNDWATER INVESTIGATION REPORTS  
CLEANUP AND ABATEMENT ORDER NO. R5-2004-0713  
TEICHERT AGGREGATES PERKINS PLANT  
SACRAMENTO COUNTY**

The outline below is a minimum requirement for items to be included and discussed in the text of all site assessment reports submitted to the Regional Board. Other supporting data to be included in the report, either within the text of the report or in appendices, are italicized at the end of each section. All reports must be signed by a registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California. Other pertinent information specific to each individual investigation also should be included.

**I. INTRODUCTION**

Summary of past investigations  
Purpose of the recent investigation  
Scope of the recent investigation  
Time period in which the recent investigation was carried out

**II. SUMMARY**

Number of wells drilled  
Results of soil and water analyses  
Ground water flow direction and gradient  
Possible source determination

**III. FIELD INVESTIGATION**

Well Construction  
Number and depth of wells drilled  
Date(s) wells drilled  
Description of drilling and construction  
Approximate locations relative to facility site(s)

*Supporting Data:*

*A well construction diagram for each well should be included in the report which shows the following details:*

*Total depth drilled  
Depth of open hole (same as total depth drilled if no caving occurs)  
Footage of hole collapsed  
Length of slotted casing installed  
Depth of bottom of casing  
Depth to top of sand pack  
Thickness of sand pack  
Depth to top of bentonite seal  
Thickness of bentonite seal  
Thickness of concrete grout  
Boring diameter  
Casing diameter  
Casing material*

*Size of perforations*  
*Number of bags of sand*  
*Well elevation at top of casing*  
*Depth to ground water*  
*Date of water level measurement*  
*Monitoring well number*  
*Date drilled*  
*Location*

**Well Development**

Date(s) of development of each well  
Method of development  
Volume of water purged from well  
How well development completion was determined  
Method of effluent disposal

*Supporting Data:*

*Field notes from well development should be included in report.*

**Water Sampling**

Date(s) of sampling  
How well was purged  
How many well volumes purged  
Levels of temperature, EC, and pH at stabilization  
Sample collection, handling, and preservation methods  
Sample identification  
Analytical methods used

**Soil Sampling**

Date(s) of sampling  
Sample collection, handling, and preservation method  
Sample identification  
Analytical methods used

**IV. FINDINGS OF THE INVESTIGATION**

**Lithology**

Types of sediments encountered  
Presence, location, and lateral continuity of any significant sand, silt,  
or clay layers  
Any visual signs of contamination

*Supporting Data:*

*Well logs geologic cross-sections should be included in the report.*

Analytical Results of Soil and Ground Water Sampling  
Analytical results of each monitoring well should be summarized

*Supporting Data:*  
*Laboratory analytical sheets*  
*Chain-of-custody forms*

Water Levels  
Static water levels measured when well drilled  
Date(s) of water level measurements  
Water levels determined prior to sampling

*Supporting Data:*  
*Dates of water level measurement, depths to ground water, and ground water elevations should be tabulated and included in the report.*

Ground Water Gradient and Flow Direction  
Ground water gradient and flow direction determined by the investigation should be discussed and compared to the regional gradient and flow direction.

*Supporting Data:*  
*A ground water contour map, drawn to scale, should be provided which shows each well, its ground water elevation, and lines of equal ground water elevation. Ground water gradient and flow direction should be shown on the map. The calculation of the gradient should be included.*

**V. RESULTS OF QA/QC**

QA/QC procedures  
QC sample identification  
Field blank analyses  
Comparison of duplicate sample results

**VI. CONCLUSIONS AND RECOMMENDATIONS**

Note any contamination found  
Identify any suspected source of contamination, if possible  
Recommend any further investigative needs

## **ATTACHMENT E**

### **REQUIREMENTS FOR REMEDIATION PLANS CLEANUP AND ABATEMENT ORDER NO. R5-2004-0713 TEICHERT AGGREGATES PERKINS PLANT SACRAMENTO COUNTY**

The outline below is a minimum requirement for items to be included and discussed in the text of all cleanup plans submitted to the Regional Board. All reports must be signed and stamped by a registered geologist, certified engineering geologist, or civil engineer registered or certified by the State of California. Other pertinent information specific to each individual investigation also should be included.

#### **I. INTRODUCTION**

##### **A. Site Assessment and characteristics**

Site Background

Site description and location

Site history

Historic and current operations conducted at the site correlated to site contamination

Existing and planned use of the site

Present and historic chemical usage and handling procedures

Site geology and hydrogeology

Condition of surface and/or subsurface soil

All previous investigations with reference to relevant documents

##### **B. Nature and Extent of Soil and Groundwater Contamination**

1. Constituents and concentrations, including background concentrations

2. Lateral and vertical extent

3. Site maps to show above, including locations of any groundwater monitoring wells relative to soil and groundwater contamination

#### **II. SUMMARY OF SELECTED REMEDIATION ALTERNATIVE**

Discussion of selected remedial alternative

Discussion of implementation of remedial alternative

Summary of field activities

Summary of bench-scale testing

Summary of aquifer testing

Remedial investigation results

Summary of remedial goals

Compliance with Federal and State regulations, if applicable

#### **III. TREATMENT SYSTEM DESIGN AND IMPLEMENTATION**

Conceptual Model/Remedial Design

Overview

Equipment selection and operation

System schematics (layout, instrumentation, and controls)

Treatment processes



- Construction activities and utility requirements
- Operation, maintenance and performance monitoring
- Start-up sampling and performance monitoring
- Sampling and analysis plan to demonstrate system effectiveness, performance optimization, and long-term operation with respect to achieving cleanup goals
- Potential for off-site migration
- Emission and discharge controls
- Handling and disposal procedures
- Quality assurance/quality control plan

**IV. CLOSURE AND POST-CLOSURE MONITORING**

- Cleanup Strategy
- Field sampling plan for closure and post-closure monitoring
- Long-term operation and maintenance of remedial action measures, if any are needed

**V. TIME SCHEDULE FOR IMPLEMENTATION**