CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2003-025
WDID NO. 6B159007001

REVISED CLOSURE AND POST-CLOSURE WASTE DISCHARGE REQUIREMENTS

FOR

NATIONAL CEMENT COMPANY, LAFARGE CORPORATION AND TEJON RANCH CORPORATION; CEMENT KILN DUST WASTE PILES

Kern County

The California Regional Water Quality Control Board, Lahontan Region (Regional Board) finds:

1. Dischargers

National Cement Company submitted a partial revised Report of Waste Discharge (RWD) dated July 31, 2002 addressing post closure activities for the Cement Kiln Dust (CKD) piles at the Los Robles Cement Plant. Additional information was submitted on February 25, 2003 to complete the revised RWD. Lafarge Corporation (Lafarge) is a prior owner of the Los Robles Cement Plant, which operated the cement plant as General Portland Inc., a subsidiary company of Lafarge. In November 1987, General Portland, Inc. sold the cement plant to National Cement Company (National). Lafarge and National discharged CKD to the CKD Waste Piles at the Los Robles Cement Plant. The discharge of CKD occurs on land owned by the Tejon Ranch Corp. (Tejon). For the purposes of this Regional Board Order (Order), Lafarge, National and Tejon are referred to individually and collectively as the "Dischargers."

As the landowner, Tejon is a responsible party for the discharge of CKD and any condition or threatened condition of pollution or nuisance resulting from the discharge. Naming Tejon as a Discharger in this Order is consistent with past determinations by Regional Boards and the State Water Resources Control Board (SWRCB) in naming landowners as Dischargers. Hereinafter, the term "Dischargers" will be used to incorporate the scheme of primary and secondary responsibility for activities required by this Order as follows; 1) primary responsibility for National and secondary responsibility for Tejon and Lafarge to implement the Post-Closure and Corrective Action Program (CAP) Requirements of this Order. If National fails to meet the requirements of this Order, with respect to Post-Closure and CAP Requirements, the Regional Board will next look to Lafarge to meet and/or complete such requirements. If Lafarge and National fail to meet the requirements of this Order, the Regional Board will look to Tejon to meet and/or complete the requirements of this Order. Before a secondarily responsible party is required to meet and/or complete such requirements, that party will be informed of such requirements in writing by the Regional Board's Executive Officer, and a new time schedule for compliance with such requirements will be formally established.

2. CKD Waste Pile

The CKD Waste Pile is the Facility addressed by these Post Closure Requirements. The CKD Waste Pile is comprised of the North and South CKD Waste Piles. The North CKD Waste Pile received and stored CKD waste placed by General Portland, Inc. The South CKD Waste Pile received CKD waste placed by General and National. The North and South CKD Waste Piles are adjacent, have been closed as a single unit. An alternate cover design was approved by the Board in Board Order No. 6-00-35 and installed by LaFarge Corporation. The closed waste management unit, for the purposes of this Order, is referred to as the Facility. The Facility is shown on Attachment "A", which is made a part of this Order.

3. Order History

The Regional Board previously revised Waste Discharge Requirements (WDRs) for the South CKD Waste Piles by Board Order No. 6-97-98 which was adopted on October 9, 1997. On October 9, 1997, the Regional Board also adopted Cease and Desist Order (CDO) No. 6-97-100 and Cleanup and Abatement Order (CAO) No. 6-97-99 for corrective action of ground water pollution at the North and South CKD Waste Piles. Board Order No. 6-00-35, adopted May 10, 2000, established a CAP pursuant to the requirements of Title 27, California Code of Regulations (Title 27) and closure requirements. Board Order No. 6-00-35 also rescinded Board Order No. 6-97-98 and CAO No. 6-97-99. This Order establishes Post-Closure Requirements and requires continuation of the CAP for the Facility.

4. Reason for Action

The Regional Board is revising these WDRs to: 1) prescribe Post-Closure Requirements for the Facility and assign primary responsibility from Lafarge to National; 2) implement the Water Quality Protection Standard (WQPS) for the Facility and 3) include continued implementation and maintenance of the CAP as part of the Post-Closure Maintenance Program.

5. Facility Location

The Facility is located approximately 10 miles east of the community of Lebec, Kern County, within Sections 35 and 36, T9N, R18W, SBB&M, as shown on Attachment "A."

6. Description of the Facility

CKD is a byproduct of cement production that was collected in a baghouse at the Cement Plant. When CKD is leached with deinonized water, the resultant liquid has a pH greater than 12.5 pH units and contains elevated concentrations of potassium, chloride, sulfate, calcium, and total dissolved solids (TDS). Also present in CKD are detectable concentrations of chromium, lead, and zinc, and these concentrations are below the total and soluble threshold limits for hazardous waste as defined in Title 22, California Code of Regulations (Title 22). The Facility has not received CKD since December 31, 1999.

7. Water Quality Protection Standard (WQPS)

The WQPS consists of constituents of concern (COCs) (including indicator parameters), concentration limits, the point of compliance and monitoring points. The standard applies over the active life of the Facility, closure and post-closure maintenance period, and compliance period. The COCs, monitoring points, and point of compliance are described in Monitoring and Reporting Program No. R6V-2003-025, which is attached to and made a part of this Order.

a. Concentration Limits

The Dischargers have proposed to calculate the concentration limits by a parametric tolerance limit method for the indicator parameters from sample points using an intra-well comparison monitoring strategy. If a lower concentration limit is calculated, the concentration limit will be modified accordingly and presented in the next required periodic monitoring report.

b. Tolerance Limits

Tolerance limits for indicator parameters will be calculated for ground water, unsaturated zone and surface water sampling points on an annual basis. The Dischargers have revised the tolerance limits as concentration limits representative of background water quality using the intrawell comparison method for each COC. The tolerance limits and reduction triggers are described in Monitoring and Reporting Program No. R6V-2003-025.

c. Detection Monitoring

Continued Detection Monitoring is necessary for detecting if any new releases to the ground water and/or surface water have occurred. Data points falling outside the statistical range of the background distribution for individual sample points will require the Dischargers to conduct "Verification Procedures", as defined in Section III Data Analysis, Subsection B of this Order.

8. Corrective Action Program

The CAP strategy developed to restore ground water quality can generally be described as follows: (1) control of stormwater which previously ponded immediately adjacent to the CKD Waste Piles; (2) diversion of spring water away from the CKD Waste Piles to lower the ground water table; (3) establishing the fully developed vegetated cover as part of the final CKD Waste Piles closure and providing certification by a California Registered Engineer of compliance with Title 27, Article 2, Section 21090 before transitioning it to post-closure monitoring and maintenance and, (4) continued ground water, surface water, and unsaturated zone corrective action monitoring to evaluate the effectiveness of the CAP. The attached Monitoring and Reporting Program requires the Dischargers to submit, as part of the annual report, a summary of the effectiveness of the CAP in restoring water quality. The Dischargers have completed the cover installation and final grading, diverted the up-gradient surface flow and installed drainage controls around the western edge of the

Facility, constructed water bars along the southern slope of the Facility, and planted erosion resistant vegetation on the Facility cover and slope areas.

a. Corrective Action Monitoring

The Dischargers have conducted an investigation of the surface water portion of the Dark Gully watershed and determined that no releases to the surface water have occurred. Data contained in the report do not indicate evidence of a release. Continued ground water and surface water monitoring will be used to evaluate the effectiveness of corrective action and verify that COC concentrations in ground water are approaching background. The target cleanup levels for the Facility are pre-existing background water quality.

b. Evidence of Release

If the WQPS sampling data is above the tolerance limits for any single indicator, the Dischargers will conduct "Verification Procedures", as defined in Section III Data Analysis, Subsection B of this Order. If two consecutive COC levels demonstrate an increasing trend, "Verification Procedures" will also be conducted. If it is determined that a new release has occurred, the Dischargers will implement an Evaluation Monitoring Program and revise the CAP if necessary.

9. Site Geology

The Facility is located in a heavily faulted region. The San Andreas and Garlock fault systems intersect approximately 10 miles to the west. The Facility is located in a graben created by two west-east trending normal faults. The Range Front Fault zone bounds the north side of the graben and the Pinyon Hill Fault bounds the south side of the graben. The respective faults are located within a few hundred feet of the north and south limits of the Facility.

Typical rock formation in the area are marble and granitic basement rocks with detrital material derived from these rocks. The upper 50 feet of the subsurface materials consist predominantly of clays and sandy clays with trace amounts of fine to course gravels, with interlayers of clayey sand and sand. The clayey sand and sand layers were generally 6-in. to 2-ft thick in the upper 40 feet. Weathered bedrock was also described at 24.5 ft.

10. Site Hydrogeology

Ground water beneath the facility occurs in fractured bedrock, in alluvial and colluvial sediments, and in recent fluvial deposits. Previous studies identified three aquifers in the vicinity of the Facility, which were informally referred to as the Fault Zone, Oaks, and Crusher aquifers. The conceptual hydrogeologic model of the area was revised in June 1999 to reflect the influence of the geologic structure on the hydrogeology in the vicinity of the Facility. Ground water occurrence can be divided into three distinct hydrogeologic regimes in the vicinity of the Facility: (1) fractured Paleozoic metamorphosed limestone and dolomites and Mesozoic granitic rocks; (2) alluvium and colluvium derived from adjacent bedrock; and (3)

fluvial deposits along incised, intermittent drainages. These regimes are separated by the Range Front Fault to the north and the Pinyon Hill Fault to the south.

At the northern portion of the disposal site ground water occurs in the fractured bedrock at a depth of 27 to 43 feet below ground surface. Ground water flow in the vicinity of the Facility is generally to the southeast. Ground water surfaces at the southern end of the site in springs S2B and S3 and displays artesian head in well P1 as a result of the damming effect of the Pinyon Hill Fault to ground water movement. The water discharging from the Graben Aquifer at these springs and seeps then flows as perennial surface flow south of the Pinyon Hill Fault in the Oaks and Dark Gully drainages.

11. Site Surface Hydrology and Stormwater Runoff

There are several springs in the immediate vicinity of the Facility. Several of the springs (including S4 and S5) are located north (upgradient) of the Facility area and appear to exist along the east-west trending Range Front Fault zone. These springs discharge ground water from the bedrock aquifer system north of the graben aquifer to surface streams that flow across the graben. In addition, springs and seeps also occur along the trace of the Pinyon Hill fault. These springs discharge ground water to Oaks (spring S3) and Dark Gully (spring S2B) drainages. COCs (chloride, sulfate, and TDS) have been detected at spring S3 following periods of high precipitation.

All stormwater discharges from the Facility are regulated under the State Amended General Industrial Activities Stormwater Permit (CAS 000001). Stormwater flow is diverted around and away from the Facility to avoid ponding and infiltration in the Facility area.

12. Site Topography

Site topography is shown on Attachment "A", which is made a part of this Order.

13. Climatology

The precipitation in the area of the Facility is approximately 13 inches annually.

14. Land Uses

The land use at and surrounding the Facility consists of industrial activities associated with a cement processing and manufacturing operation and open space.

15. Closure and Post-Closure Maintenance

The Dischargers submitted a Final Closure and Post-Closure Maintenance Plan (CPCMP) dated July 1998, prepared by Brown and Caldwell, Consultants. Board Order No. 6-00-35

approved the CPCMP and required it to be implemented. LaFarge is currently establishing the fully developed vegetated cover, as part of the initial closure requirements. Once the cover meets Title 27 Article 2, Section 21090 (3) criteria, it will be certified by a State of California registered engineer, and Post-Closure Monitoring and Maintenance will be transitioned to National Cement Company. This Order requires the Dischargers to submit a Cover-Integrity Monitoring and Maintenance Program, and an annual Slope and Foundation Stability Report, as part of the CPCMP. This Order also requires that the Dischargers review the CPCMP annually to determine if significant changes in the operation of the CKD Waste Pile warrant an update of the plan to comply with Title 27 requirements. Closure and Post-Closure Plans are included in the documents, "*Effectiveness Evaluation of the Cover System and Proposed Comprehensive Closure Strategy for the Cement Kiln Dust Disposal Areas*, dated July 9, 1998 and the *Addendum to the Comprehensive Closure Plan for the Cement Kiln Dust Disposal Area*," dated August 3, 1999.

16. Financial Assurance

This Order requires an updated financial assurance instrument, including detailed line by line task items for Post-Closure Monitoring and Maintenance and Reasonably Foreseeable Release. Currently National Cement Company maintains separate financial assurance (lines of credit) for closure of the Facility and for corrective action in the event of a verified release. This Order requires the Dischargers to report the amount of each financial assurance instrument updated for inflation, on an annual basis. This Order also requires that the Dischargers demonstrate, on an annual basis, that the amount of financial assurance is adequate, or revise the amount of financial assurance accordingly. This Order requires that a detailed line by line cost estimate for Post-Closure and Reasonably Foreseeable Release be submitted and updated, as necessary.

17. Receiving Waters

The receiving waters are the ground waters of the Antelope Valley Ground Water Basin (Department of Water Resources Hydrologic Unit No. 6-44), and the minor surface waters of the Neenach Hydrologic Area of the Antelope Hydrologic Unit.

18. Lahontan Basin Plan

The Regional Board adopted a Water Quality Control Plan for the Lahontan Region (Basin Plan) which became effective on March 31, 1995. This Order implements the Basin Plan, as amended.

19. Beneficial Uses for Ground Water

The present and probable beneficial uses of the ground waters of the Antelope Valley Ground Water Basin as set forth and defined in the Basin Plan are:

a. Municipal and domestic supply;
b. Agricultural supply;
c. Industrial service supply; and
d. Freshwater replenishment.

20. Beneficial Uses for Surface Water

The present and probable beneficial uses for the minor surface waters of the Neenach Hydrologic Area of the Antelope Hydrologic Unit are:

a. Municipal and domestic supply;
b. Agricultural supply;
c. Ground water recharge;
d. Non-contact recreation;
e. Contact recreation;
f. Warm freshwater aquatic habitat; and
g. Wildlife habitat.

21. California Environmental Quality Act

The project consists only of the continued operation of the Facility under the CPCMP and is therefore exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq) in accordance with Section 15301 of the CEQA Guidelines.

22. Notification of Interested Parties

The Regional Board has notified the Dischargers and all known interested parties of its intent to adopt revised WDRs for the project.

23. Consideration of Interested Parties

The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Dischargers shall comply with the following:

I. DISCHARGE SPECIFICATIONS

A. Receiving Water Limitations

1. The discharge of waste shall not cause the presence of the following substances or conditions in ground waters of the Antelope Valley Ground Water Basin:

   a) any perceptible color, odor, taste, or foaming;

   b) any chemical constituents greater than primary or secondary drinking water standards or that may adversely affect water for beneficial uses;

   c) toxic substances in concentrations that individually, collectively, or cumulatively cause detrimental physiological response in humans, plants, animals, or aquatic life;

   d) COCs in excess of levels defined in the WQPS.;

   e) radionuclides in excess of regulatory criteria specified in Title 22, Table 4, Section 64443 of the California Code of Regulations.

2. The discharge of waste shall not cause the presence of the following substances or conditions in minor surface waters of the Neenach Hydrologic Area of the Antelope Hydrologic Unit.

   a) coliform organisms attributable to anthropogenic sources, including human and livestock wastes;

   b) biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses;

   c) concentrations of chemical constituents in excess of primary or secondary maximum contaminant levels (MCLs) as defined in Title 22, or in amounts that adversely affect Beneficial Uses.

   d) color that causes nuisance or adversely affects the water for beneficial uses;

   e) depression of the level of dissolved oxygen by more than ten percent, or depression of dissolved oxygen to a minimum level of 80 percent of saturation;

   f) floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses;

g) oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect water for beneficial uses;

h) concentrations of pesticides in excess of the laboratory detection limit for each constituent;

i) wetland areas are to be free from substances, attributable to wastewater, that produces an adverse physiological response in humans, animals, plants, or fish.

j) pesticides in concentrations that exceeds the lowest detectable levels;

k) changes in ambient pH by more than 0.5 pH units;

l) radionuclides in concentrations that are deleterious to humans, plant, animal, or aquatic life, or which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life;

m) suspended and settleable material in concentrations that cause nuisance or that adversely affect the water for beneficial uses;

n) taste and odor producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses;

o) alteration of the natural temperature of the receiving water;

p) toxic substances in amounts that are toxic to, or that produce detrimental physiologic responses in human, plant, animal, or aquatic life;

q) changes in turbidity that cause nuisance or adversely affect beneficial uses, and not to exceed ten percent of natural levels; and,

r) concentrations of COCs in excess of levels defined in the WQPS.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge shall not cause a pollution as defined in Section 13050 of the California Water Code, or a threatened pollution.

2. The discharge shall not cause a nuisance as defined in Section 13050 of the California Water Code.

3. The discharge of solid wastes, leachate, or any other deleterious material to the ground or surface waters of the Neenach Hydrologic Area Antelope Hydrologic Unit is prohibited.

4. The discharge of new material to the closed Facility is prohibited.

5. The disposal sites shall be protected from inundation, washout, erosion of wastes, or erosion of covering materials resulting from a storm or a flood having a recurrence interval of once in 100 years.

6. Surface drainage from tributary areas, and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes discharged at the site.

7. The exterior surfaces of the disposal sites shall be graded to promote lateral runoff of precipitation and to prevent ponding.

8. Water used for dust control during the post-closure period shall be limited to a minimal amount. A "minimal amount" is defined as that amount which will not result in excess ponding or runoff.

9. Pollutants shall not be placed in ponded water from any source whatsoever.

10. The discharge of wastes in a manner that does not maintain a five-foot soil separation between the wastes and the seasonal high ground water elevation is prohibited.

11. At any given time, the concentration limit for each COC in ground and surface water shall be within the statistical range of the unaffected background value of that constituent at that sampling point.

B. Detection Monitoring Program

The Dischargers shall continue the Detection Monitoring Program for the Facility.

C. Evaluation Monitoring Program

The Dischargers shall implement an Evaluation Monitoring Program (EMP) if monitoring data indicate evidence of a release.

D. Corrective Action Program

The Dischargers shall continue the CAP for the Facility as described in the Sampling and Analysis Plan (SAP).

E. Stormwater Program

The Dischargers filed a Notice of Intent regarding stormwater discharges at the Facility. All stormwater discharges at the Facility are regulated under the National Pollutant Discharge Elimination System (NPDES) General Industrial Stormwater Program, WDID No. 6B15S005263. Unauthorized non-stormwater discharge to surface waters is prohibited unless specifically allowed under this or other Regional Board Order.

III. DATA ANALYSIS

A. Non-Statistical Data Analysis

The Dischargers shall determine, from the ground water data, whether there is significant physical evidence of a new release to ground and/or surface water from the closed Facility. Significant physical evidence may include unexplained volumetric changes in the Facility, unexplained stress in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration, concentration of COCs that may indicate a release to ground and/or surface water, or any other change to the environment that could reasonably be expected to be the result of a threatened impact to ground water quality from the Facility.

B. Verification Procedures

1. The Dischargers shall immediately initiate verification procedures as specified below whenever there is statistical or non-statistical evidence of a release. If the Dischargers decline the opportunity to conduct verification procedures, the Dischargers shall submit a technical report as described below under the heading Technical Report Without Verification Procedures.

2. The verification procedure shall only be performed for the constituent(s) that has shown evidence of a release, and shall be performed for those monitoring points at which a release is indicated.

3. The Dischargers shall either conduct a composite retest using data from the initial sampling event with all data obtained from the resampling event or shall conduct a discrete retest in which only data obtained from the resampling event shall be analyzed in order to verify evidence of a release.

4. The Dischargers shall report to the Regional Board by certified mail the results of the verification procedure, as well as all concentration data collected for use in the retest, within seven days of the last laboratory analysis.

5. The Dischargers shall determine, within 45 days after completion of sampling, whether there is statistically significant evidence of a release from the Facility at each monitoring point. If there is statistically measurable significant evidence of a release, the Dischargers shall immediately notify the Regional Board by certified mail. The Executive Officer may make an independent finding that there is statistical evidence of a release.

6. If there is statistically significant evidence of a release, the Dischargers are required to submit, within 90 days of a determination that there is or was a release, a technical report pursuant to Section 13267(b) of the California Water Code. The report shall propose an EMP or demonstrate to the Regional Board that there is a source other than the Facility that caused evidence of a release.

C. Technical Report Without Verification Procedures

If the Dischargers choose not to initiate verification procedures, a technical report shall be submitted pursuant to Section 13267(b) of the California Water Code. The report shall propose an EMP, or, attempt to demonstrate that the release did not originate from the Facility.

IV. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. 6-00-35 is hereby rescinded.

B. Standard Provisions

The Dischargers shall comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment "B", which is made part of this Order.

C. Monitoring and Reporting

1. Pursuant to the California Water Code, Section 13267(b), the Dischargers shall comply with the Monitoring and Reporting Program No. R6V-2003-025 as specified by the Executive Officer.

2. The Dischargers shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of the Monitoring and Reporting Program.

D. Post-Closure Monitoring

Post-closure monitoring and maintenance will start upon LaFarge achieving validation and acceptance of the final vegetated cover, per Title 27, Article 2, Section 21090 (3) cover criteria. Upon acceptance of the certified vegetated cover, LaFarge will transition responsibilities for Post-closure Monitoring and Maintenance to National Cement Company. The final CPCMP shall be updated annually if there is a substantial change in operations. The Dischargers shall update the SAP when conditions warrant and submit the Revised SAP to the Regional Board. The SAP shall include the appropriate number of monitoring points established at appropriate locations and depths to yield surface and ground water samples and soil-pore liquid samples or soil-pore liquid measurements that provide data to evaluate compliance with the WQPS. A summary discussion of the Post-Closure Monitoring events should be included in the Annual Report.

E. Financial Assurance

The Dischargers shall submit a report annually providing evidence that adequate financial assurance pursuant to the requirements of the WDRs has been provided for Post-Closure Monitoring and Maintenance and for potential releases. In addition, the Dischargers shall either provide evidence that the amount of financial assurance is still adequate or revise the amount of financial assurance by the appropriate amount. An increase may be necessary due to inflation, a change in regulatory requirements, a change in the approved post-closure plan, or other unforeseen events.

F. Time Schedules

Pursuant to Section 13267 of the California Water Code the Dischargers shall submit the following reports:

1. By **October 31, 2003**, submit for review a final technical report that certifies that all aspects of the closure plan, Brown and Caldwell document dated July 1998, are complete or a time schedule of when the final certification cover report is expected to be submitted. Certification is required by a California Registered Engineer.

2. By **December 31, 2003**, submit a revised Post-Closure Monitoring and Maintenance Plan (PCMMP) detailing a Cover-Integrity Monitoring and Maintenance Program. The plan shall include a description of how each monitoring program works together for protecting water quality for ground water and surface water areas around the Facility. A revised time schedule of 60 days after the final technical report described in Item No. 1, above, is authorized for submittal of the revised PCMMP.

3. By **January 31, 2004**, as part of the annual report, submit a CAP effectiveness summary, a slope and foundation stability summary, update the tolerance limits, provide a statement on evidence of any releases, provide justification for any proposed SAP changes, update the financial assurances

detailed line item tasks, and provide evidence of adequate financial assurance as described above.

I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on June 11, 2003.

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HAROLD J. SINGER
EXECUTIVE OFFICER

Attachments: A. Location and Topography Map
B. Standard Provisions for WDRs

6/2003 GR/rp (National WDR)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

REVISED MONITORING AND REPORTING
PROGRAM NO. R6V-2003-025
WDID NO. 6B159007001

FOR
NATIONAL CEMENT COMPANY, LAFARGE CORPORATION
AND TEJON RANCH CORPORATION
CEMENT KILN DUST WASTE PILES

Kern County

I. WATER QUALITY PROTECTION STANDARD

A Water Quality Protection Standard (WQPS) is required by Title 27, California Code of Regulations (Title 27) to assure the earliest possible detection of a release from the South Waste Cement Kiln Dust (CKD) Pile to the underlying ground water and/or nearby surface water. A release to ground water has already been detected from past operations at the National Cement Plant site. Continued Detection Monitoring is necessary for both the ground water and surface water to detect any new release. This Monitoring and Reporting Program includes a Corrective Action Plan (CAP) for the ground water and establishes a Corrective Action Monitoring Program for the ground water. A WQPS has been approved by Board Order R6V-2003-025.

This Monitoring and Reporting Program requires the Dischargers to update the concentration limits by a parametric tolerance limit method for indicator parameters from sample points using an intra-well comparison monitoring strategy. Tolerance limits for indicator parameters will be calculated for ground water, unsaturated zone and surface water sampling points on an annual basis for Corrective Action Monitoring Program wells. The Indicator Parameters consist of chloride, sulfate and total dissolved solids (TDS). If a lower concentration limit is calculated, the concentration limit will be modified accordingly and included in the next required monitoring report. Data points falling outside the statistical range of the background distribution for individual sample points require verification in accordance with Board Order R6V-2003- (Tentative) Section III Data Analysis, Subsection B Verification Procedures and are to be excluded from the statistical evaluation of tolerance limits.

II. MONITORING PARAMETERS

A. Ground Water

1. Detection Monitoring Program Indicator Parameters and Constituents of Concern

Indicator Parameters	Units	Sampling Frequency	Reporting Frequency
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]

Constituents of Concern	Units	Sampling Frequency	Reporting Frequency
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]
Nitrate (as equivalent nitrogen)	mg/L	2-years[3]	2-yearsl[4]
Calcium	mg/L	2-years[3]	2-years[4]
Sodium	mg/L	2-years[3]	2-years[4]
Magnesium	mg/L	2-years[3]	2-years[4]
Bicarbonate	mg/L	2-years[3]	2-years[4]
Alkalinity (as equivalent calcium carbonate)	mg/L	2-years[3]	2-years[4]
Potassium	mg/L	2-years[3]	2-years[4]
pH[5]	units	Semi-annual[1]	Semi-annual[2]
Electrical conductivity[5]	µomhos/cm	Semi-annual[1]	Semi-annual[2]
Temperature[5]	^{0}F	Semi-annual[1]	Semi-annual[2]
Dissolved metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, total chromium, mercury, nickel, selenium, thallium and lead)	mg/L	2-years[3]	2-years[4]

2. Corrective Action Monitoring Program Indicator Parameters and Constituents of Concern

Indicator Parameters	**Units**	**Sampling Frequency**	**Reporting Frequency**
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]

Constituents of Concern	**Units**	**Sampling Frequency**	**Reporting Frequency**
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]
Nitrate (as equivalent nitrogen)	mg/L	2-years[3]	2-Years[4]
Calcium	mg/L	2-years[3]	2-Years[4]
Sodium	mg/L	2-years[3]	2-Years[4]
Magnesium	mg/L	2-years[3]	2-Years[4]
Bicarbonate	mg/L	2-years[3]	2-Years[4]
Alkalinity (as equivalent calcium carbonate)	mg/L	2-years[3]	2-Years[4]
Potassium	mg/L	2-years[3]	2-Years[4]
Lead	mg/L	2-years[3]	2-Years[4]
pH[5]	units	Semi-annual[1]	Semi-annual[2]
Electrical conductivity[5]	µomhos/cm	Semi-annual[1]	Semi-annual[2]
Temperature[5]	^{0}F	Semi-annual[1]	Semi-annual[2]

3. Monitoring Points and Concentration Limits

The Point of Compliance is located at the bottom edge of the CKD Waste Pile where it intersects ground water. A revised Sampling and Analysis Plan (SAP) has been prepared by the Dischargers and includes sampling for the Corrective Action Monitoring Program. A revised SAP, which shall include the appropriate number of monitoring points established at appropriate locations and depths to yield ground water samples representative of the appropriate aquifer, and that provide data to evaluate compliance with the WQPS, shall be submitted by **December 31, 2003**, as indicated in Reporting Requirements below.

B. Unsaturated Zone

1. Monitoring Indicator Parameters and Constituents of Concern

Indicator Parameters	**Units**	**Sampling Frequency**	**Reporting Frequency**
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]

Constituents of Concern	**Units**	**Sampling Frequency**	**Reporting Frequency**
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]
Nitrate (as equivalent nitrogen)	mg/L	2-years[3]	2-Years[4]
Calcium	mg/L	2-years[3]	2-Years[4]
Sodium	mg/L	2-years[3]	2-Years[4]
Magnesium	mg/L	2-years[3]	2-Years[4]
Bicarbonate	mg/L	2-years[3]	2-Years[4]
Alkalinity (as equivalent calcium carbonate)	mg/L	2-years[3]	2-Years[4]
Potassium	mg/L	2-years[3]	2-Years[4]
Lead	mg/L	2-years[3]	2-Years[4]
pH[5]	units	Semi-annual[1]	Semi-annual[2]
Electrical conductivity[5]	µomhos/cm	Semi-annual[1]	Semi-annual[2]
Temperature[5]	^{0}F	Semi-annual[1]	Semi-annual[2]

2. Monitoring Points and Concentration Limits

A revised SAP, which shall include the appropriate number of monitoring points established at appropriate locations and depths to yield soil-pore liquid samples or soil-pore liquid measurements that provide data to evaluate compliance with the WQPS, shall be submitted by **December 31, 2003**, as indicated in Reporting Requirements below.

The Dischargers will collect the necessary data to calculate concentration limits for indicator paramters in soil pore liquid, and to report the results with the reporting frequency discussed in IV. Reporting Requirements.

C. Surface Water

1. Monitoring Parameters and Constituents of Concern

Indicator Parameters	**Units**	**Sampling Frequency**	**Reporting Frequency**
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]

Constituents of Concern	**Units**	**Sampling Frequency**	**Reporting Frequency**
Chloride	mg/L	Semi-annual[1]	Semi-annual[2]
Sulfate	mg/L	Semi-annual[1]	Semi-annual[2]
TDS	mg/L	Semi-annual[1]	Semi-annual[2]
Nitrate (as equivalent nitrogen)	mg/L	2-years[3]	2-Years[4]
Calcium	mg/L	2-years[3]	2-Years[4]
Sodium	mg/L	2-years[3]	2-Years[4]
Magnesium	mg/L	2-years[3]	2-Years[4]
Bicarbonate	mg/L	2-years[3]	2-Years[4]
Alkalinity (as equivalent calcium carbonate)	mg/L	2-years[3]	2-Years[4]
Potassium	mg/L	2-years[3]	2-Years[4]
Lead	mg/L	2-years[3]	2-Years[4]
pH[5]	units	Semi-annual[1]	Semi-annual[2]
Electrical conductivity[5]	µomhos/cm	Semi-annual[1]	Semi-annual[2]
Temperature[5]	^{0}F	Semi-annual[1]	Semi-annual[2]

2. Monitoring Points and Concentration Limits

Prior to the completion of the WMU cover, COC were detected in surface water above concentration limits at Spring S3. This Monitoring and Reporting Program requires the Dischargers to collect the necessary data to calculate concentration limits for indicator parameters in surface water. Analytical results must be reported within the appropriate report discussed in Reporting Requirements below.

III. MONITORING

The following shall be recorded periodically as specified below:

A. Closed CKD Waste Pile Operation and Maintenance

On a Monthly basis: Summarize all problems noted with the drainage diversion structures and/or protective soil cover. Any problems with the revegetation or water bars must be reported in the next appropriate monitoring report. Any measures taken to correct problems must be specifically noted and reported in the next report. Measures taken to correct problems must be specifically noted.

B. Detection Monitoring

Groundwater and unsaturated zone samples shall be collected and reported during the first and third quarters at appropriate monitoring points and at appropriate locations and depths to insure data demonstrates compliance with the WQPS. Groundwater and unsaturated zone samples shall be analyzed in a California certified laboratory except for pH, temperature, and EC. The frequency of monitoring shall be semi-annually for the indicator parameters. The frequency of monitoring for Detection Monitoring Program COCs listed in this Monitoring and Reporting Program shall be annually for the first two years and every two years thereafter.

C. Corrective Action Monitoring

1. Ground Water Monitoring

a) Monitoring Points

Groundwater samples shall be collected and reported during the first and third quarters at appropriate monitoring points and at appropriate locations and depths to insure data demonstrates compliance with the WQPS and the CAP. Groundwater samples shall be analyzed in a California certified laboratory except for pH, temperature, and EC. The frequency of monitoring shall be semi-annually for the indicator parameters. The frequency of monitoring for Corrective Action Monitoring Program COCs listed in this Monitoring and Reporting Program shall be annually for the first two years and every two years thereafter.

b) Aquifer Characteristics

The items listed below shall be measured/calculated and, where applicable, presented in graphic and tabular form as part of the required periodic reports.

Parameter	**Units**
Depth to Ground water	feet below ground surface (bgs)
Static Water Elevation	feet above mean sea level
EC	micromhos/cm
pH	pH Units
Temperature	degrees F or C
Slope of Ground water Gradient	feet/mile
Direction of Ground water Gradient	degrees

2. Unsaturated Zone Monitoring

Unsaturated zone samples shall be collected and reported during the first and third quarters at appropriate monitoring points and at appropriate locations and depths to ensure data demonstrates compliance with the WQPS. Unsaturated zone samples shall be analyzed in a California certified laboratory (except pH, temperature, and EC) semi-annually for the indicator parameters. The frequency of monitoring for Corrective Action Monitoring Program COCs listed in this Monitoring and Reporting Program shall be annually for the first two years and every two years thereafter.

3. Surface Water Corrective Action Monitoring

Surface water samples shall be collected and reported during the first and third quarters at appropriate monitoring points and at appropriate locations to ensure data demonstrates compliance with the water standards. Surface water samples shall be analyzed in a California certified laboratory (except field parameters pH, temperature, and EC) semi-annually for the indicator parameters. The frequency of monitoring for Corrective Action Monitoring Program COCs listed in this Monitoring and Reporting Program shall be annually for the first two years and every two years thereafter.

IV. DATA ANALYSIS

A. Statistical Analysis

The Dischargers must conduct statistical analysis of indicator parameters for ground water, soil pore liquid and surface water in order to determine if there has been statistically significant evidence of a release. In accordance with this Monitoring and Reporting Program, the Dischargers must also maintain tolerance limits for indicator parameters for ground water, soil pore liquid and surface water on an annual basis and change the WQPS, Section 2.5 to reflect an annual update. Concentration limits based on the unaffected background distribution of each indicator parameter for individual sample points will then be updated, as required. Sample data falling outside of the background distribution for a sample point will require the Dischargers to conduct “verification procedures” as defined in Board

Order No. R6V-2003-025, Section III Data Analysis, Subsection B Verification Procedures.

B. Non-Statistical Analysis

In order to determine if any new releases have occurred to ground water or to soil pore liquids, evaluation of data will also be conducted using non-statistical methods. Non-statistical analysis shall be as follows:

1. Physical Evidence

Physical evidence can include vegetation loss, soil discoloration, surface water discoloration, and/or ground water mounding. Each semi-annual report shall comment on these physical elements.

2. Time Series Plots for Corrective Action

Each semi-annual report shall include a time series plot for each constituent analyzed during the monitoring period for each monitoring point. A concentration limit for each corrective action monitoring point and for each indicator parameter shall be developed.

V. REPORTING REQUIREMENTS

A. Scheduled Reports To Be Filed With The Regional Board

The following periodic reports shall be submitted to the Regional Board as specified below:

1. Semi-Annual Reports

a) Information periodically recorded in accordance with this Monitoring and Reporting Program, including information discussed above under the headings Monitoring and Data Analysis.

b) A letter transmitting the essential points in each report shall accompany each report. The letter shall include a discussion of any requirement violations found since the last report was submitted, and shall describe actions taken or planned for correcting those violations. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal.

c) A summary section describing time schedule deliverables required during the reporting period and when compliance was achieved.

d) A map showing the locations of all monitoring points, updated, if necessary, shall be included with each report. A graphic representation (as contour map(s) and graphs) of the ground water data and laboratory results shall be included in each periodic report.

e) The report shall contain an evaluation of the conditions of the cover (by LaFarge during the final vegetated cover validation/approval period and then by National Cement during the Post-closure Monitoring and Maintenance period). Specifically, comments regarding any subsidence or soil cover washouts, which have occurred, and the capability of the cover to promote runoff and prevent accumulation of standing water should be included. In the case when subsidence, washouts or other damage to the cover is noted, the report shall include photographs of the damaged location and indicate the actions taken to repair the cover material so that the event will not reoccur.

B. Unscheduled Reports To Be Filed With The Board

1. Notice of Potential Release

Should the statistical and/or non-statistical data analysis indicate, for a given constituent of concern, that a new release is identified, the Dischargers shall:

a) Immediately notify the Regional Board verbally as to the monitoring point(s) and constituent(s) or parameter(s) involved;

b) Provide written notification by certified mail within seven days of such determination. The notification should indicate the Discharger's intent to conduct verification sampling, initiate revised evaluation monitoring procedures, or demonstrate that a source other than the Facility is responsible for the release.

c) If the Dischargers choose to attempt to demonstrate that a source other than the Facility is responsible for the release, the Discharger shall submit a supporting technical report within 90 days of detection of the release.

2. Evaluation Monitoring

The Dischargers shall, within 90 days of verifying a new release, submit a technical report pursuant to Section 13267(b) of the California Water Code proposing a revised Evaluation Monitoring Program. If the Dischargers decide not to conduct verification procedures, or decide not to make a demonstration that a source other than the Facility is responsible for the release, the release will be considered verified.

C. General Provisions

The Dischargers shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of this Monitoring and Reporting Program.

D. Submittal Periods

Semi-Annual monitoring reports shall be submitted to the Regional Board by April 30 and October 31 of each year. The annual report and second semi-annual report can be submitted as a combined report by October 31, 2004 and yearly thereafter. The combined report shall have separate sections denoting data pertaining to the second semi-annual report and summary data generated as part of the annual summary.

E. Annual Report

On or before **October 31** every year, the Dischargers shall submit an annual report to the Regional Board. This report shall include the items described in the General Provisions for Monitoring and Reporting. This report should also discuss the Post-Closure Monitoring and indicate conformance with the existing operation. The report should also summarize the integrity of the cover and update the WQPS and financial assurances, as required.

F. Technical Report

No later than **December 31, 2003** the Dischargers shall submit an updated SAP to the Regional Board proposing updated concentration limits for the indicator parameters in ground water, surface water and soil pore liquid and identify monitoring/sampling points necessary to meet Title 27 requirements.

G. Financial Assurance

On or before **January 31, 2004,** every year thereafter, the Dischargers shall submit an annual financial assurance report to the Regional Board. This report shall summarize the amount of money available for each activity in the fund. This report must provide a demonstration that the amount of financial assurance is adequate, or the Dischargers must revise the amount of financial assurance accordingly. The report must reference the most recent plans that form the basis of cost estimates. A detailed line by line description and evaluation of those costs must be made. A signed statement must be provided, under perjury, by an official of the company that the costs are adequate.

Ordered by: _____ Dated: **June 11, 2003**

HAROLD J. SINGER
EXECUTIVE OFFICER

Attachments: A. Location of Monitoring Points
B. Map of Kiln Dust Disposal Areas
C. General Provisions for Monitoring and Reporting

1. Conducted during first and Third Quarter.
2. Annual Report combined with 2nd Semi Annual Report (submitted 1st and 3rd quarters).
3. Conducted in the first quarter every other year starting in 2005.
4. Submitted in 1st Semi-annual report Annual through 2005 then every 2nd year beginning in 2005.
5. Field Parameters