STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
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DRAFT WASTE DISCHARGE REQUIREMENTS ORDER NO. R3-2018-0001

Waste Discharger Identification No. 3 442004001
Proposed for Consideration at the February 8-9, 2018 Board Meeting

FOR

CEMEX DAVENPORT CEMENT PLANT CKD LANDFILLS
SANTA CRUZ COUNTY

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

LANDFILL LOCATION AND OWNER

1. The CEMEX Davenport Cement Plant (Facility) is located on Highway 1 adjacent to, and northwest of, the community of Davenport in Santa Cruz County, California, as shown on **Waste Discharge Requirements (WDR) Figure 1 – Location Map**. The Facility is located in Section 33, Township 10 South, Range 3 West, Mount Diablo Base & Meridian, with latitude of 36.139° North and a longitude of 122.200° West. The Assessor Parcel Numbers associated with the Facility are 058-071-04 (Approximately 109 acres, northeast of Highway 1), 058-072-01 (Approximately 37 acres, southwest of Highway 1).

2. CEMEX and its subsidiary RMC Pacific Materials, LLC dba CEMEX (hereafter "CEMEX") owns the CEMEX Davenport Cement Plant, which under previous ownership discharged cement kiln dust (CKD) onsite in what is now referred to as the North CKD Area and Lonestar Closed CKD Landfill (hereafter collectively referred to as "Landfills"). The Facility Map, included as **WDR Figure 2,** depicts the location of the North CKD Area and Lonestar Closed CKD Landfill with respect to nearby property lines. The Facility has been closed since 2010 and is pending decommissioning.

3. The Trust for Public Land and its subsidiary Coast Dairies and Land Co. (hereafter "TPL/CDLC") owns the northern portion of the inactive North CKD Area.

4. Collectively, CEMEX and TPL/CDLC are the "Discharger" with respect to this Order. CEMEX is primarily responsible for compliance this WDR as owner and operator and TPL/CDLC are also responsible as landowners for all waste discharges to their land. If CEMEX acquires the TPL/CDLC land that includes the North CKD Area, TPL/CDLC will no longer be responsible for compliance with this Order.

PURPOSE OF ORDER

5. The Water Board has regulated waste disposal at the Facility through Waste Discharge Requirements since 1971. The North CKD Area was previously regulated by Waste Discharge Requirements Order No. 99-23, adopted by the Water Board on October 22, 1999. The Lonestar Closed CKD Landfill was previously regulated by Waste Discharge Requirements Order No. 94-66, adopted by the Water Board on July 8, 1994. Order No. R3-2018-0001 replaces Order Nos. 99-23 and 94-66.

6. WDR Order No. R3-2018-0001 (hereafter "Order" or "Order No. R3-2018-0001") revises and updates the description of the Landfills, includes closure, post-closure maintenance and monitoring requirements for the Landfills, and prohibits discharge of new waste to the Landfills, except as approved by the Executive Officer to facilitate final closure.

7. Order No. R3-2018-0001 reflects the closed status of the Landfills, and establishes requirements pursuant to California Code of Regulations Title 27, Solid Waste (CCR Title 27), effective July 18, 1997, and pursuant to Code of Federal Regulations Title 40, Parts 257 and 258 (40 CFR Parts 257 and 258), Solid Waste Facility Disposal Criteria.

8. Order No. R3-2018-0001 includes the following key updates:

    a. A detailed review of the Landfills,

    b. Closure requirements for the North CKD Area,

    c. Corrective action for the Retention Pond and Detention Pond,

    d. Post-closure maintenance requirements for the Landfills, and

    e. A revised Monitoring and Reporting Program (MRP).

9. Order No. R3-2018-0001 only covers the Landfill portions of the Facility (i.e., North CKD Area, Lonestar Closed CKD Landfill, and landfill drainage facilities), which comprises only a portion of the Facility as show in **WDR Figure 2**. The remaining portions of the Facility, which include the remaining infrastructure and associated cement manufacturing equipment and staging areas, are currently regulated via the Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order No. 2014-0057-DWQ (Industrial General Permit or IGP). It is anticipated that the Facility will be regulated via the Statewide General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2012-0006-DWQ (Construction General Permit), during the final phases of Facility infrastructure decommissioning and site restoration activities.

SITE DESCRIPTION AND HISTORY

Facility

10. Construction of the Facility began in the late 1800's and included significant modifications to onsite topography, and construction of nearby bridges over steep canyons and a rail spur. Cement production began in 1906 and the Facility was the second largest cement plant in the nation, producing 3,000 barrels of cement per day with feedstock sourced from a nearby limestone quarry. Prior to 1920, an oil pipeline to the Facility was constructed along with

onsite above-ground storage tanks. In 1980 the Facility was modernized with more efficient kilns and switched its fuel source from oil to coal. Cement manufacturing at the Facility included grinding of source materials, pyro processing, storage of cement products, and storage and disposal of waste products. The Facility produced bulk and sacked Portland cement, manufactured concrete products (roof tiles), and plastic cements.

11. The Facility produced large quantities of CKD as a byproduct of the cement manufacturing process. Although some of the CKD was either reused in the cement process or recycled as an agricultural soil amendment (as lime), most of it was stored or disposed of onsite or on adjacent properties. More detailed information regarding CKD characteristics is included in subsequent findings within the Classification and Waste Type section below.

12. From 1906 to 1956, the Facility operated as the Santa Cruz Portland Cement Company. The Facility became Pacific Cement and Aggregates in 1956, Lonestar Cement Corporation in 1965, RMC Pacific Materials in 1988, and the CEMEX Davenport Cement Plant in 2005. The Facility was permanently shut down in early 2010 following extended periods of inactivity since 2002.

13. In January 2013, the Discharger began identifying, consolidating, and removing above ground storage tanks and hazardous materials located through the site. **Findings 44-46** outline Facility closure efforts and documents required by the Santa Cruz Environmental Health Department; for areas of the Facility or activities not addressed by this Order.

Lonestar Closed CKD Landfill

14. The Lonestar Closed CKD Landfill is located east of the former cement plant, along the Facility's eastern property line, and north of Highway 1 as shown on **WDR Figure 2**. The Lonestar Closed CKD Landfill that was operated from 1906 to 1984 covers approximately 5.8 acres, and is divided by a dirt road into an upper and lower portion. The upper (northern) portion contains almost exclusively CKD, while the lower (southern) portion also accepted municipal solid, industrial and construction wastes.

15. Upgradient of the Lonestar Closed CKD Landfill is a seasonal pond referred to as the Farmer's Pond as shown on **WDR Figure 2**. The Farmer's Pond drains to the unnamed drainage east of the Lonestar Closed CKD Landfill via a 36 inch corrugated metal pipe under the upper portion of the landfill.

16. The Lonestar Closed CKD Landfill is considered a closed, abandoned, inactive (CAI) landfill pursuant to CCR Title 27 §20080(d) because it was closed, abandoned, or inactive prior to November 27, 1984. Pursuant to CCR Title 27 §20080(g), the Water Board can require Dischargers to monitor CAI landfills, and if groundwater impairment is observed require the Discharger to implement a corrective action program. The most common and effective corrective action for CAI landfills with groundwater impacts is construction of a final cover, which was required by the Water Board's Closure Waste Discharge Requirements Order No. 94-66.

17. The Lonestar Closed CKD Landfill final cover was constructed in 1995, pursuant to Order 94-66, and consists of a drainage/vegetative layer over a geosynthetic clay liner (GCL) to promote surface runoff and prevent infiltration of water into the CKD waste. Slopes along the north edge and southeast portion of the Lonestar Closed CKD Landfill did not receive a final cover because they were too steep, these slopes rely on positive drainage and

vegetation to prevent erosion. Additionally, an established grove of Monterey Cypress trees growing near the toe of the lower portion of the Lonestar Closed CKD Landfill also limited final cover construction to minor grading and drainage improvements only. The trees were planted in compliance with Conditional Order of Abatement and Variance No. 83-4 as a botanical windbreak at the request of the Monterey Bay Unified Air Pollution Control District. The final cover includes concrete v-ditches to route run-on around, and stormwater off, the landfill.

18. The final cover does not appear to have improved groundwater impacts immediately adjacent to the Lonestar Closed CKD Landfill. More detailed information on groundwater impacts is provided in **Finding 69**. Order No. R3-2018-0001 requires the Discharger to submit a Monitoring and Final Cover/Drainage Evaluation Report for the Lonestar Closed CKD Landfill.

North CKD Area

19. The North CKD Area covers approximately 12 acres in the northern portion of the Facility, and is divided into three sections identified as Area 1, Area 2, and Area 3, as shown on **WDR Figure 2**.

20. Area 1 covers 3.5 to 4 acres of land, formally a canyon, leased from CDLC and received waste starting in the 1950s. The area was filled with CKD to approximately the canyon rim and then covered with approximately 10 to 12 feet of excavated earth and concrete rubble from plant construction activities. An additional 24 to 30 inches of top soil, compacted to approximately 18 inches, was placed over Area 1. Reportedly, no CKD has been placed in Area 1 for over 65 years. Area 1 was also returned to the original land owner for agricultural purposes.

21. Area 2 is also on land leased from CDLC and consists of approximately 3.2 acres of relatively flat exposed CKD with small scattered mounds. The east side of Area 2 is adjacent to a pair of natural seasonal ponds, which will be evaluated and addressed to prevent water from coming into contact with CKD waste, as part of final closure pursuant to this Order, or following final closure construction, if improvements to the seasonal ponds are delayed by permitting requirements.

22. Area 3 covers approximately 9 acres and the CKD rises significantly higher than the surrounding area. A temporary exposed high density polyethylene (HDPE) membrane covers the steep slopes and the CKD pile on the top of Area 3. The flatter top deck of Area 2 & 3 is not covered but the exposed CKD is relatively cemented and graded to drain stormwater to lined drainages. Due to wind and UV exposure the membrane cover has significantly degraded and is discussed in greater detail in **Findings 37** and **38**.

23. The North CKD Area received CKD from the late 1950s to approximately 1998. From 1998 to 2002, no additional CKD was disposed at the North CKD Area because all CKD waste from the cement manufacturing process was either reused or recycled. From 2002 to 2010, approximately 90,000 cubic yards of CKD was excavated from the North CKD Area and recycled primarily for use as an agricultural soil amendment.

24. The North CKD Area was not constructed as a lined wasted management unit because initial disposal to the area predated waste management unit construction requirements that

are presently required under the CCR Title 27. However, the North CKD Area is considered an existing unit pursuant to CCR Title 27 §20080(d) because it was actively operated prior to and after November 27, 1984. The Facility appears to have been regulated via WDRs since 1972 based on references to WDR Order 72-65 in correspondence from RMC Lonestar, dated April 6, 1993. The oldest Order available in the Facility's public file is from 1978, WDR Order No. 78-19, which references two Orders from 1977 (NPDES Order No. 77-01 and WDR Order No. 77-02).

25. WDR Order 99-23 regulated the North CKD Area as a surface impoundment pursuant to CCR Title 27, and permitted the Discharger to continue CKD disposal on top of the North CKD Area with future expansion outside of the North CKD Area (New Canyon Disposal Area) required to meet CCR Title 27 requirements. Order 99-23 did not require a liner under the Active CKD pile because it was not feasible given the large volume of CKD disposed in the North CKD Area. Older Orders referred to North CKD Area as the Slurry Pond Disposal Area and were revised multiple times in an attempt to permit and transition disposal of CKD to the New Canyon Disposal Area.

26. Pursuant to WDR Order 99-23 future expansion of CKD disposal to the New Canyon Disposal Area was conditioned on the Discharger demonstrating that siting and design requirements complied with CCR Title 27 requirements. The Facility closed without such a demonstration and the New Canyon Disposal Area was not used for CKD disposal.

27. The North CKD Landfill is estimated to contain just under 850,000 cubic yards (yd^3) of CKD as shown in the North CKD Area CKD Inventory Table below:

Table 1: North CKD Area CKD Inventory Table

Description	North CKD Area	2000 Estimated Volume of CKD (yd^3)	2012 Estimated Volume of CKD (yd^3)
CKD Below Canyon Rim	Area 1 & 2	342,000	342,000
	Area 3	390,000	390,000
	Sub Total	732,000	732,000
CKD Above Canyon Rim	Area 1	None	None
	Area 2	91,000	93,915
	Area 3	115,000	21,728
	Sub Total	206,000	115,643
Total Estimated CKD Inventory (2012)	Total	938,000	847,643

28. Historically, the CKD not reused onsite was combined with water and pumped as CKD slurry to a series of temporary basins of various sizes located on top of the existing CKD piles, where the CKD slurry was allowed to dry and solidify, forming cemented layers resistant to percolation and erosion. CKD slurry was the preferred method for conveyance and disposal to minimize particulate air quality emissions from the CKD conveyance process. Due to the method of disposal and high moisture content of the CKD slurry, the North CKD Area was considered a surface impoundment.

29. Upgradient of the North CKD Area is a seasonal pond referred to as the North Pond as shown on **WDR Figure 2**. The North Pond drains via a 30-inch bypass/overflow pipe to a

seasonal surface water drainage east of Area 2 and 3 of the North CKD Area that is tributary to the Farmers Pond. The Discharger is proposing to upgrade the 30-inch bypass pipe to 36-inches, reroute it around the North CKD Area, and discharge it directly to the Farmer's Pond

30. Downstream and southwest of the North CKD Area are unlined stormwater ponds (hereafter Retention Pond and Detention Pond) as shown on **WDR Figure 2**. The Retention Pond collects stormwater from the North CKD Area, miscellaneous facility areas, and adjacent offsite areas for use in cement production with the excess discharged to the ocean at Discharge Point 001. Historically the Retention Pond also collected process wastewater and wash water from cement plant operations. Sediments or solids from cement manufacturing, material stockpile areas (i.e. coal, iron slag, lime), and North CKD Area, have caused the Retention Pond to have high/basic pH levels between 10 and 12 with elevated total dissolved solids including metals and minerals. The Retention Ponds is unlined and has resulted in groundwater impacts discussed in **Finding 69**. The Detention Pond is tributary to the Retention Pond and receives stormwater from offsite areas to the west of the North CKD Area and primarily covered areas of the North CKD Area. Due to degradation of the temporary membrane cover the Detention Pond has also recently shown elevated/basic pH levels. This Order requires the Discharger to investigate and implement corrective action for both the Retention Pond and Detention Pond as part of the final closure of the North CKD Area.

31. Discharge Point 001 discharges from the Retention Pond and other interior areas of the Facility were covered by a site specific National Pollutant Discharge Elimination System (NPDES) Permit (Order No. R3-2010-0008) until it was rescinded in 2015. To comply with the Ocean Plan receiving water pH limits specified in the site specific NPDES Permit, the Discharger was required to adjust pH at Discharge Point 001.

32. The Facility is enrolled under the IGP for stormwater related discharges to surface waters and the Discharger adjusts pH at Discharge Point 001 as a best management practice (BMP) pursuant to the IGP.

33. Land use within 1,000 feet of the Facility is currently designated for residential, industrial, agricultural, and commercial uses.

CORRECTIVE ACTION HISTORY

34. In 1995, a final cover was constructed on the Lonestar Closed CKD Landfill pursuant to Closure Waste Discharge Requirements Order No. 94-66. The final cover is described in **Finding 17** and **66**.

35. In 2000, a temporary exposed HDPE membrane was installed over the large CKD pile on the top deck of the North CKD Area 3 and adjacent steep slopes along with drainages tributary to the Retention Pond to prevent stormwater from percolating through the CKD waste and causing leachate seeps. To facilitate CKD removal/recycling efforts, the flatter top deck of Area 3 was left uncovered as a work area with grading that promoted stormwater drainage and minimized ponding and infiltration. The exposed CKD of the top deck was also cemented making it resistant to erosion and relatively low permeability. This corrective action was in response to a Water Board staff inspection on June 23, 1998 that documented leachate seeps from beneath the North CKD Area; during the inspection and inspection

related follow-up discussions, Water Board staff informally required an evaluation and corrective actions for the observed seeps. The temporary membrane cover and lined drainages were successful in preventing leachate seeps from the North CKD Area and improving groundwater quality.

36. From 2002 to 2010, the Discharger removed approximately 90,000 cubic yards of CKD from the North CKD Area for use as an agricultural soil amendment (lime) based on market demand. Recycling of the CKD for offsite reuse ceased because market demand was low and the Facility's shutdown made removal infeasible due to reduced onsite staffing.

37. In preparation for the 2011/2012 wet weather season, the Discharger made significant repairs to the temporary exposed membrane on the North CKD Area. This corrective action was in response to a Water Board staff inspection on March 23, 2011 that documented holes and tears in the temporary exposed membrane cover due to ultra-violet (UV) degradation and wind damage. During the inspection and follow-up discussions, Water Board staff directed the Discharger to repair the temporary cover.

38. On October 3, 2016, the Discharger submitted the North CKD Area Interim Cover Repair Evaluation and Work Plan (Interim Cover Repair Evaluation) pursuant to a Water Board staff California Water Code (CWC) §13267 letter dated August 31, 2016, which required the Discharger to evaluate repair of the damaged temporary membrane cover including areas previously repaired in 2011. The Interim Cover Repair Evaluation documented the CKD pile to be relatively cemented and resistant to water and wind erosion and recommended not repairing the deteriorating temporary cover due to expected final cover construction in the coming years and indicated compliance with the IGP would be sufficient for preventing and reducing the discharge of pollutants associated with the North CKD Area.

    Water Board staff issued a CWC §13267 letter on January 12, 2017, accepting the Interim Cover Repair Evaluation and prioritizing final closure, but requiring Supplemental Monitoring to evaluate the Facility's stormwater discharge. Supplemental Monitoring results document pH, metals, and mineral impacts to the Detention Pond, Retention Pond and Discharge Point 001 that are discussed in greater detail in **Finding 70**. This Order requires closure of the North CKD Area, which includes corrective action for the Retention Pond and Detention Pond, and incorporates the Supplemental Monitoring into MRP Order No. R3-2018-0001 to allow for continued evaluation of stormwater discharges and potential impacts.

LANDFILL CLOSURE

39. The Discharger submitted a Conceptual Final Closure and Post Closure Maintenance Plan (Conceptual Closure Plan) on April 13, 2017. Water Board staff conditionally approved the Conceptual Closure Plan on August 24, 2017, and issued a CWC §13267 letter requiring the Discharger to submit the Final Closure and Post-Closure Maintenance Plan (Final Closure Plan) by April 1, 2018. This Order incorporates the Final Closure Plan due date to facilitate final closure.

40. The North CKD Area was initially operated as a surface impoundment and pursuant to CCR Title 27 §21400(b)(1) the Discharger must make a "mandatory clean-closure attempt" to remove all residual wastes from the impoundment and restore the site. The Discharger's effort to remove and recycle the CKD material is described in **Finding 36** and the

Discharger's Conceptual Closure Plan determined that clean closure for the North CKD Area was infeasible because of the following:

- The total volume of CKD that would need to be removed, including anticipated over-excavation requirements, is approximately 1 million cubic yards,
- Removal of the material would require 60,000 to 120,000 truck trips, resulting in significant traffic and air quality related impacts,
- Excavation of the material and associated onsite staging and heavy equipment operations could result in potential fugitive dust and runoff discharges that may impact the environment and surrounding community, and
- Clean closure associated with removing the material and restoring the site would add several years to the project, versus closing the CKD area as Landfill with a cover, and cost approximately $240 million dollars.

Conversely, the Conceptual Closure Plan determined that on-site closure has the following benefits:

- Reduction in overall earthwork and handling, and resulting cost and time required to achieve project completion.
- An environmentally protective cap that supports overall habitat reclamation and approximates the surrounding landscape, or other land uses.
- Reduced impacts (i.e., noise, nuisance, dust, and traffic) to the public.

Therefore, this Order requires closure and post-closure maintenance of the North CKD Area as a landfill pursuant to CCR Title 27 §20950, §21090, and §21400(b)(2).

41. The North CKD Area will be closed as a Class II Solid Waste Landfill as defined by California Code of Regulations (CCR) Title 27, §20240 and §20250.

42. The goal of landfill closure and post-closure as required by this Order, including but not limited to the construction and long-term maintenance of a final cover system and associated stormwater controls, is to minimize infiltration of water into the waste, thereby minimizing the production of contaminated leachate and potential groundwater impacts. After closure, the final cover will constitute the principal waste containment feature for the North CKD Area.

43. Order R3-2018-0001 requires the Discharger to complete final closure construction activities for the North CKD Area and associated drainages before October 1, 2020, or October 1, 2022 if the Discharger requests an extension and receives Executive Officer approval.

FACILITY CLOSURE

44. The County of Santa Cruz Environmental Health Services is requiring the Discharger to evaluate environmental conditions during closure of the Facility pursuant to Santa Cruz County Code Chapter 7.100 and their hazardous materials permit. The Discharger has submitted the following documents specific to the County's closure process, which are available on GeoTracker (Global ID: T10000007011 or L10009974641):

    a. Facility Closure Plan, November 2012

b. Facility Closure Assessment, Limited Phase II Soil and Groundwater Environmental Site Assessment, May 2014

c. Supplemental Report to 2014 Facility Closure Assessment, September 2015

d. Supplemental Closure Investigation Work Plan, April 2016

e. Response to Closure Investigation Work Plan Comments, October 2016

f. Supplemental Facility Closure Investigation, July 2017

45. The Facility Closure Plan and subsequent Assessments submitted to the County of Santa Cruz Environmental Health Department identify and evaluate areas of potential environmental concern based on historical investigations, onsite inspections, and known or required monitoring. The County may require the Discharger to submit a Feasibility Study summarizing and proposing remedial options for any impacted areas of potential environmental concern. The County is not evaluating environmental impacts from the Landfills and related facilities (Retention and Detention Ponds) because the Water Board has regulatory authority to require closure and corrective actions as referenced and required by this Order.

46. If the County's closure process for the Facility identifies groundwater impacts for any of the areas of potential environmental concern the Water Board may co-lead with the County on investigation and cleanup requirements, with the Water Board focusing on groundwater and the County focusing on soil impacts as would be standard.

CLASSIFICATION AND WASTE TYPE

47. CKD is a waste stream of the cement manufacturing process. Characterization of the CKD based on the Discharger's August 1999 CKD Waste Characterization Report indicates that it is alkaline, contains non-hazardous levels heavy metals, and is caustic with a high pH (>9.5) when in aqueous solution. Low permeability and high porosity where fractured, generally describes the physical properties of dried CKD. CKD is commonly considered similar to agricultural lime and sets up similarly to Portland cement when hydrated. Until dried or if in contact with water, it has the potential to alter water quality by increasing alkalinity and may leach dissolved solids including metals and minerals. The Water Board has historically required the Discharger to manage CKD as a "Designated Waste" according to CCR Title 27 based on the CKD characterization, the CKD leachate characterization in **Finding 48**, and **Findings 49** and **50** below.

48. CKD leachate is partially characterized by historic monitoring of piezometer PZ-8 as reported in the Evaluation Monitoring and Corrective Action Report, dated November 19, 2001 and monitoring of potential CKD seepage as reported in the Discharger's Summary of Supplemental Sampling and Analysis, dated June 16, 2017. PZ-8 is screened within the CKD in the North CKD Area and sampling results are shown in **Table 2** below:

Table 2: CKD Leachate Characterization

Constituent	PZ-8 (08/17/1996)	PZ-8 (04/01/1997)	Potential CKD Seepage (2/28/2017)
pH	13	12.9	14
TDS (mg/L)	4600	4800	4400
Hydroxide (mg/L)	2800	140	NT
Hardness (mg/L)	440	1300	NT
Bicarbonate (mg/L)	<1.0	<1.0	NT
Carbonate (mg/L)	<1.0	32	NT
Calcium (mg/L)	880	130	280
Chloride (mg/L)	450	940	590
Magnesium (mg/L)	18	ND	NT
Potassium (mg/L)	3100	4100	1300
Sodium (mg/L)	530	800	210
Sulfate (mg/L)	470	1900	83
Iron (mg/L)	30	.059	NT
Manganese (mg/L)	0.26	<0.1	NT
Antimony (mg/L)	NT	NT	<0.050
Arsenic (mg/L)	NT	NT	<0.050
Barium (mg/L)	NT	NT	0.27
Beryllium (mg/L)	NT	NT	<0.010
Cadmium (mg/L)	NT	NT	<0.010
Cobalt (mg/L)	NT	NT	<0.010
Copper (mg/L)	0.35	0.06	<0.10
Chromium (mg/L)	0.28	0.22	0.15
Chromium VI (mg/L)	NT	0.27	NT
Lead (mg/L)	NT	NT	0.019 (t)
Mercury (mg/L)	NT	NT	0.000059 (t)
Molybdenum (mg/L)	0.39	0.74	0.12
Nickel (mg/L)	NT	NT	<0.050
Selenium (mg/L)	NT	NT	<0.10
Silver (mg/L)	NT	NT	<0.025
Thallium (mg/L)	NT	NT	<0.050
Vanadium (mg/L)	NT	NT	0.009 (t)
Zinc (mg/L)	1.2	0.032	0.037 (t)

NT: Not Tested.
(t): Trace Result, concentration is less than the reporting limit but greater than or equal to the minimum detection limit and is an approximate value.
<: Not Detected, value reported is less than the reporting limit.

49. The Porter-Cologne Water Quality Control Act, Chapter 2, §13050(q)(l) defines cementitious waste materials that are managed at the cement manufacturing facility where the materials were generated as a mining waste. CKD is also classified as a Class B mining waste pursuant to CCR Title 27 §22480(b)(2). The Water Board can impose more stringent requirements to accommodate regional and site-specific conditions.

50. This Order, pursuant to CCR Title 27 §22470(a), requires the Discharger to manage the CKD waste as a Designated Waste, as defined in CCR Title 27 §20164. Additionally, since

the CKD was slurried prior to discharge, the North CKD Area is a surface impoundment requiring closure as a Class II landfill pursuant CCR Title 27 §21400 because clean closure is not feasible. Historical and existing groundwater and surface water quality impacts at the Facility (described in **Findings 69** and **70**, respectively) are the basis for the Water Board requiring the Discharger to close and manage the North CKD Area with Class II standards rather than the Mining Waste Standards.

51. The Lonestar Closed CKD Landfill contains primarily CKD, but also includes old municipal solid waste, industrial waste, and construction wastes. Additional information on the specific composition of municipal, industrial, and construction wastes is not available due to the age of the landfill. The Closure and Post-Closure Maintenance Plan, dated April 1994, for the Lonestar Closed CKD Landfill, incorporated Class II landfill requirements, primarily due to the CKD waste.

GEOLOGY/HYDROGEOLOGY

52. **Setting –** The Facility lies within the coastal portion of Santa Cruz County in the Coast Ranges geomorphic province and is surrounded by rolling coastal foothills. The Pacific Ocean is approximately 600 feet and 2000 feet to the southwest, from the Lonestar Closed CKD Landfill and the North CKD Area, respectively.

53. **Topography –** The Facility includes a series of stepped terraces with moderate to steep slopes and elevations ranging from 105 to 215 feet above sea level. Canyons cut by ephemeral and perennial streams surround the Facility. The relatively level topography of the cement plant area was achieved by artificially filling depressions and stream canyons early in the Facility's history

54. **Stratigraphy –** Artificial fill, channel sands and gravels, marine terrace deposits, Santa Cruz Mudstone and Santa Margarita Sandstone underlie the site. Well borings indicate there is from 0 to 50 feet of fill overlying native channel sands and gravels and marine terrace deposits, which range from 2 to 20 feet thick. The Santa Cruz Mudstone is at least several hundred feet thick and is underlain by the Santa Margarita Sandstone, which extends to depths of more than 1000 feet.

55. **Faulting/Seismicity –** The Simeon-Hosgri fault system (also known as the San Gregorio Fault) is approximately 2.7 miles west of the facility and is expected to produce peak accelerations of 0.6g from a Maximum Credible Earthquake of Richter magnitude 7.5.

56. **Hydrogeology –** Hydrogeologic units below the Facility, include channel sands and gravels and marine terrace deposits, Santa Cruz Mudstone, and Santa Margarita Sandstone. The channel sands and gravels, and marine terrace deposits have a relatively high permeability. The Santa Cruz Mudstone is relatively impermeable and generally considered an aquitard, but fractures can produce higher porosity and secondary permeability flows. Although, groundwater from the Santa Margarita Sandstone is a significant source of potable water in other areas of Santa Cruz County it is generally poor quality in the coastal Davenport area with elevated TDS and naturally occurring hydrocarbons.

GROUNDWATER, SURFACE WATER, AND STORMWATER

57. **Groundwater –** Thirteen groundwater monitoring wells are installed in and around the North CKD Area and five groundwater monitoring wells are installed around the Lonestar Closed CKD Landfill to establish the groundwater gradient, direction of flow, and to collect water quality samples. Groundwater generally flows to the south and southwest towards the Pacific Ocean as shown in Groundwater Elevation Contour Map, **WDR Figure 3**. The water table varies from approximately 5 to 25 feet below the ground surface, and the groundwater gradient is locally influenced by the canyon geologic structure and historical topography, and site modifications, which includes both significant fill material related to a long history of industrial development, and the CKD waste. Groundwater monitoring data indicates there is ground water continuity between the channel sands and gravels, marine terrace deposits, and Santa Cruz Mudstone. Groundwater monitoring well locations are shown in Monitoring Locations Map, **MRP Figure 1** and historical monitoring results are discussed **Finding 69**.

58. **Groundwater Recharge –** Surface inflow and subsurface inflow recharge shallow groundwater near the Landfills. Surface inflow includes infiltration of precipitation and irrigation return flows from nearby agricultural areas; percolation along streams, and other waterways; and recharge from the North Pond, seasonal ponds, and Farmer's Pond upgradient of the Landfills.

59. **Groundwater Separation –**Shallow groundwater adjacent to the Landfills is likely contacting the edges of CKD waste due to the historically steep native canyon geology, and groundwater recharge upgradient of and adjacent to the Landfills.

    The Discharger's Hydrogeologic Conceptual Site Model, dated March 2017, evaluates groundwater hydrogeology in the vicinity of the North CKD Area and indicates that while groundwater may be contacting CKD there is no significant flow through the CKD due to its low permeability. The CKD is a hydraulic plug or barrier that forces groundwater to flow around it in the more permeable terrace deposits or interface between the CKD and native canyon soils. The Conceptual Site Model includes cross sections that identify shallow geology (i.e., terrace deposits and historical fill) and potential shallow groundwater that is not monitored between the North CKD Area and the Retention Pond. This Order requires the Discharger to propose and install a groundwater monitoring well(s) downgradient of the North CKD Area to confirm that the North CKD Area is not impacting shallow groundwater.

    Additionally, this Order does not require the CCR Title 27 prescriptive requirement for a 5-foot separation between groundwater and waste as it is not feasible based on known geology and nearby groundwater recharge, and the North CKD Area is defined as an existing facility pursuant to CCR Title 27. To improve groundwater separation this Order requires the Discharger to implement final closure for the North CKD Area. Final closure of the North CKD Area includes permanently lined drainages that will prevent groundwater recharge immediately adjacent to CKD waste and a final cover over the entire North CKD Area that will prevent infiltration of water into the landfill. The Discharger also proposes to improve California Red Legged Frog Habitat at the North Pond and seasonal ponds upgradient and adjacent to the North CKD Area with a partial liner, which may reduce groundwater recharge upgradient of the landfill. Groundwater separation will continue to be assessed with the submittal and review of monitoring reports required by MRP Order No. R3-2018-0001.

60. **Supply Wells –** The nearest water supply well is used for agricultural purposes and is within one mile of the facility to the west as shown on **WDR Figure 2**.

61. **Surface Water –** The Facility and Landfills lie within two small unnamed watersheds. San Vicente Creek is located approximately 800 feet east of the North CKD Area.

62. **Precipitation –** Average annual precipitation at the site is 26-30 inches.

63. **Stormwater –** The North CKD Area is isolated from run-on by the North Pond, Seasonal Ponds, and temporarily lined drainages that run adjacent to the North CKD Area. Final Closure includes replacing and upgrading temporary lined drainages with permanent engineered lined drainages to handle stormwater runoff through post-closure.

    The Lonestar Closed CKD Landfill is isolated from run-on by the Farmers Pond, and perimeter v-ditches, designed to handle a 1000-year, 24-hour storm, which drain both cover runoff and diverted run-on to an unnamed drainage immediately to the east and southeast. Stormwater drainage from the upper half of the Lonestar Closed CKD Landfill is directed via concrete v-ditches to a Christy box and to the adjacent unnamed drainage to the east as shown on **MRP Figure 1**. Drainage from the lower half of the Lonestar Closed CKD Landfill is directed by concrete v-ditches and unlined swales within the grove of Monterey Cypress trees to relatively flat area near MW-2, where it appears to pond and percolate.

64. **Flooding –** The Lonestar Closed CKD Landfill and the North CKD Area are not located in a 100-year flood plain according to the National Flood Insurance Program, but parts of the North CKD Area are located in Zone X, a zone with a 500-year flood chance or a 100-year flood area with average depths of less than 1 foot.

CONTROL SYSTEMS AND MONITORING

65. **Liner Design and Landfill Leachate Control –** The Landfills do not have a leachate collection and recovery system (LCRS) because their initial construction predated waste management unit construction requirements pursuant to CCR Title 27 and they were not constructed as lined waste management units.

66. **Final Cover Design –** The Discharger's conditionally approved Conceptual Closure Plan proposes a final cover for the North CKD Area consisting of the following components (bottom to top):

    a. Foundation layer consisting of 2 feet of compacted CKD (or soil around perimeter fill areas).

    b. 60-mil linear low density polyethylene (LLDP) membrane low permeability layer.

    c. Geocomposite drainage net layer.

    d. Minimum 18 inches protective cover soil layer (compacted general fill).

    e. Minimum 6 inches vegetative soil layer.

The Lonestar Closed CKD Landfill final cover primarily consists of the following components (bottom to top):

a. Foundation layer consisting of compacted CKD or waste quarry screening material.

b. Geosynthetic Clay Liner (GCL) low permeability layer, consisting of an internally reinforced layer of inert sodium bentonite between two geotextiles.

c. Minimum 24 inches of waste quarry screening material as a drainage/vegetative layer.

There are several areas of the Lonestar Closed CKD Landfill that do not have the engineered final cover described above, including the steep slopes (1:1 or steeper) on the north and eastern side of the landfill and an existing grove of Monterey Cypress fir trees on the lower southwest portion of the landfill. The Lonestar Closed CKD Landfill final cover includes drainages and grading to prevent stormwater run-on to the steep side slopes.

67. **Landfill Gas Control –** A landfill gas monitoring or control system is not required for CKD disposal as CKD is inorganic and does not generate landfill gas. However, the Lonestar Closed CKD Landfill also received municipal solid waste. To determine if landfill gas monitoring or control was necessary for the Lonestar Closed CKD Landfill, a landfill gas investigation was performed on March 8, 1994, which included thirty nine borings. No evidence of landfill gas generation was detected in the borings.

68. **Stormwater Control –** Pursuant to CCR Title 27, closure of the North CKD Area must include drainage improvements designed to handle a 1000-year 24-hour storm or an engineered alternative, approved by the Executive Officer. The Lonestar Closed CKD Landfill is designed to handle precipitation and drainage from a 1000-year, 24-hour storm.

69. **Groundwater Monitoring –** Facility monitoring reports document groundwater impacts in monitoring wells, downgradient of the Lonestar Closed CKD Landfill (MW-1, 2, 3, and 4), along the western drainage adjacent to the North CKD Area (PZ-3, 6, and 10), and immediately downgradient of the Retention Pond (PZ-15) as shown on **MRP Figure 1**. Groundwater impacts vary between monitoring wells but are generally characterized by elevated total dissolved solids including metals (i.e., barium chromium, copper, molybdenum, and zinc) and minerals (i.e., calcium, chloride, potassium, sodium, and sulfate), and elevated pH (PZ-15). Groundwater immediately downgradient and adjacent to the North CKD Area has generally improved since the temporary lined drainages and temporary membrane cover were installed in the North CKD Area, waste CKD slurry disposal was eliminated due to recycling of CKD, and ultimately the Facility's shutdown. This Order requires final closure of the North CKD Area, corrective action for the Retention and Detention Ponds, and a Monitoring and Final Cover/Drainage Evaluation Report for the Lonestar Closed CKD Landfill to address groundwater impacts.

70. **Surface Water Monitoring –** The Discharger's Summary of Supplemental Sampling and Analysis, discussed in **Finding 38**, evaluates the Facility's surface water and stormwater discharges shown on **MRP Figure 1**, and is partially summarized in **Table 3** below:

Table 3: Supplemental Surface Water Quality Monitoring Summary

Constituent[1]	Discharge Point 001[2] (3/21/17)	Retention Pond (3/27/17)	Detention Pond (3/27/17)	Plant Retention Pond (3/27/17)	HWY 1 Runoff (3/27/17)	GW Seepage (3/27/17)	Lonestar Closed CKD Culvert (3/27/17)
pH	7.41	11.4	10.1	9.24	8.14	7.56	8.1
TDS (mg/L)	750	1800	670	320	710	1700	280
Calcium (mg/L)	70	33	NT	NT	NT	NT	NT
Chloride (mg/L)	88 (t)	240	120	17	100	270	27
Potassium (mg/L)	110	570	NT	NT	NT	NT	9.6
Sodium (mg/L)	57	130	NT	NT	NT	NT	24
Sulfate (mg/L)	210	440	130	130	110	660	42
Arsenic (mg/L)	0.0051 (t)	0.013	ND	ND	ND	ND	ND
Barium (mg/L)	0.064	0.035	ND	ND	0.14	0.1	0.031
Copper (mg/L)	0.0038 (t)	0.0049 (t)	ND	ND	ND	ND	0.0028 (t)
Chromium (mg/L)	0.0061 (t)	0.023	0.040	ND	ND	ND	0.0030 (t)
Chromium VI (mg/L)	0.0048	0.024	0.049	0.002	ND	ND	0.0004 (t)
Lead (mg/L)	0.0055	0.067	ND	ND	0.0079	0.016	0.022
Mercury (mg/L)	ND	ND	ND	ND	ND	ND	0.0003
Molybdenum (mg/L)	0.026	0.097	0.036	ND	0.011	0.015	0.0078 (t)
Nickel (mg/L)	0.004 (t)	0.0039 (t)	ND	ND	ND	0.039	0.0034 (t)
Vanadium (mg/L)	0.0046 (t)	0.01	ND	ND	ND	ND	0.0027 (t)
Zinc (mg/L)	0.011 (t)	ND	ND	ND	ND	0.026	0.013 (t)

(1): Sampling for other metals, not detected in any sampling events during Supplemental Monitoring are not included in the table.

(2): Discharge Point 001 is located after pH adjustment and includes flows from the Facility [Retention Pond, Detention Pond, Plant Retention Pond, and miscellaneous cement plant runoff (not sampled)], groundwater infiltration into the stormwater tunnel (not sampled), groundwater seepage adjacent to Discharge Point001, and HWY 1 runoff.

NT: Not Tested.

(t): Trace Result, concentration is less than the reporting limit but greater than or equal to the minimum detection limit and is an approximate value.

ND: Not Detected, detection limits are provided in the Summary of Supplemental Sampling and Analysis Report.

The Retention Pond and Detention Pond, which is tributary to the Retention Pond, collect stormwater from the North CKD Area. Upon reaching capacity the Retention Pond

discharges to Discharge Point 001 via an overflow control structure and subsurface stormwater conveyance tunnel. Both the Retention Pond and Detention Pond are impacted by elevated pH, metals and minerals, the Retention Pond is more significantly impacted due to its historical use and primary purpose to collect wastewater and stormwater for reuse, and to capture sediment from cement manufacturing and the North CKD Area. The Detention Pond impacts reflect the more recent degradation of the temporary membrane cover on the west and south side of the North CKD Area and potential seepage characterized in **Finding 48**. Discharge Point 001 monitoring results document that the elevated pH is reduced prior to discharge by injection of carbon dioxide, and metals and minerals are also reduced due to dilution from runoff from other areas of the Facility (Plant Retention Pond), groundwater infiltration into the stormwater conveyance tunnel, groundwater seepage adjacent to and into Discharge Point 001, and HWY 1 runoff. Combined flow concentrations of tested metals and minerals at Discharge Point 001 are less than the effluent limitations contained within the former NPDES Permit, but several metals including Chromium (VI), Lead, and Mercury (1/26/17 sampling event) are within the range of the instantaneous max and six month averages established by the since revised 2015 Ocean Plan without any consideration of mixing and dilution normally associated with ocean discharges.

This Order does not implement 2015 Ocean Plan standards or permit the discharge of waste impacted stormwater at Discharge Point 001; it requires final closure of the North CKD Area and corrective action for the Retention and Detention Ponds to eliminate the discharge of impacted stormwater. The Supplemental Monitoring requirements are also incorporated into MRP Order No. R3-2018-0001, to facilitate ongoing evaluation of stormwater impacts to determine if interim corrective actions are necessary prior to final closure and to evaluate the effectiveness of final closure and associated corrective actions.

Surface water monitoring for the Lonestar Closed CKD Landfill includes sampling of the Farmer's Pond, culvert beneath the landfill, and a Christy box, which receives flow from the closed landfill drainages**,** as shown on **MRP Figure 1**. Monitoring of the culvert, which carries flow from the Farmer's Pond below the closed landfill and into the unnamed drainage to the east of the closed landfill, was also performed as part of the Supplemental Monitoring summarized in **Table 3** above and documents low levels of various metals are being discharged to the adjacent unnamed drainage. This Order requires a Monitoring and Final Cover/Drainage Evaluation Report for the Lonestar Closed CKD Landfill to evaluate the performance of the final cover and drainages to prevent receiving water impacts.

71. **Stormwater Monitoring –** The Facility is enrolled in the Industrial General Permit (IGP) and the Discharger monitors and collects stormwater samples from Discharge Point 001 as shown in **WDR Figure 2**. Stormwater samples are collected on a semiannual basis during wet weather and analyzed for pH, total suspended solids, and oil and grease. Sampling results for these basic parameters has not triggered IGP benchmark standards or numeric action levels. Supplemental Monitoring results summarized in **Table 3** indicate that stormwater is impacted with pollutants not currently monitored in the Discharger's Storm Water Pollution Prevention Plan (SWPPP). Pursuant to the IGP, the Discharger is required to update their SWPPP pollutant source assessment and identify potential industrial pollutants and include them in future sampling.

72. MRP Order No. R3-2018-0001 requires the Discharger to monitor and report on landfill observations, drainage systems and rainfall data, and sample seeps and spills; establishes monitoring points for groundwater, surface water, stormwater; specifies monitoring frequency, monitoring parameters, constituents of concern, criteria for sample collection and

analyses, methods for analyzing data both statistically and non-statistically, reporting requirements, minimum monitoring report content; and defines terms. Order No. R3-2018-0001 allows the Executive Officer to revise Monitoring and Reporting Programs.

BASIN PLAN

73. The Water Quality Control Plan, Central Coast Basin (Basin Plan), was adopted by the Water Board on September 8, 1994, and approved by the State Water Board on November 17, 1994. The Basin Plan incorporates statewide plans and policies by reference and contains a strategy for protecting beneficial uses of State Waters. This Order implements the water quality objectives stated in the Basin Plan.

74. The Basin Plan identifies the following present and anticipated beneficial uses for unnamed surface waters downgradient of the Landfills' discharge:

    a. Municipal and Domestic Water Supply

    b. Protection of both recreation and aquatic life.

75. The Basin Plan identifies the following beneficial uses of groundwater in the vicinity of the Landfills:

    a. Agricultural Supply

    b. Municipal and Domestic Supply

    c. Industrial Supply

CALIFORNIA ENVIRONMENTAL QUALITY ACT

76. This Order is for an existing facility and therefore is exempt from provisions of the California Environmental Quality Act (Public Resources Code, §21000, and et seq.) in accordance with Title 14, Chapter 3, §15301.

GENERAL FINDINGS

77. In accordance with CWC §13263(g), no discharge into waters of the State, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to discharge. All discharges of waste into waters of the State are privileges, not rights. Authorization to discharge waste is conditioned upon the Discharger complying with provisions of CWC Division 7 and with any more stringent limitations necessary to implement the Basin Plan, to protect beneficial uses, and to prevent nuisance. Compliance with Order No. R3-2018-0001 should assure conditions are met and mitigate any potential changes in water quality attributed to the Landfills.

78. **Antidegradation:** State Water Board Resolution No. 68-16 Statement of Policy with Respect to Maintaining High Quality of Waters in California (Resolution No. 68-16) requires Water Boards, in regulating the discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with the maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not

result in water quality less than that described in Water Board policies (e.g., quality that exceeds applicable water quality standards). Resolution No. 68-16 also states, in part:

"*Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in best practicable treatment and control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained*."

79. This Order requires the Discharger to comply with the land disposal regulations contained in CCR Title 27, which are intended to prevent discharges of waste to waters of the State, and thus will prevent degradation of waters of the State. The Discharger is subject to waste discharge requirements consistent with best practicable treatment or control for closed landfills pursuant to CCR Title 27 such that water contact with the waste will be prevented as feasible and wastes will not be discharged to groundwater or surface water. Therefore, these waste discharge requirements will maintain high quality waters of the state without any allowance for changes in water quality, as demonstrated via ongoing water quality monitoring requirements, in compliance with Resolution No. 68-16.

80. The Landfills operate under the following Orders and Permits:

    a. Waste Discharge Requirements Order No. 99-23 (North CKD Area).

    b. Waste Discharge Requirements Order No. 94-66 (Lonestar Closed CKD Landfill).

    c. NPDES General Industrial Stormwater Permit adopted April 1, 2014 by the State Water Resources Control Board.

81. On **November 22, 2017**, the Water Board notified the Discharger and interested agencies and persons of its intent to issue Waste Discharge Requirements for the Landfills, and has provided them with the opportunity to review the proposed Order and submit written comments.

82. After considering all comments pertaining to this Order during a public hearing on **February 8, 2018** (proposed), Water Board staff found that this Order is consistent with the above Findings.

IT IS HEREBY ORDERED pursuant to authority in CWC §13263 and §13267, the Discharger its agents, successors, and assigns in maintaining the Landfills, shall comply with the following:

A. COMPLIANCE WITH OTHER REGULATIONS AND ORDERS

1. Discharge of waste, closure, post-closure maintenance, and long-term monitoring shall comply with all applicable requirements contained in CCR Title 27 and 40 CFR 257. If any applicable regulation requirements overlap or conflict in any manner, the most protective water quality requirement shall govern in all cases, unless specifically stated otherwise in this Order, or as directed by the Executive Officer.

2. The Discharger shall also monitor potential releases from the Landfills to stormwater runoff by complying with all requirements contained in the Industrial General Permit or Construction General Permit, as may be applicable.

B. PROHIBITIONS

1. Discharge of waste at the Landfills is prohibited except as provided in the Executive Officer-approved Final Closure and Post-Closure Maintenance Plan for the North CKD Area.

2. Discharge of waste or leachate to ponded water, stormwater runoff, or waters of the State, including groundwater, is prohibited.

C. SPECIFICATIONS

1. The Discharger shall remove and appropriately dispose of any wastes discharged in violation of this Order.

2. The Discharger shall not create a nuisance, as defined by CWC §13050(m).

3. The Discharger shall prevent formation of a habitat for carriers of pathogenic microorganisms.

4. The Discharger shall prevent surface drainage from tributary areas and internal site drainage of surface and subsurface origin from contacting or percolating through wastes.

5. The Discharger, as may be directed by the Executive Officer, shall repair or install and maintain an intermediate cover over all CKD as necessary to mitigate impacts associated with water infiltration and erosion, and windblown dust if final closure activities are delayed.

6. The Discharger shall maintain grading and positive drainage of all landfill surfaces to minimize precipitation/surface water from infiltrating into the CKD waste, to prevent ponding of water, and to resist erosion. For vegetative covers the Discharger shall repair erosion rills greater than six inches in depth, or when rills leave insufficient cover to prevent infiltration of precipitation/surface water.

7. The Discharger shall use best management practices to maintain the capacity of stormwater retention facilities and thereby reduce or prevent pollutants in stormwater from discharging into receiving waters to the best available technology standard. CCR Title 27 §20365 requires that the Discharger periodically a) remove accumulated sediment from the stormwater retention facilities and b) empty or otherwise manage the facilities to maintain their capacity.

8. The Discharger shall ensure the Landfills remain closed and that it maintains the Landfills in conformance with the Water Board Executive Officer-approved Final Closure Plan, except where the plan conflicts with this Order. In the event of conflict, this Order shall govern in cases where it is more protective of water quality. The Executive Officer shall approve any changes to the Final Closure Plan that may affect compliance with this Order prior to the Discharger implementing any changes.

Design

9. The Discharger shall construct closure and containment systems for the North CKD Area pursuant to CCR Title 27, §21090 and a Water Board Executive Officer-approved Final Closure Plan, which meets either a or b below:

    a. Prescriptive Final Cover
        i. Two foot thick minimum foundation layer.
        ii. One foot thick minimum of compacted soil with hydraulic conductivity of 1x 10^{-6} cm/sec or less.
        iii. Erosion-Resistant Layer (Vegetative or Mechanical)

    b. An engineered alternative design approved by the Executive Officer. Engineered alternative designs shall satisfy the criteria for an engineered alternative to the prescriptive design, as provided by CCR Title 27. Performance of the alternative composite cover's components, in combination, shall equal or exceed the waste containment capability of the prescriptive design outlined in (a) above.

10. The Discharger shall line drainage ditches crossing over waste areas with material that provides an effective permeability of 1 x 10^{-6} cm/second or less. If material other than clay or synthetic is used, data must be provided and approved by the Executive Officer. Drainage facilities shall be designed and constructed to accommodate anticipated and peak surface runoff flows from a 1000-year, 24-hour event or an engineered alternative approved by the Executive Officer.

11. The Discharger shall design, construct, and maintain all landfill closure and containment structures and associated stormwater drainage and retention facilities to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, overtopping, and damage to the landfill structures and facilities, and surrounding areas resulting from natural disasters (e.g., 1000-year 24-hour precipitation, the maximum credible earthquake, and severe wind storms).

12. The Discharger shall select vegetation grown on final cover areas to minimize irrigation, minimize erosion, minimize moisture infiltration, maximize soil retention and slope stability, and not impair the integrity of containment structures including final covers.

13. The Discharger shall limit the amount water applied over the CKD waste during closure construction to the amount necessary for dust control, construction (soil compaction), and vegetation establishment/irrigation.

14. The Discharger throughout post-closure shall:

    a. Protect and maintain the structural integrity and effectiveness of all containment structures.

    b. Protect and maintain all monitoring systems required by this Order.

    c. Prevent erosion and related damage of the final cover due to drainage, wind, or from other sources.

    d. Protect and maintain surveyed monuments.

D. WATER QUALITY PROTECTION STANDARDS

1. Discharge of waste shall not cause a condition of pollution or contamination to occur through a measurably significant release of pollutants and/or contaminants, or waste constituents, as indicated by the most appropriate statistical or non-statistical data analysis method and retest method listed in MRP Order No. R3-2018-0001.

2. Discharge of waste shall not cause a statistically significant difference in water quality over background concentrations for proposed concentration limits for each constituent of concern or monitoring parameter (per MRP Order No. R3-2018-0001) at the prescribed point of compliance. The Discharger shall maintain concentration limits for as long as the waste poses a threat to water quality. Concentration limits and point of compliance are pursuant to the following:

    a. Pursuant to CCR Title 27 §20400, the Water Board shall specify concentration limits in waste discharge requirements. The Water Board complies with the intent of CCR Title 27 §20400 by requiring the Discharger to establish and review concentration limitations on an annual basis in accordance with MRP Order No. R3-2018-0001.

    b. Pursuant to CCR Title 27 §20405, the point of compliance is a vertical surface located at the hydraulically downgradient limit of a waste management unit that extends through the uppermost aquifer underlying the waste management unit.

3. Discharge of waste shall not cause concentrations of chemicals and radionuclides in groundwater to exceed the State Department of Public Health's latest recommended Drinking Water Action Levels or Maximum Contaminant Levels of CCR Title 22, Division 4, Chapter 15, Article 5.5.

4. Discharge of waste shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Water Board or the State Water Board.

5. Discharge of waste shall neither cause nor contribute to any surface water impacts including, but not limited to:

    a. Floating, suspended, or deposited macroscopic particulate matter or foam.

    b. Increases in bottom deposits or aquatic growth.

    c. An adverse change in temperature, turbidity, or apparent color beyond natural background levels.

    d. The creation or contribution of visible, floating, suspended, or oil, or other products of petroleum origin.

    e. The introduction or increase in concentration of toxic or other pollutants/contaminants resulting in unreasonable impairment of the beneficial uses of State waters.

6. MRP Order No. R3-2018-0001 lists constituents of concern and monitoring parameters for groundwater. Monitoring points and background monitoring points shall, at a minimum, be those specified in MRP Order No. R3-2018-0001.

E. PROVISIONS

1. Waste Discharge Requirements Order No. 99-23 and 94-66, adopted by the Water Board on October 22, 1999 and July 8, 1994, respectively, are hereby rescinded.

2. The Post-Closure Maintenance Period and Compliance Period, pursuant to CCR Title 27 §20380(d)(1), §20410, §20950, and 40 CFR 258.61(a) is a minimum of 30 years and until waste discharged at the Landfills no longer poses a threat to water quality. The Post-Closure Maintenance Period start date shall correspond with the later of:

   a. The final closure construction completion date; or,

   b. The date the Executive Officer approves all documents, pursuant to CCR Title 27 [i.e., §21769© - Final Closure/Post-Closure Maintenance Plan, §20324(a) – Construction Quality Assurance Performance Standards, §20324(d)(1)(C) – Final Documentation Report, §21090(e)(1) – Final Cover Survey, and §21760(a)(1) – As Built Plans].

3. The Discharger is responsible for waste containment, monitoring, and correcting any problems resulting from the discharge of waste for as long as the waste poses a threat to water quality.

4. The Discharger shall comply with MRP Order No. R3-2018-0001, as specified by the Executive Officer.

5. By **October 1st of each year**, the Discharger shall complete all necessary runoff drainage, diversion, and erosion prevention measures. The Discharger shall construct, maintain, or repair precipitation and drainage control facilities to prevent erosion or landfill flooding and to prevent surface drainage from contacting or percolating through waste. The Discharger shall repair covers to maintain integrity and protective components (i.e., grading, intermediate cover, vegetative cover erosion, and rodent holes). During the wet weather season (October 1 through April 15 of each year), the Discharger shall promptly (depending on weather forecasts, access, and safety) repair drainage control facilities or cover damage that threatens waste containment, cover integrity, or percolation of water into waste.

6. By **October 1st of each year**, the Discharger shall seed all vegetative final cover slopes as needed to maintain vegetation and prevent erosion. The Discharger shall select vegetation that requires minimum irrigation and maintenance and a rooting depth of less than the vegetative layer thickness. After receiving approval from the Executive Officer, the Discharger may utilize non-hazardous sludge as a soil amendment to promote vegetation. Soil amendments and fertilizers (including wastewater sludge) used to establish vegetation shall not exceed the vegetation's agronomic rates (i.e., annual nutrient needs).

7. By **October 1, 2020**, the Discharger shall complete all final closure construction activities for the North CKD Area and associated drainages; or no later than **October 1, 2022**, if the Discharger requests an extension and receives Executive Officer approval.

8. The Discharger shall conduct a Final Cover Survey pursuant to CCR Title 27 §21090(e)(1), upon completion of all closure activities (e.g., construction of the final cover), including an aerial photographic survey or Executive Officer approved alternative pursuant to CCR Title 27 §21090(e)(3). The Discharger shall use the data obtained from the survey to produce a topographic map of the site, overlaid on the aerial photograph, at a scale and contour interval sufficient to depict the as-closed topography, and to allow for the early identification of any differential settlement pursuant to §21090(e)(2). The topographic map produced pursuant to this provision, shall act as a base line against which to measure the total settlement through time, of all portions of the final cover since the date the Discharger closed the landfill. The Discharger is not required to develop iso-settlement maps every five years as CKD is not expected to undergo significant differential settlement but iso-settlement maps may be required if differential settlement is observed. Upon completion of the Final Cover Survey topographic map, the Discharger shall submit a copy to the Water Board and all other applicable agencies. The Discharger shall also include the Final Cover Survey within the Final Closure Construction Report as required by **Provision E.28**.

9. Should additional data become available through monitoring or investigation that indicates compliance with this Order is not adequately protective of water quality, the Water Board will review and revise this Order as appropriate.

10. If the Discharger or the Water Board determines, pursuant to CCR Title 27 §20420, that there is evidence of a release from any portion of the Landfills, the Discharger shall immediately implement the procedures outlined in CCR Title 27 §20380, §20385, §20430, and MRP Order No. R3-2018-0001.

11. The Water Board shall be allowed, at any time and without prior notification:

    a. Entry upon the Facility as required to inspect the landfill areas or where the Discharger keeps records under the conditions of this Order and MRP Order No. R3-2018-0001.

    b. Access to a copy of any records that the Discharger keeps under the conditions of this Order and MRP Order No. R3-2018-0001.

    c. To inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order and MRP Order No. R3-2018-0001.

    d. To photograph, sample, and monitor for the purpose of showing compliance with this Order.

12. After notice and opportunity for a hearing, the Water Board may terminate or modify this Order for cause, including, but not limited to:

    a. Violation of any term or condition contained in this Order.

b. Obtaining this Order by misrepresentation, or by failure to disclose fully all relevant facts.

c. A change in any condition or endangerment to human health or environment caused by the discharged waste.

d. A material change in character, location, or volume of the discharged waste.

13. Prior to the Discharger's construction of the final cover or repair of the low permeability component of the final cover, the Discharger shall prepare a Construction Quality Assurance (CQA) Plan pursuant to CCR Title 27 §20323. The Executive Officer shall approve the CQA Plan prior to the start of construction activities. A third party (i.e., unrelated to the Discharger, project designer, contractor) shall implement the CQA Plan and provide regular construction progress reports to the Executive Officer.

14. If the low permeability layer is exposed during the repair of cover soils, the Discharger shall utilize a spotter dedicated to preventing and documenting any damage to the low permeability layer.

15. The Discharger shall obtain and maintain Financial Assurance Instruments (Instruments), which comply with CCR Title 27 (§22205 [Closure Fund], §22212 [Post Closure Fund], and §22220 et seq. [Corrective Action Fund]). Pursuant to CCR Title 27 §20380(b), the Discharger shall obtain and maintain assurances of financial responsibility, naming the Water Board as beneficiary, for initiating and completing corrective action for all known or reasonably foreseeable releases. As landfill conditions change, and upon the Executive Officer's request, the Discharger shall submit a report proposing the amount of financial assurance necessary for corrective action for the Executive Officer's review and approval. The Discharger shall demonstrate compliance with all financial instruments to the Water Board at a minimum of every five years.

16. The Discharger shall take all reasonable steps to minimize or correct adverse impacts on the environment resulting from non-compliance with this Order.

Reporting

17. The Discharger shall sign all reports as follows:

a. Either a principal executive officer or ranking elected official.

b. Their "duly authorized representative."

c. A California Registered Civil Engineer or Certified Engineering Geologist for all engineering reports and geologic reports, respectively.

18. Any person signing a report makes the following certification, whether its expressed or implied:

"I certify under penalty of perjury I have personally examined and am familiar with the information submitted in this document and all attachments and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of a fine and imprisonment."

19. Except for data deemed confidential under CWC §13267(b)(2), all reports prepared in accordance with this Order shall be available for public inspection at the Water Board office.

20. The Discharger shall submit reports in advance of any planned changes to the closed Landfills, including but not limited to, land use or activities, which could potentially or actually result in non-compliance. Advance submittal should reflect the relative need for Water Board staff review and concurrence

21. By **April 1, 2018**, the Discharger shall submit a Final Closure and Post- Closure Maintenance Plan (Final Closure Plan) for the North CKD Area pursuant to CCR Title 27 §21769 and consistent with the Executive Officer's Conceptual Closure Plan Conditional Approval Letter, dated August 24, 2017, including, but not limited to, the following site specific required plans for final closure:

    a. Corrective Action Plan for the remediation of the Retention and Detention Ponds (**Provision E.22** below)

    b. Multi-Season Construction Wet Weather Preparedness Plan

    c. Closure Construction Dust Mitigation Plan

22. By **April 1, 2018,** the Discharger shall submit a Corrective Action Plan for the remediation of the Retention and Detention Ponds pursuant to CCR Title 27 §20430 and consistent with the Executive Officer's Conceptual Closure Plan Conditional Approval Letter, dated August 24, 2017. The Corrective Action Plan shall include the following:

    a. A work plan for draining the ponds, determining the depth of impacted sediments, and excavation, drying, characterization, and disposal of impacted sediments from the Retention and Detention Ponds.

    b. A schedule for implementation of the work plan relative to the final closure construction schedule that prevents new impacts to the ponds after they have been remediated.

    c. A proposal for an additional shallow groundwater monitoring well downgradient of PZ-15 to investigate potential downgradient groundwater impacts and monitor the effectiveness of the Corrective Action Plan.

23. By **May 1, 2018**, the Discharger shall submit a North CKD Area Groundwater Monitoring Well Proposal Report that proposes additional monitoring wells to adequately monitor shallow groundwater downgradient of the North CKD Area and upgradient of the Retention Pond.

24. By **May 1, 2018**, the Discharger shall submit a Monitoring and Final Cover/Drainage Evaluation Report for the Lonestar Closed CKD Landfill to evaluate the performance of the final cover and drainage facilities. The Monitoring and Final Cover/Drainage Evaluation Report shall include the following:

    a. A hydrogeologic site conceptual model for the Lonestar Closed CKD Landfill.

b. A groundwater and monitoring evaluation.

c. A proposal for monitoring improvements.

d. An evaluation of the final cover and drainage facilities.

e. An evaluation of potential corrective actions or required maintenance.

f. A work plan and schedule for monitoring and/or final cover/drainage improvements.

25. By **June 1, 2018**, the Discharger shall submit a Financial Assurance Corrective Action Cost Estimate for Reasonably Foreseeable Release as required by **Provision E15**.

26. By **September 1, 2018,** and every five years thereafter, the Discharger shall submit a Financial Assurance Report with documentation of approved Financial Assurance Mechanisms for Closure, Post-Closure, and Reasonably Foreseeable Release Corrective Actions as required by **Provision E.15**.

27. By **October 1st** of each year, the Discharger shall submit a Wet Weather Preparedness Report (WWPR). The WWPR shall describe compliance with **Provisions E.5** and **E.6** above, and include the most recent Final Cover Survey Map as required by **Provision E.8**. The report shall also detail preparedness actions taken to ensure discharges to surface water or groundwater do not occur during the impending rainy season, and ensure compliance with all other relevant CCR Title 27 and 40 CFR Part 257 standards.

28. Within **90-days** upon completion of North CKD Area closure construction, the Discharger shall submit a Final Construction Closure Report detailing all relevant information pertaining to the North CKD Area closure including but not limited to construction quality assurance, final as-built drawings, construction modifications, final cover survey baseline map, and surface water runoff drainage controls.

29. The Discharger shall notify the Water Board with a written request of any proposed change in ownership or responsibility for construction or operation of the Landfills in accordance with CCR Title 27 §21710(c)(1). The written request shall be given at least **90-days** prior to the effective date of change in ownership or responsibility and shall:

    a. Be accompanied by an amended Joint Technical Document (JTD) and any technical documents that are needed to demonstrate continued compliance with these Waste Discharge Requirements.

    b. Contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for coordinating with the Water Board.

    c. Contain a statement indicating that the new Owner or Operator assumes full responsibility for compliance with this Order.

30. The Executive Officer, in writing, may approve or disapprove the Discharger's request for a change in responsibility for the Landfills and compliance with these WDRs due to a change in ownership. In the event of any change in ownership, the Discharger shall

notify the succeeding Owner or Operator, in writing, of the existence of this Order. The Discharger shall send a copy of that notification to the Executive Officer within **14-days** of the Discharger sending the notice to the new Owner or Operator.

31. The Discharger shall furnish, within a reasonable time, any information the Executive Officer may request to determine compliance with this Order or to determine whether cause exists for modifying or terminating this Order.

32. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources, Santa Cruz County, and other applicable permitting agencies with concurrence of the Executive Officer regarding the permitting, construction, alteration, inactivation, destruction, or abandonment of all monitoring wells used for compliance with this Order or with MRP Order No. R3-2018-0001, as required by CWC §13750.5 through §13755 and §13267.

33. Should the Discharger discover that it failed to submit any relevant facts or that it submitted incorrect information, it shall promptly submit the missing or corrected information.

34. The Discharger shall notify the Executive Officer, within **24 hours** by telephone, or email, and within **14 days** in writing, of:

    a. Any non-compliance that potentially or actually endangers health or the environment.

    b. Any flooding, equipment failure, slope failure, or other change in conditions which could impair the integrity of waste containment facilities or of precipitation and drainage control structures.

    c. Leachate seep(s) occurring on or in proximity to the Landfills.

    d. Violation of a discharge prohibition.

35. The Discharger shall submit reports of compliance or non-compliance with, or any progress reports on, final requirements contained in any compliance schedule within **14 days** following each scheduled date. If reporting non-compliance, the report shall include a description of:

    a. The reason for non-compliance.

    b. A description of the non-compliance.

    c. Schedule of tasks necessary to achieve compliance.

    d. An estimated date for achieving full compliance.

36. The Discharger shall promptly correct any non-compliance issue that threatens the containment integrity of the Landfills. Correction schedules are subject to the approval of the Executive Officer, except when delays will threaten the environment and/or the integrity of the Landfills (i.e., emergency corrective measures). For emergency corrective measures, the Discharger shall report details of the corrections in writing within **seven days** of initiating correction.

37. By **January 31st of every year**, the Discharger shall submit an Annual Summary Report to the Executive Officer addressing compliance with all terms of this Order. The report can be included in the Semiannual Monitoring Report.

38. Within **180 days** of completing closure construction, the Discharger shall record a notation on the deed to the Landfill property, or some other instrument that a potential purchaser normally examines during title search. The deed notation shall include a detailed description of the closed landfill, including a map. The description shall include at a minimum:

    a. The date landfill closure was completed;

    b. The landfill boundaries including height and depths of the filled area;

    c. The boundaries of each waste management unit; and,

    d. The location for obtaining the closure and post-closure plans.

    The Discharger shall include a copy of the notation in the Landfills record and the Discharger shall submit a copy of the recorded notation to the Water Board Executive Officer within **14 days** following the recording. The notation shall in perpetuity notify any potential purchaser of the property that:

    a. The land was used as a landfill.

    b. The land use is restricted by the approved post-closure maintenance plan, pursuant to CCR Title 27 §21170 (the deed notation shall include all information required by §21170).

    c. Pursuant to CCR Title 27 §21090, should the Discharger default in post-closure care, liability shifts to the new Owner/Operator.

39. By **August 1, 2022**, the Discharger shall submit an updated Report of Waste Discharge or JTD pursuant to CCR Title 27 §21710. The Discharger may submit an addendum to the JTD, in accordance with CCR Title 27 §21585 et al., and meet the following criteria:

    a. Updated information on waste characteristics, geologic, and climatologic characteristics of the Landfills and the surrounding region, installed features, precipitation and drainage controls, and closure and post closure maintenance plans, in accordance with CCR Title 27 §21740, §21750, §21760, and §21769.

    b. Include a completed State Water Board JTD Index, in accordance with CCR Title 27 §21585(b).

    c. Discuss whether, in the Discharger's opinion, there is any portion of this Order that is incorrect, obsolete, or otherwise in need of revision.

    d. Include any other technical documents needed to demonstrate continued compliance with this Order and all pertinent State and Federal requirements.

e. Include detailed updated information regarding regulatory considerations, operating provisions, environmental monitoring and control features, and post-closure status.

40. The Discharger shall file with the Water Board a JTD pursuant to **Provision E.39** of this Order, or secure a waiver from the Executive Officer at least **120 days** before making any material change to the Landfills.

Enforcement

41. The Discharger shall comply with all conditions of this Order. Non-compliance violates State law and is grounds for enforcement action or modification of the Order.

42. Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of CWC §13267, or falsifying any information provided therein, is guilty of a misdemeanor.

43. The Discharger and any person who violates Waste Discharge Requirements and/or who intentionally or negligently discharges waste or causes or permits waste discharges into surface waters or groundwater of the State may be liable for civil and/or criminal remedies, as appropriate, pursuant to CWC §13350, §13385, and §13387.

44. Provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order will not be affected.

45. This Order does not authorize commission of any act causing injury to the property of another, does not convey any property rights of any sort, does not remove liability under Federal, State, or Local laws, and does not guarantee a capacity right.

46. The Water Board requires all technical and monitoring reports pursuant to this Order in accordance with CWC §13267. Failure to submit reports in accordance with schedules established by this Order, attachments to this Order, or failure to submit a report of sufficient technical quality acceptable to the Executive Officer, may subject the Discharger to enforcement action pursuant to CWC §13268.

47. The Discharger shall comply with all conditions of these Waste Discharge Requirements. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Water Board. (CWC §13261, §13267, §13263, §13265, §13268, §13300, §13301, §13304, §13340, and §13350).

48. No provision or requirement of Order No. R3-2018-0001 or MRP Order No. R3-2018-0001 is a limit on the Discharger's responsibility to comply with other Federal, State and local laws, regulations, or ordinances.

49. The Discharger shall comply with the following compliance schedule for all tasks and/or reports required by this Order.

COMPLIANCE SCHEDULE SUMMARY

TASK	IMPLEMENTATION DATE
Provision E.5: Runoff, drainage, diversion, and erosion prevention	October 1, of each year
Provision E.6: Seed and maintain vegetation	October 1, of each year
Provision E.7: Complete North CKD Area closure construction	October 1, 2020
Provision E.8: Final Cover Survey	With completion of landfill closure construction.
Provision E.38: Record notation to North CKD Area property deed	Within 180 days after completion of closure construction.
NOTIFICATIONS/REPORTS	**DUE DATE**
Provision E.21: Final Closure Plan	April 1, 2018
Provision E.22: Corrective Action Plan for the Retention and Detention Ponds	April 1, 2018
Provision E.23 North CKD Area Groundwater Monitoring Well Proposal Report	May 1, 2018
Provision E.24 Monitoring and Final Cover/Drainage Evaluation Report	May 1, 2018
Provision E.25: Corrective Action Cost Estimate for Reasonably Foreseeable Release	June 1, 2018
Provision E.26: Financial Assurance Report	September 1, 2018
Provision E.27: Wet Weather Preparedness Report	October 1, of each year
Provision E.28: Final Construction Closure Report	Within 90-days after completion of closure construction
Provision E.29: Notice of change in ownership or responsibility	At least 90-days prior to the effective date of change
Provision E.30: Notice of ownership transfer	Within 14-days of notice to new Owner or Operator
Provision E.34: Notice of non-compliance	Within 24-hours verbally and within 14-days in writing
Provision E.35: Compliance and/or non-compliance	Within 14 days following each scheduled date
Provision E.36: Emergency corrective measures	Within 7-days of initiating corrections
Provision E.37: Annual Summary Report	January 31, of each year
Provision E.38: Record and submit a copy of recorded notation to deed	Within 180 days after completion of closure construction and 14-days after recording the notation
Provision E.39: JTD	August 1, 2022
Provision E.40: JTD or request for waiver	At least 120-days prior to implementing changes
MRP R3-2018-0001: Monitoring Reports	As specified in the MRP

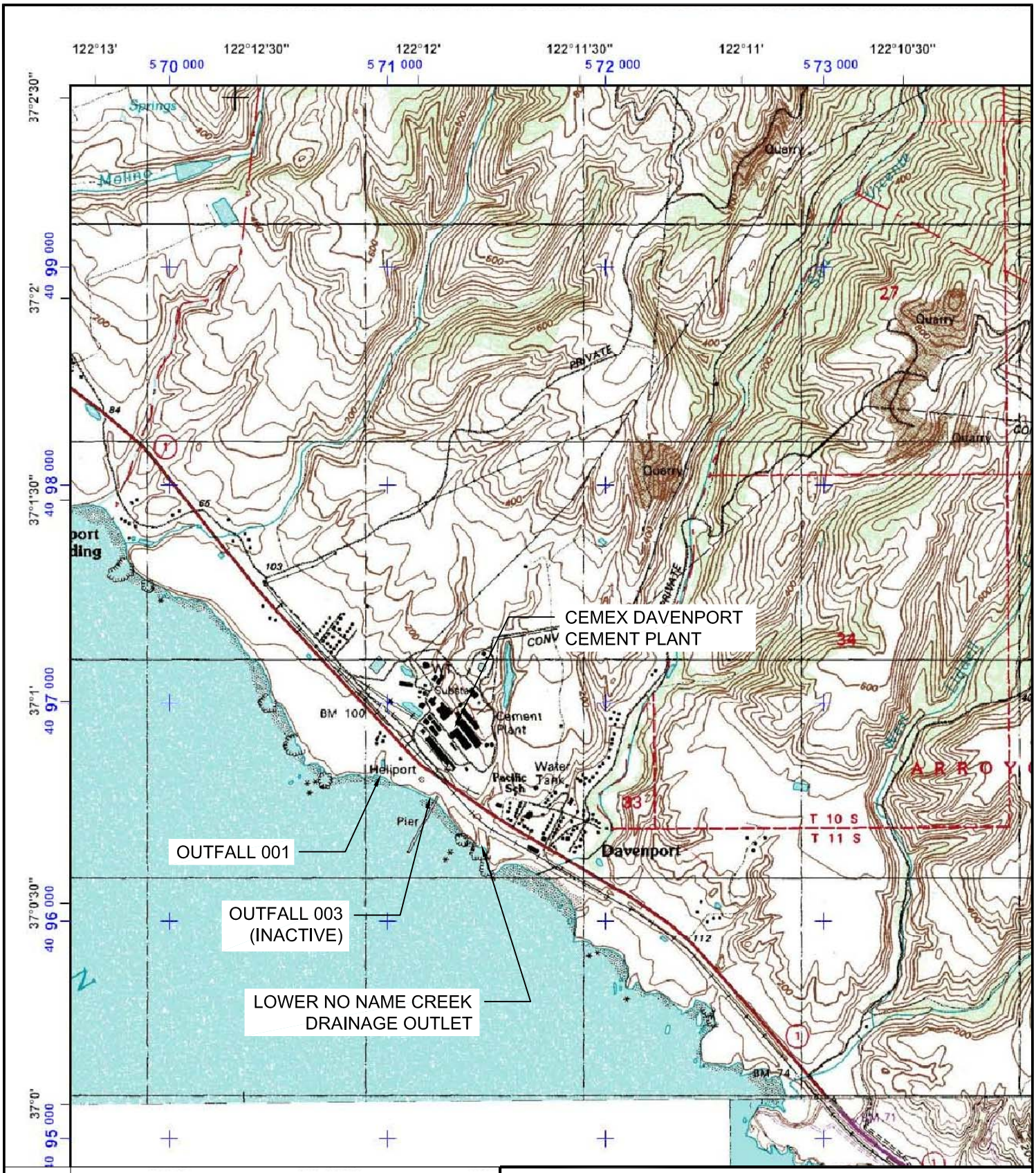
I, John M. Robertson, Executive Officer of the California Regional Water Quality Control Board, Central Coast Region, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Coast Region, on February 8-9, 2017.

_____
John M. Robertson
Executive Officer

Figures:
- WDR Figure 1 – Location Map
- WDR Figure 2 – Facility Map
- WDR Figure 3 – Groundwater Contour Map

Attachment 1 – Monitoring and Reporting Program Order No. R3-2018-0001

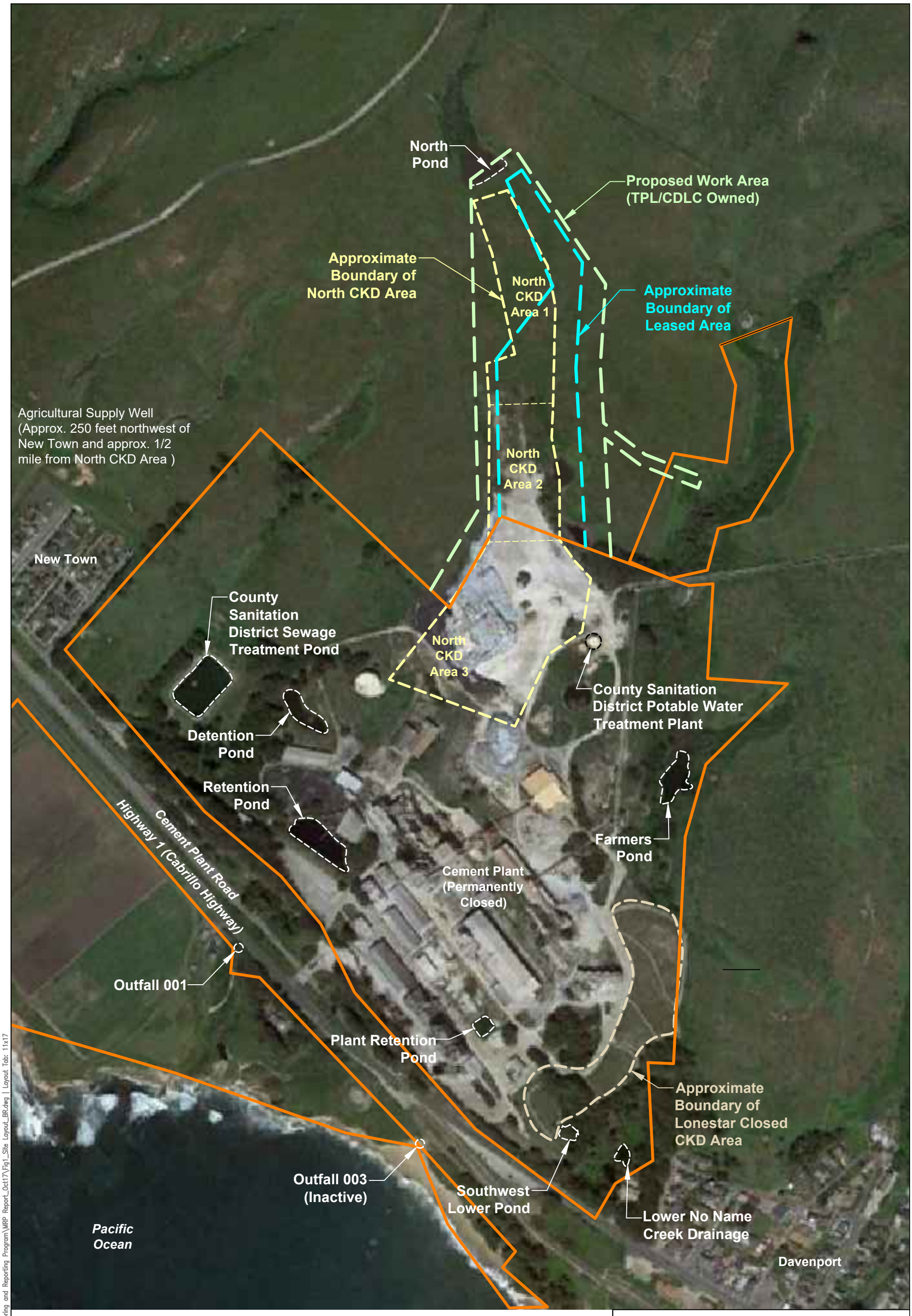
R:\RB3\Shared\LDU\Facilities\PERMITTED\Cemex Davenport Cement Plant\R3-2018-0001\Board Meeting\WDR Order No R3-2018-0001, Jan 2018_AVS_mf.docx



LOCATION MAP

CEMEX Davenport Cement Plant
CKD Landfills
WDR Order No. R3-2018-0001

TRC	DATE:	PROJECT:	CAD ID:	REV. No.:
	7/31/2012	187080		0


North Pond
Proposed Work Area (TPL/CDLC Owned)
Approximate Boundary of North CKD Area
North CKD Area 1
Approximate Boundary of Leased Area
Agricultural Supply Well (Approx. 250 feet northwest of New Town and approx. 1/2 mile from North CKD Area)
North CKD Area 2
New Town
County Sanitation District Sewage Treatment Pond
North CKD Area 3
County Sanitation District Potable Water Treatment Plant
Detention Pond
Retention Pond
Farmers Pond
Cement Plant Road
Highway 1 (Cabrillo Highway)
Cement Plant (Permanently Closed)
Outfall 001
Plant Retention Pond
Approximate Boundary of Lonestar Closed CKD Area
Outfall 003 (Inactive)
Southwest Lower Pond
Lower No Name Creek Drainage
Pacific Ocean
Davenport
LEGEND
Approximate parcel boundary
N
APPROXIMATE SCALE (FEET)
0
400
800
SOURCE AERIAL PHOTO: Google Earth, April 2016.
FACILITY MAP
CEMEX Davenport Cement Plant
CKD Landfills
WDR No. R3-2018-0001
TRC
270895
WDR Figure 2
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LEGEND

- Monitoring well
- 277.34 — Groundwater elevation (ft-msl), May 2016
- 250 — Groundwater elevation contour line (ft-msl)
- General direction of groundwater gradient
- Approximate boundary of North CKD Area
- Approximate boundary of Lonestar Closed CKD Area

PZ-5 277.34
PZ-4 268.14
PZ-2 253.47
PZ-3 260.48
PZ-1 249.68
PZ-8 DRY
PZ-6 233.41
PZ-12 168.38
PZ-10 192.95
PZ-9 235.11
PZ-13 119.24
PZ-11 120.82
PZ-15/MW1 97.59
PZ-14 75.24
MW-5 177.37
MW-4 127.40
MW-3 88.68
MW-1 89.85
MW-2 66.20

APPROXIMATE NORTH CKD AREA
LONE STAR CLOSED CKD AREA

275 250 225 200 175 150 125 100 75

N

SCALE (FEET)
0 400 800

SOURCE: Topographic Map of Davenport Cemex Plant by Towill Surveying, Mapping and GIS Services, October 2007.

GROUNDWATER ELEVATION CONTOUR MAP

CEMEX Davenport Cement Plant
CKD Landfills
WDR No. R3-2018-0001

TRC | 254127 | Item No. 1, Attachment 1 | February 8-9, 2018

WDR Figure 3

Proposed Waste Discharge Requirements Order No. R3-2018-0001

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